NUMS PAST PAPERS

2012 TO 2017

NATIONAL UNIVERSITY OF MEDICAL SCIENCES,

RAWALPINDI

ENTRANCE TEST - 2016 **Time Allowed: 3 hours** **Total MCQs: 180**

Instructions:

i. Read All the instructions given on the MCQ response form carefully

ii. Choose the single best answer for each question i.e. A, B, C, D and E.

iii. Candidates are strictly prohibited to give any identification marks except Roll No. and signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE **C) PINK**

B) BLUE **D) GREEN**

Ans: Color of your question Paper is white. Fill the Circle corresponding to letter A' Against 'ID' in your MCQ response form.

PHYSICS

1. All statements are correct about third law of motion except:

(A) Forces have equal magnitude.

(B) Both of them have opposite direction.

(C) Both are applied on different bodies.

(D) Both are applied on same body maintaining equilibrium.

2. A mass has constant acceleration, what is true about force applied on it?

(A) Constantly increasing

(B) Constant but not zero

(C) Is directly proportional to square of displacement

(D) Is directly proportional to velocity

3. If temperature is increased from 200K to 800K, then what would be the change in pressure at constant volume?

(A) Increases by factor 4 (B) Decreases by factor 4

(C) Increases by factor 2 (D) Decreases by factor 2

4. If each particle of fluid is passing through same point, what would be the flow?

(A) Linear (B) Streamline

(C) Tubular (D) Both A and B

5. **Density of blood is:**

(A) More than water (B) less than that of water

(C) Nearly equal to water (D) 3 times greater than water

6. **A body moving on a fluid will experience:**

(A) Drag force (B) Centripetal force

(C) Centrifugal force (D) Tabular fore

7. **If a substance can undergo plastic deformation, until it breaks, it is:**

(A) Ductile substance (B) Brittle substance

(C) Crystalline substance (D) Polymeric substance

8. **If stress is applied on a body then ratio of change in volume to original volume will be:**

(A) Polymeric strain (B) Volumetric strain

(C) Parallel strain (D) Tensile strain

9. **If a wave can be polarized, it means, it is:**

(A) Longitudinal wave (B) Stationary wave

(C) Superimposed wave (D) Transverse wave

10. **The electron current is chiefly due to:**

(A) Cathode (B) Grid

(C) Anode getter (D) Screen

11. **If wire having current 10A has 3t magnetic field, what will be the magnetic field at double of the distance?**

(A) Reduces by factor 2 (B) Reduces by factor 4

(C) Becomes double (D) Becomes tripple

12. **What is true regarding magnetic force and magnetic intensity?**

(A) If electron's movement is parallel to magnetic field, it will rotate clockwise.

(B) If electron's movement is parallel to magnetic field, it will rotate anticlock wise.

(C) If electron enters perpendicular to field force would be parallel to plane.

(D) If electron enters perpendicular to field force will be maximum.

13. **A real image formed by convex lense is always.**

(A) Erect (B) Inverted

(C) Magnified (D) Diminished

14. **What is true about electric field and electric force?**

(A) Electric field lines are towards negative and electron flow in same direction.

(B) Electric field lines are towards positive and electron flow in opposite direction.

(C) Electric field lines are towards negative and electrons flow in opposite direction.

(D) Electric field lines are towards positive and electrons flow in same direction.

15. If electron passes through axis of solenoid the movement will be:

(A) Towards the outward (B) Towards the inward

(C) Parallel to its motion (D) No force acts on it

16. Ejection of electrons from metal surface due to heating effect is:

(A) Thermonic emission (B) Photoelectric effect

(C) Population inversion (D) Cathode expulsions

17. Newton's rings are result of:

(A) Polarization (B) Diffraction

(C) Reflection (D) Refraction

18. If amplitude is 200, intensity is 300. When amplitude is increased to 800 then what will be intensity?

(A)1200 (B)1400

(C)1600 (D)1800

19. Electric conduction is high in:

(A) Solid nuclei (B) Sugar solution

(C) Solid graphite (D) None

20. If speed of waves is 10m/sec and its frequency is 5Hz. Find its wavelength.

(A) 1 (B) 2

(C) 4 (D) 6

21. Units of gravitational constant G are:

(A) $m\ sec^{-1}$ (B) $m\ sec^{1}$

(C) $m\ sec^{-2}$ (D) $m\ sec^{-2}$

22. If power is 100 watt and voltage is 220. Find its resistance.

(A) 2.5 (B) 3.5

(C) 4.5 (D) 5.5

23. Third law of Newton is also called:

(A) Law of inertia (B) Equilibrium

(C) Both a and b (D) None

24. The fractional change in resistance per kelvin is known as:

(A) Temperature coefficient of resistance

(B) Thermal coefficient

Linear coefficient of expansion

Volumetric coefficient of expansion

25. **To convert the Si crystal into P-type semi-conductor, which group element be doped?**

(A) Trivalent element (B) Second group element

(c) Four group element (D) Pentovalent element

26. **The current measuring part of the Avometer consists of number of low resistances connected.**

(A) At an angle of 180° with the galvanometer

(B) P-v-llel with galvanometer

(C) At an angle of 45° with the galvanometer

(D) Perpendicular with the galvanometer

27. **The energy supplied by the cell to the charge carriers is derived from the conversion of:**

(A) Heat energy into chemical energy

(B) Chemical energy into electrical energy

(C) Solar energy into electrical energy

(D) Mechanical energy into electrical energy

28. **The deviation of I-V graph from straight line is due to:**

(A) Decrease in temperature and decrease in resistance

(B) Increase in temperature and increase in resistance

(C) Decrease in temperature and increase in resistance

(D) Increase in temperature and decrease in resistance

29. **The information received at the other end of a fibre can be inaccurate……due to of the light signal.**

(A) Longer wavelengths (B) Frequency

(C) Intensity (D) Dispersionor spreading

30. **The pressure on the other sides and energy where inside the vessel will be same according to the:**

(A) Pascal's law (B) Hook's law

(C) Boyle's law (D) Charle's law

31. **The value of universal constant "R" is:**

(A) 8.314 J $mole^{-3}$ K^{-3} (B) 1.38 J $mole^{-1}$ K^{-3}

(C) 1.38J mole^{-1} K^{-1} (D) 8.314 J mole^{-1} K^{-1}

32. For a diabatic process, the first law of thermodynamics is:

(A) w= Δu + Q (B) Q = w

(C) Q = w (D) w = -Δu

33. The entropy of the universe always:

(A) Decreases (B) Increases

(C) Remains the same (D) Both A and B

34. If the body is rotating with uniform angular velocity, then its torque is:

(A) Zero (B) 90° (C) 1 (D) -1

35. The direction of the magnetic lines of force depends upon:

(A) Nature of the material of the conducting wire

(B) Area of the conducting wire

(C) Amount of the current

(D) Direction of the current

36. A uniform magnetic field is represented by a set of lines of force which are.

(A) Parallel (B) Divergent

(C) Convergent (D) None of these

37. Weber ampere per meter is equal to:

(A) Joule (B) Watt

(C) Newton (D) Henry

38. The difference between soft and hard X-rays is of:

(A) Velocity (B) Intensity

(C) Frequency (D) Polarization

39. Which of the following is an instrument for monitoring radiations:

(A) GM tube (B) Geiger counter

(C) Wilson cloud chamber (D) All of the above

40. Which of the following is the pair of isobars?

(A) ${}_{1}^{1}H$ and ${}_{1}^{2}H$ (B) ${}_{6}^{12}C$ and ${}_{6}^{13}H$

(C) ${}_{1}^{2}H$ and ${}_{1}^{3}H$ (D) ${}_{15}^{30}H$ and ${}_{14}^{30}Si$

41. Half life of radioactive element depends upon:

(A) Amount of element present (B) Pressure

(C) Temperature (D) None

42. Which of the following is the percentage of the original quantity of a radioactive material left after five half - lives approximately.

(A) 3% (B) 10%

(C) 10% (D) 20%

43. When nucleus de-exite, it emits.

(A) α -rays (B) $\gamma-rays$

(C) β -rays (D) All of these

44. The direction of the magnetic lines of force depends upon:

(A) Nature of the material of the conducting wire

(B) Area of the conducting wire

(C) Direction of the current

(D) Direction of the current

45. When a charged particle is projected perpandicularly in a magnetic field its trajectory is:

(A) Hyperbola (B) Helix

(C) Parabola (D) Circular

ENGLISH

46. You should stick…….. your promise.

(A) By (B) To

(C) With (D) In

47. The traveler……a long tour to water the camel.

(A) Took (B) Saw

(C) Sought (D) Made

48. Shah Jahan……the great mosque at Delhi.

(A) Founded (B) Raised

(C) Created (D) Established

49. He was……of theft in the court.

(A) Charged (B) Reported

(C) Blammed (D) Acused

50. He……on a very extraordinary ambition.

(A) Arrived (B) Decided

(C) Came (D) Hit

In each of the following questions, four alternative sentences are given. Choose the correct one and fill the circle corresponding to that letter in the MCQ response form.

51 (A) E-mail is a relatively new mean of communication.

(B) E-mail is a relatively new mean to communication.

(B) E-mail is a relatively new means of communication.

(D) E-mail-is relatively new means to communication.

52. (A) As she said, the computer was programmed by Mona.

(B) Just like she said the computer was programmed by Mona.

(C) As like she said the computer was programmed by Mona.

(D) Just like she had said the computer was programmed by Mona.

53. (A) The remains of the body were thrown into the sea

(B) The remains of the body was thrown into the sea.

(C) The remains of the body were thrown to sea.

(D) The remains of the body was thrown into the sea.

54. (A) They felt bad while leaving their friends.
(B) They felt badly about leaving their friends.
(C) They felt very badly about leaving their friends.
(D) They felt badly while leaving their friends.

55. (A) Masood told me that he would hire more salesmen if he is in my position.
(B) Masood told me that he would hire more salesmen if he had been in my position.
(C) Masood told me that he would hire more salesmen if he has my position.
(D) Masood told me that he would hire more salesmen if he had been in my position.

In each of the following questions, four alternative meanings of a word are given, you have to select the nearest correct meaning of the word and fill the appropriate circle on the MCQ response form.

56. AGHAST:

(A) Critical (B) Reluctant
(C) Happy (D) Horrified

57. INVIDIOUS:

(A) Unbreakable (B) Interesting
(C) Unpleasant (D) Fair

58. IMPROMPTU:

(A) Arriving at the right time (B) Showing signs of being good
(C) Done without preparation (Wretched

59. DISCERNMENI:

(A) A system of controlling a country (B) the ability to show good judgment
(C) The act of encouraging somebody (C) the ability of show no concern

60. NEOLOGISM.

(A) A new word (B) pleasant remarks
(C) Brief summary (D) archaic expression

61. FURTIVE:

(A) Furious (B) Familiar
(C) Secretive (D) Easy

62. BOURGEOIS:

(A) Belonging to the bureaucratic class
(B) Belonging to the middle class

(C) Belonging to the upper class

(D) Belonging to the lower Class

63. RUMINATE:

(A) Eat greedly (B) Think deeply

(C) Work lasily (D) Run Fast

64. EMBELLISH:

(A) Beauty (B) Nominate

(C) Finish (D) Weaken

65. PARABLE:

(A) Impossible (B) Sociable

(C) Allegory (D) Suitable

BIOLOGY

66. **Number of bones in skull:**

(A) 22 (B) 26

(C) 24 (D) 28

67. **NADH produces how many ATP?**

(A) 2 ATP (B) 3 ATP

(C) 4 ATP (D) 6 ATP

68. **How much Ml blood is pumped by each contraction?**

(A) 4500 ML (B) 4000 ML

(C) 3500 ML (D) 3000 ML

69. **Fundography is relevant to:**

(A) Heart (B) Liver

(C) Stomach (D) Eyes

70. **Shape of tobacco mosaic virus is:**

(A) Spring shape (B) Rod shape

(C) Comma shape (D) Spherical shape

71. **Bil is used in:**

(A) Protein digestion (B) Starch digestion

(C) Fat emulsification (D) Both A and B

72. **Amphibian heart has..... chambers:**

(A) Two (B) Three

(C) Four (D) Five

73. Plasma membrane is named so because it surrounds:

(A) Semifluid cell contents (B) Protoplasm

(C) Cell wall (D) None

74. Which of the following is not a basic unit of cell?

(A) Cell wall (B) Cell membrane

(C) Nucleus (D) Ribosome

75. Group of cells performing same function:

(A) Organelles (B) Tissue

(C) System (D) Both A and B

76. Amphibians live on:

(A) Water (B) Water and land

(C) Land (D) Air

77. Mutations occur in:

(A) DNA (B) Protein

(C) RNA (D) All of these

78. DNA is found in which of the following?

(A) Golgi complex (B) Lysosomes

(C) Mitochondria (D) Ribosomes

79. Which enzyme present in stomach curdles the milk?

(A) Rennin (B) Trypsin

(C) Pepsin (D) Lipase

80. Germ theory was given by:

(A) Robert koch (B) Antonie van Leeuwenhoek

(C) Robert Hooke (D) Robert Brown

81. Hybrid black Guinea pigs are crossed with each other. The resulting offsprings will be:

(A) All black (B) All white

(C) 3 black, 1 white (D) 3 white, 1 black

82. The enzyme in breast milk that causes the coagulation of milk or forms precipitates of milk as:

(A) Renin (B) Trypsin

(C) Amylase (D) Lipase

83. The egg laying birds are called:

(A) Oviparous (B) Viviparous

(C) Monotremes (D) All of these

84. Which of the following have both external and internal digestion?

(A) Hydra (B) Planaria

(C) Cockroach (D) All of these

85. Milk drinking babies have an additional enzyme called:

(A) Renin (B) Amylase

(C) Lipase (D) None

86. Egg laying mammals are called:

(A) Prototheria (B) Protozoa

(C) Chordata (D) Monotremes

87. Aerobic respiration results in how many ATP?

(A) 2 (B) 36

(C) 18 (D) 32

88. Which process takes place during the movement of glucose from body fluid to blood?

(A) Endosmosis (B) Osmosis

(C) Active transport (D) Facilitated diffusion

89. Ecological succession starting from drylands is:

(A) Xerosere (B) Hydrophytes

(C) Hallophytes (D) All

90. Organs of voice in birds:

(A) Larynx (B) Pharynx

(C) Spinx (D) Both A and C

91. Treponemma palladium causes:

(A) Syphilis (B) Gonorrhoea

(C) Aids (D) Hepes

92. Lamark is best known for his theory of:

(A) Inheritance

(B) Dominance

(C) Inheritance of acquired characteristics

(D) All of the above

93. Commercial method of producing million of seedlings in limited time?

(A) Parthenogenesis (B) Parthenocarpy

(C) Cutting (D) Grafting

94. Cell wall is synthesized by:

(A) Cellulose (B) Cell

(C) Ribosomes (D) Penicillin binding protein

95. In tissue culture cells are held together by:

(A) Calluls (B) Adhesives

(C) Both (D) None

96. Thyroid gland requires high amount of:

(A) Phosphate (B) Calcium

(C) Iodine (D) Sodium

97. Which of the following is not the function of cerebrum?

(A) Volunteer digestion (B) Thinking

(C) Intelligence (D) Skeletal muscles

98. Which of the following is the function of adrenalin?

(A) To increase breathing rate

(B) To increase heart rate

(C) To increase calcium level in blood

(D) Both A and B

99. Antibodies are actually:

(A) Globular proteins (B) Glycoproteins

(C) Fibrous proteins (D) Glycolipids

100. Hepatic and Pancreatic secretions are also stimulated by a hormone called:

(A) Gastrin (B) Secretin

(C) Insulin (D) Glucagon

101. The respiratory pigment, which has much higher affinity to combine with oxygen is:

(A) Myoglobin (B) Globin

(C) Haemoglobin (D) Hemocyamn

102. Coelom is a cavity lined by:

(A) Mesoderm (B) Endoderm

(C) Epiderm (D) Ectoderm

103. It is an endoparasite of humans cattle and pig that completes its life cycle in two hosts.

(A) Tape worm (B) Aurelia

(C) Liver fluke (D) Planaria

104. The Gymnosperms are called "Naked seeded" plants because they bear naked:

(A) Antheridia (B) Ovules

(C) Fruits (D) Archegonia

105. Immediate source of energy for cellular respiration is:

(A) Lipids (B) ATP

(C) Proteins (D) Carbohydrates

106. Hemoglobin exhibits:

(A) Secondary structure (B) Primary structure

(C) Quaternary structure (D) Tertiary structure

107. Arteriosclerosis is:

(A) A metabolic disorder (B) A degenerative disorder

(C) An infections disorder (D) A nutritional deficiency disorder

108. When phenotype of a hetrozygote is in between the phenotypes of both the homozygote parents, it is called:

(A) Incomplete dominance (B) Epitasis

(C) Plelotropy (D) Codominance

109. Cloning is a form of:

(A) Parthenogenesis (B) Apomixis

(C) Sexual reproduction (D) Asexual reproduction

110. Evolutionary relationships amongst species are reflected in their:

(A) DNA and proteins (B) RNA and proteins

(C) DNA and gene (D) DNA and RNA

111. The productivity of aquatic ecosystem is determined by:

(A) Water (B) Light and nutrients

(C) Light (D) Nutrients

112. Diseases in living organisms which are caused by parasites are called:

(A) Disinfectations (B) Anticepsis

(C) Infections (D) Infestations

113. Technique used for non-surgical removal of kidney stone is called:

(A) Ultrasound (B) Lithotripsy

(C) Dialysis (D) X-rays

114. Microcephaly, the small sized skull is due to:

(A) Nutritional causes (B) Skeleton causes

(C) Hormonal causes (D) Genetic defects

115. The most abundant organic molecule on the planet earth is:

(A) starch (B) Glycogen

(C) Glucose (D) Cellulose

116. The active site of an enzyme is formed by a few of the enzyme:

(A) R-groups of amino acids (B) NH_2 groups of amino acids

(C) -COOH groups of amino acids (D) Exposed disulphide bonds

117. Detoxification of the drugs is a function ofin a cell.

(A) R.E.R (B)S.E.R

(C) Liver cells (D) Lysosome

118. Which of the following bacteria are without cell wall?

(A) Mycoplasma (B) Gram positive bacteria

(C) Gram negative bacteria (D) Archaeo bacteria

119. Gram negative bacteria are stained pink by the use of:

(A) Crystal violet (B) Gram's iodine

(C) Feulgen stain (D) Safranin

120. Which of the following is a fresh water sponge?

(A) Sycon (B) Leucosolenia

(C) Euplectella (D) Spongilla

121. Pseudocoelom is actually derived from:

(A) Blastocoel (B) Gastrocoel

(C) Neurocoel (D) Haemocoel

122. The molecule used by most of the animals for long-term energy storage is:

(A) Glycogen (B) Starch

(C) Fat (D) Cholestrol

123. The process of swallowing is controlled by:

(A) Hypothalamus (B) Hormones

(C) Medulla oblongata (D) Sympathetic nervous system

124. Humans are:

(A) Ammonotalic (B) Ureotelic

(C) Uricotelic (D) None of these

125. The spinal nerves are functionally:

(A) Sensory nerves (B) Motor nerves

(C) Mixed nerves (D) Unknown

126. The major constituent of contraceptive pills is:

(A) Oestrogen (B) Progesteron

(C) Prolactin (D) Testosterone

127. T-lymphocytes are matured in thymus glands. They are produced in:

(A) Thymus glands (B) Bone marrow

(C) Panereases (D) Heart

128. The chemical nature of antibody is:

(A) Glycoprotein (B) Glycolipids

(C) Lipoproteins (D) Polysaccharides

129. The Ist human hormone produced by recombinant DNA technology was:

(A) Oestrogen (B) Testosterone

(C) Cortisone (D) Insulin

130. The wings of birds and the fore-legs of a horse are.....structures.

(A) Analogous (B) Homologous

(C) Vestigial (D) Evolutionary convergent

131. The first simplest oxygen producing orginsm:

(A) Methanogens (B) Cyanobacteria

(C) Euglena (D) Spirogyra

132. .....are more common in human moles than females.

(A) X-linked dominant traits (B) X-linked recessive traits

(C) Y-linked dominant traits (D) Autosomal linked recessive traits

133. Treatment of heredity disorders by gene manipulations is called:

(A) Biotechnology (B) Genetic engineering

(C) Gene therapy (D) None of these

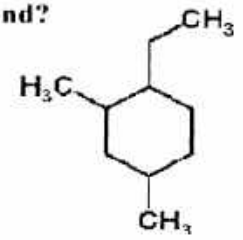
134. A trait whose alleles are present in both male and female but expresses more in one sex than other.

(A) Sex-linked trait (B) Sex limited trait

(C) Sex influenced trait (D) X-linked trait

CHEMISTRY

135. What is the name of the following compound?



(A) 1-Ethyl-3, 4-dimethylcycloheptane

(B) 2-Ethyl-4, 5-dimethylcyclohexane

(C) l-Ethyl-3, 4-dimethylcyclohexane

(D) 4-Ethyl-1, 2-dimethylcyclohexane

136. Which of the following compounds possesses at least one bond?

(A) CH_4 (B) C_2H_2

(C) C_2H_4 (D) All of the above

137. Which of the following carboxylic acids will be the most acidic?

(A) CH_3 $CHClCH_2$ COOH (B) CH_3 CH_2 CCl_2 COOH

(C) CH_3 CH_2 CHClCOOH (D) CH_3 CH_2 CH_2 COOH

138. Which of the following cannot be used to convert butanoic acid to butanoyl chloride?

(A) PCl_3 (B) PCl_5

(C) CCl_4 (D) $SOCl_2$

139. Which of the following reagents will reduce butannic acid to butanol?

(A) $LiAlH_4$ (B) $LiAlH_4$, H_20

(C) $Mg(BH_4)_2$ (D) All of the above

140. The equation shows the reaction between element X and dilute hydrochloric acid. $X(s) + 2HCl(aq) \Rightarrow XCl_2(aq) + H_2(g)$

What types of bonding are present in element X and in compound XCl_2?

	Type of bonding	
	In element X	**In compound XCl_2**
(A)	Covalent	Covalent
(B)	Covalent	Ionic
(C)	Metallic	Covalent
(D)	Metallic	Ionic

141. Which of the following has the highest electrical conductivity?

(A) Aqueous sugar solution (B) Solid graphite

(C) Solid sodium chloride (D) Gaseous carbon dioxide

142. Part of a polymer molecule has the following structure.

$-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2$

(A) C_2H_4 (B) C_2H_6

(C) C_3H_6 (D) C_3H_8

143. The common features, among the species CN, CO and NO are:

(A) Bond order three and Isoelectronic

(B) Bond order three and weak field ligands

(C) Bond order two and " - acceptors

(D) Isoelectronic and weak field ligands

144. Which of the following is the electronic configuration of $_{19}K$?

(A) $1s^2, 2s^2\ 2p^6, 3s^2, 3p^6, 4s^2$ (B) $1s^2, 2s^2\ 2p^6, 3s^2\ 3p^6, 3s^2, 3d^1$

(C) $1s^2, 2s^2, 2p^6, 3s^2\ 3p^6, 4s^2\ 3d^5$ (D) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^1$

(E) $1s^2, 2s^2\ 2p^6, 3s^2\ 3p^6\ 4s^2\ 3d^{10}$

145. At equilibrium, which of the following reactions is not affected by pressure?

(A) $\frac{1}{2}N_2(g)+\frac{1}{2}O_2(g) \rightleftharpoons NO(g)$

(B) $PCl_5(g) \rightleftharpoons PCl_3(g)+Cl_2(g)$

(C) $2NO_2(g) \rightleftharpoons N_2O_4(g)$

(D) $SO_4Cl_2(g) \rightleftharpoons SO_2(g)+Cl_2(g)$

146. The sum of all the exponents to which the molar concentration in terms in the rate equation are raised" defines:

(A) Rate of reaction (B) Order of reaction

(C) Type of reaction (D) Product of reaction

147. H_2 and Cl_2 do not react in the dark, but in the presence of light a vigorous reaction is initiated due to the formation of:

(A) Hydrogen free radical (B) Chlorine free radical

(C) Hydrogen chloride molecule (D) Both hydrogen and chlorine free radicals

148. The rate of a gaseous reaction is given by K [A] [B]. If the volume of the vessel containing these gases is reduced to 1/4th of initial volume, the rate of reaction relative to the original rate would be:

(A) 16/1 (B) 1/16

(C) 4/1 (D) 1/8

(E) 8/1

149. Solid NaCl is a bad conductor of electricity because:

(A) Solid NaCl is covalent

(B) In the solid state, there are no ions

(C) In solid NaCl, there is no migration of ions

(D) In solid NaCl, there are not electron

150. At 25°C, the equivalent conductance at infinite dilution of HCl solution is 425 ohm ^{1} cm ^{2} equiv ^{1} while its specific conductance is 3.825 ohm ^{1} cm ^{1}. If the apparent degree of dissociation is 90%, the normality of the solution is:

(A) 0.9 N (B) 1.0 N

(C) 1.1 N (D) 1.2 N

(E) 3.5 N

151. In an adiabatic process:

(A) Pressure is maintained constant

(B) The gas is isothermally expanded

(C) There is perfect heat insulation

(D) System exchanges heat with the surroundings

152. Enthalpy of a compound is equal to its:

(A) Heat of combustion (B) Heat of formation

(C) Heat of solution (D) Heat of dilution

153. A mixture of ethyl and isopropyl iodides is heated with Na in dry ether. According to Wurtz reaction the product (s) obtained is *I* are:

(A) $CH_3\ CH_2\ CH_2\ CH_3$ B) $(CH)_3\ CHCH_3\ (CH)_2$

(C) $CH_3\ CH_2\ CH(CH_3)_2$ (D) All of the above

154. 3 Moles of ethanol react with 1 mole of PBr_3 to form 3 moles of bromoethane and 1 mole of X. Which of the following is X?

(A) H_3PO_4 (B) H_3PO_2

(C) HPO_3 (D) H_3PO_3

155. The conversion of phenol to benzene in the presence of zinc involves:

(A) Oxidation (B) Reduction

(C) Dehydroxylation (D) Dehydrogenation

156. Phenyl methyl ketone can be converted into ethyl benzene in one step by using:

(A) $LiAlH_4$ (B) Zn(Hg)-HCl

(C) $NaBH_4$ (D) CH_3 MgI

157. Which of the following will not undergo aldol condensation?

(A) Acetaldehyde (B) Propanaldehyde

(C) Benzaldehyde (D) Trideuteroacetaldehyde

158. Treatment of propionaldehyde with Dil. The NaOH solution gives:

(A) $CH_3\ CH_2\ COOH_2\ C_2H_5$

(B) $CH_3\ CH_2\ CHOHCH_2\ CH_2\ CHO$

(C) $CH_3\ CH_2\ CH(OH)\ CH(CH_3)\ CHO$

(D) $CH_3\ CH_2\ COCH_2\ CH_2\ CHO$

159. Which of the following solids is an example of a substance with a macromolecular structure?

(A) Aluminum chloride (B) Ice

(C) Magnesium oxide (D) Silicon (IV) oxide

(E) Sodium chloride

160. Which one of the following statements is true?

(A) All nitrates of Group II metals are decomposed by heat to give the oxide NO_2.

(B) Aqueous sodium nitrate in acidic to litmus.

(C) Aqueous ammonium nitrate is alkaline to litmus.

(D) The alkali metal nitrites are insoluble in water.

(E) Metals dissolve in concentrated nitric acid to give hydrogen.

161. Which property of the Group II elements (magnesium to barium) and their compounds increases with an increasing proton (atomic) number?

(A) The magnitude of the enthalpy change of hydration of the metal ion

(B) The pH of the aqueous chloride

(C) The solubility of the sulphate in water (D) The stability of the carbonate to heat

(D) The tendency to form complex ions

162. The reduction of a nitrite produced as compound of formula C_3 H7 NH_2. Which one of the following compounds would be produced if the same nitrile was hydrolyzed by heating with dilute hydrochloric acid?

(A) CH_3CONH_2 (B)$CH_3CH_2NH_2$

(C) $(CH_3)_2CHC0_2H$ (D) $CH_3CH_2C\Theta_2H$

(E) CH_3CH_2OH

163. Which one of the following pairs of substances react together forming an organic product that gives a neutral solution in water?

(A) $CH_3\ C0_2\ H$ and NaOH (B) $C_6\ H_5$ OH and Na

(C) $C_6\ H_5\ NH_2$ and HCI (D) $CH_3\ C0_2\ H$ and PCl_5

(E) $CH_3\ COCH_3$ and $UAlH_4$

164. **A Solid compound X dissolved readily in water to give a weakly alkaline solution. On evaporation of the water, X was recovered unchanged. Which one of the following could Y ?**

(A) CH_3NH_3Cl (B) $CH_3\ O^-\ Na^+$

(C) $C_6\ H_5\ 0\sim\ Na^+$ (D) $C_6\ H_5\ NH_2$

(E) $H_2\ NCH_2\ CO_2\ H$

165. **An azeotropic mixture of two liquids has a boiling point higher than either of them when it:**

(A) Shows positive deviation from Raoult's law

(B) Shows negative deviation from Raoult's law

(C) Shows ideal behavior

(D) Is saturated

166. **The osmotic pressure of equimolar solutions of $BaCl_2$, NaCl and sucrose will be in the order:**

(A) Sucrose > NaCl > $BaCl_2$ (B) Sucrose > $BaCl_2$ > NaCl

(C) NaCl > $BaCl_2$ > Sucrose (D) $BaCl_2$ > NaCl > Sucrose

167. **Impurities of lead in silver are removed by:**

(A) Parke's process (B) Solvay process

(C) Cyanide process (D) Amalgamation process

168. **Chromium dissolves in dilute H_2SO_4 to form $[Cr(H_2O)6]^2$. The colour of the ion is:**

(A) Blue (B) Yellow

(C) Brown (D) Pink

169. **Which of the following will react with water?**

(A) $CHCl_3$ (B) $Cl_3C.CHO$

(C) CHI_4 (D) $ClCH_2CH_2Cl$

170. **In the reaction of m-chlorotoluene with KNH_2 in liquid NH3, the major product is:**

(A) o-toluidine (B) m-toluidine

(C) p-toluidine (D) p-chloroanz

171. **Ascorbic acid (vitamin C) contains 40.92% carbon, 5.58% hydrogen and 54.5% of oxygen by mass. What is the empire formula of ascorbic acid?**

(A) $C_3H_4O_3$ (B) $C_3H_4O_6$

(C) CH_4O_3 (D) $C_6H_4O_3$

(E) $C_2H_3O_3$

172. The order of reactivates of the following alkyl halides for a S_N^2 reaction is:

(A) RF > RCl > RBr > RI (B) RF > RBr > RCl > RI

(C) RCl > RBr > RF > RI (D) RI > RBr > RCl > RF

173. Natural rain forms.....in the presence of carbon dioxide in the air.

(A) Smog (B) Ozone

(C) Carbonic acid (D) Chlorofluorocarbons

174. The major source of unburnt hydrocarbons in the atmosphere is/are:

(A) Petroleum (B) Natural gas

(C) Automobiles (D) Human beings

175. Among the most abundant biomolecules,.....is the most abundant one on earth.

(A) Proteins (B) Carbohydrates

(C) Lipids (D) Vitamins

176. Genetic mutations occur in:

(A) RNA (B) Protein

(C) DNA (D) All of the above

177. Enzymes that are functioning within the cell are called:

(A) Endoenzymes (B) Exoenzymes

(C) Holoenzymes (D) Both A & C

178. Which of the following fertilizers has maximum percentage of nitrogen in solid state?

(A) Ammonia

(B) Urea

(C)DI ammonium hydrogen phosphate

(D) Ammonium nitrate

179. To avoid the formation of toxic compounds with chlorine, which substance is used for disinfecting water?

(A) $KMnO_4$ (B) Chloramines

(C) O_3 (D) Alums

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1.	D)	2.	(D)	3.	(A)	4.	(B)	5.	(A)	6.	(A)
7.	(D)	8.	(D)	9.	(D)	10.	(A)	11.	(D)	12.	(B)
13.	(C)	14.	(A)	15.	(C)	16.	(B)	17.	(C)	18.	(A)
19.	(C)	20.	(B)	21.	(C)	22.	(A)	23.	(A)	24.	(A)
25.	(A)	26.	(B)	27.	(A)	28.	(D)	29.	(B)	30.	(A)
31.	(D)	32.	(D)	33.	(B)	34.	(A)	35.	(D)	36.	(A)
37.	(C)	38.	(C)	39.	(C)	40.	(D)	41.	(D)	42.	(A)
43.	(B)	44.	(D)	45.	(D)	46.	(B)	47.	(A)	48.	(A)
49.	(D)	50.	(A)	51.	(C)	52.	(C)	53.	(B)	54.	(A)
55.	(B)	56.	(B)	57.	(A)	58.	(C)	59.	(B)	60.	(A)
61.	(D)	62.	(B)	63.	(A)	64.	(A)	65.	(C)	66.	(A)
67.	(A)	68.	(A)	69.	(D)	70.	(B)	71.	(C)	72.	(B)
73.	(A)	74.	(A)	75.	(B)	76.	(B)	77.	(A)	78.	(C)
79.	(A)	80.	(A)	81.	(C)	82.	(A)	83.	(A)	84.	(A)
85.		86.	(D)	87.	(B)	88.	(C)	89.	(A)	90.	(A)
91.	(A)	92.	(C)	93.	(C)	94.	(D)	95.	(A)	96.	(C)
97.	(A)	98.	(D)	99.	(A)	100.	(B)	101.	(C)	102.	(A)
103.	(C)	104.	(D)	105.	(B)	106.	(C)	107.	(B)	108.	(A)
109.	(D)	110.	(C)	111.	(B)	112.	(C)	113.	(B)	114.	(D)
115.	(D)	116.	(A)	117.	(B)	118.	(A)	119.	(D)	120.	(D)
121.	(A)	122.	(C)	123.	(C)	124.	(B)	125.	(C)	126.	(B)
127.		128.	(A)	129.	(D)	130.	(B)	131.	(B)	132.	(B)
133.	(C)	134.	(C)	135.	(D)	136.	(D)	137.	(B)	138.	(C)
139.	(A)	140.	(D)	141.	(B)	142.	(A)	143.	(A)	144.	(D)
145.	(A)	146.	(B)	147.	(B)	148.	(A)	149.	(C)	150.	(A)
151.	(C)	152.	(B)	153.	(D)	154.	(D)	155.	(B)	156.	(B)
157.	(C)	158.	(C)	159.	(D)	160.	(A)	161.	(D)	162.	(D)
163.	(E)	164.	(C)	165.	(B)	166.	(D)	167.	(A)	168.	(A)
169.	(B)	170.	(C)	171.	(A)	172.	(D)	173.	(C)	174.	(A)
175.	(B)	176.	(C)	177.	(A)	178.	(B)	179.	(C)		

NATIONAL UNIVERSITY OF MEDICAL SCIENCES

ENTRANCE TEST - 2014

For F.Sc. and Non-F.Sc. Students Time Allowed: 3 Hours Total MCQs: 200

Instructions:

i. Read the instructions on the MCQ Response Form carefully.

ii. Choose the Single Best Answer for each question.

iii. Candidates are strictly prohibited from giving any identification mark except Roll No. & Signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE B) PINK

C) BLUE D) GREEN

Ans: Color of your question Paper is blue. Fill the Circle corresponding to letter 'B' Against 'ID' in your MCQ response form (Exactly as shown in the diagram).

1. **Which one of the following animals possesses an open circulatory system:**

(A) Amoeba (B) Earth worm

(C) Grass hopper (D) Man

2. **The gametophyte of Ulva is:**

(A) Haploid (B) Diploid

(C) Triploid (D) Polyploidy

3. **Its membranes are the sites where sunlight energy's trapped and where al formed refers to:**

(A) Chloroplast (B) Leucoplast

(C) Chromoplast (D) Cytosol

4. **All of the following are bacterial diseases except:**

(A) Cholera (B) Tuberculosis

(C) Typhoid (D) Poliomyelitis viral

5. **The genetic material of plant viruses mostly is:**

(A) DNA (B) RNA

(C) Both a and b (D) Proteins

6. **The social organization of howling monkeys was studied by:**

(A) Allen (B) Thorpe

(C) Schjeldeup ebbe (D) Carpenter

7. **The flower of family gramineae process contain two scales below ovary Which are called:**

(A) Glumes (B) Lemma and palea

(C) Lodicule (D) Rochella

8. **The total of all the allele in population is called:**

(A) Genetic drift (B) Genotype

(C) Gene pool (D) Gene mutation

9. **The cells that play vital role in the differentiation of various body parts are called:**

(A) Ectodermal cells (B) Mesodermal cells

(C) Endodermal cells (D) All of the above

10. **Fibrinogen is necessary for:**

(A) Metabolism (B) Blood clotting

(C) Reproduction (D) Respiration

11. **It looks like a single flower but it is in fact an Inflorescence called:**

(A) Pencil (B) Typical receme

(C) Compound umbel (D) Capitulum

12. **A cross between F1 hybirds with either of parents is called:**

(A) Back cross (B) Test cross

(C) Reverse cross (D) None of the above

13. **Which one of following is a true fish?**

(A) Cuttle fish (B) Silver fish

(C) Jelly fish (D) Sea fish

14. **Fibrinogen is necessary for:**

(A) Metabolism (B) Blood clotting

(C) Reproduction (D) Respiration

15. **Filter feeders extract food particles from:**

(A) Water (B) Soil

(C) Air (D) Blood

16. **Which one of the following is homoeothermic animal:**

(A) Uromastyx (B) Salamander

(C) Sea horse (D) Kangaroo

17. **The individual with hare lip shows which of the following conditions?**

(A) Hard palate (B) Polydactyl

(C) Cleft Palate (D) Microcephale

18. **Which hormone prepares the body for situations of stress and emergency?**

(A) Adrenaline (B) Non adrenaline

(C) Thyroxin (D) Insulin

19. **Peptide bond is formed between:**

(A) Hydrogen groups of adjacent amino acids

(B) Functional group of the amino acids

(C) Carboxyl group and amino group

(D) Functional group and hydrogen group of adjacent amino acid

20. **The term bivalent mean:**

(A) Two chromatids (B) Two chromosomes

(C) Four chromatids (D) Four chromosomes

21. **All of the following structures are portentous in nature except:**

(A) Hooves (B) Haemoglobin

(C) Enzymes (D) Steroids

22. **Most favorite host cell of HIV-Virus is:**

(A) Lymphocytes (B) RBC

(C)T-cell (D) B-cells

23. **Sunken stomata are found in:**

(A) Mesophytes (B) Xerophytes

(C) Halophytes (D) Hydrophytes

24. **The mammals term connecting link between reptilian and mammals:**

(A) Marsupials (B) Eutherians

(C) Monotremes (D) Metatherians

25. **In which of the following book lungs are found?**

(A) Clam warm (B) Spider

(C) Silver fish (D) Leech

26. **Hydra reproduces asexually by:**

(A) Binary fission (B) Multiple fission

(C) Budding (D) Regeneration

27. **During cellular respiration NADH2 produces:**

(A) 2 ATP (B) 3 ATP

(C) 4 ATP (D) 5 ATP

28. **An individual has an additional sex chromosome which syndrome does it refer to?**

(A) Down's syndrome (B) Turner's syndrome

(C) Jacob's syndrome (D) Kline filter's syndrome

29. **HIV is also known as:**

(A) AIDS (B)HAV

(C) HTLV (D) HBV

30. **Smaller the animals:**

(A) More rate of respiration

(B) Less the rate of respiration

(C) Rate of respiration has nothing to do with the size of animal

(D) None of these

31. **nicotine in tobacco:**

(A) Decreases the heart rate (B) Decreases the blood pressure

(C) Block the transport of oxygen (D) Paralyzes cells

32. **Stream of chloroplast carries the fixation of:**

(A) Nitrogen (B) Oxygen

(C) Carbon monoxide (D) Carbon dioxide

33. **The valve between right atrium and right ventricle is called:**

(A) Bicuspid valve (B) Tricuspid valve

(C) Pulmonary valve (D) Semi lunar valve

34. **Anthocyanin's are various types of colorful pigments present in the:**

(A) Chloroplasts (B) Chromoplasts

(C) Leucoplasts (D) Vacuoles

35. **Anti-bodies are produced by:**

(A) Red blood cells (B) Platelets

(C) B-lymphocytes (D) Hormones

36. **Which of the following scientists contributed a lot to "modern synthetic theory of organic evaluation"?**

(A) Theodosius Dobzhansky 1937 (B) Fischer 1958

(C) Wright 1968 (D) All of above

37. **Flow of energy in an ecosystem is:**

(A) Unidirectional (B) Tridirectional

(C) Multidirectional (D) Bidirectional

38. **When a child with blood group IA,IB is born of a woman with genotype IB,MB, then the father of child could not be a man of the genotype:**

(A) IB/IB (B) I A /IA

(C) I A /IB (D) IA/I

39. **Which of the following amino acids has single codon?**

(A) Isoleucine (B) Tryptophan

(C) Valine (D) Arginine

40. **Poliomyelitis normally affects the:**

(A) Legs (B) Brain

(C) Spinal cord (D) Both B and C

41. **Who experimented with dissected leg of a frog?**

(A) Volta (B) Jenner

(C) Salk (D) Galvanic

42. **Synaptonemal complex helps in:**

(A) Gamete formation

(B) Recombination during cell division

(C) Production of enzymes during cell division

(D) Chromosomal movement towards pole

43. **Amniotic fluid in human embryo protects it from:**

(A) Degeneration (B) Jerks

(C) Encasement (D) None of these

44. **An analysis of chromosomes in a big city revealed the presence of four types of rather rare human being Whose sex chromosome compositions are mentioned in the list-I. They are phenotypically either male M or female F as recorded in list-II, Match list-I chromosome composition with list-II sex and select the correct phenotypic sex using the codes given below the lists.**

List I	List II
Chromosome	Composition
A. XO	Male M
B. XXXV	Female F
C. XYY	
D. XXV	

Codes A, B, C, D.

(A) 1212 (B) 2112

(C) 1121 (D) 1221

45. **Bipinnaria is the larval form of:**

(A) Coelenterate (B) Potychaeta

(C) Echinodermata (D) Cestoda

(E) None of these

46. **Normally body temperature of man is 98.6 degree Fahrenheit but of rabbit is:**

(A) 96°F degree Fahrenheit (B) 98°F degree Fahrenheit

(C) 99°F degree Fahrenheit (D) 100°F degree Fahrenheit

47. **When frog is kept in water for some time it sheds a thin covering of skin which is:**

(A) Cuboidal epithelium (B) Squamous epithelium

(C) Columnar epithelium (D) Ciliated epithelium

48. **Gene mutation takes place in:**

(A) Ribosome's (B) Chloroplast

(C) Dioxyribose nuclei acid (D) None of them

49. **When liver fat content of our body increase then the condition leads to:**

(A) Fatty liver (B) Necros liver

(C) Jaundice (D) None of them

50. **In fatty liver the fat contents are:**

(A) 1 to 2 % (B) 4 to 5 %

(C) 30 to 40% (D) 10 to 15%

51. **Which one of the following coelenterate is also called Portuguese man of war.**

(A) Hydra (B) Velella

(C) Obelia (D) Physalis

52. **Pseudo coelomate animals are:**

(A) Coelenterates (B) Nematodes

(C). Annelids (E) Arthropods

(E) None of them

53. **Earth worm belongs to:**

(A) Phylum Platyhelminthes (B) Nematode

(C) Mollusca (D) Arthropoda

(E) None to them

54. **The primary oocyte in mammals has which of the following structures around it:**

(A) Zonapellucida (B) Zonavasculosa

(C) Zona radiate (D) None of them

55. **Membrana granulose is found in which of the mammalian oocytes?**

(A) Primary (B) Secondary

(C) Both a and b (D) None of these

56. **Female rabbits are:**

(A) induced ovulators (B) spontaneous ovulators

(C) seasonal ovulators (D) indifferent ovulators

57. **Opposable thumbs are characteristic feature of:**

(A) Lagomorpha (B) Primates

(C) Ederitate (D) None of these

58. **Differences in the scales of fishes and reptiles lies in them being:**

(A) Endodermal and dry (B) Epidermal and dry

(C) Epidermal and wet (D) Endodermal and wet

(E) None

59. **Which of the following has oxygenated blood?**

(A) Renal veins (B) Pulmonary artery

(C) Hepatic portal veins (D) None

60. **Scapula is the bone of:**

(A) Skull (B) Pelvic girdle

(C) Pectoral girdle (D) Vertebral column

(E) None

61. **All the digestive are found in vertebrates by:**

(A) Ectoderm (B) Endoderm

(C) Mesoderm (D) None of these

62. **Ammonia is chief excretory product in:**

(A) Reptiles (B) Turtles

(C) Mammals (D) Fish

(E) None of these

63. **Archaeopteryx is an connecting link between:**

(A) Amphibians and reptiles (B) Reptiles and birds

(C) Birds and mammals (D) None of these

64. **Lamarck's theory of evolution is based upon:**

(A) Effect of environment (B) Use and disuse of body parts

(C) Inheritance of acquired characters (D) All of these

(E) None of these

65. **Absorption of digested food occurs mainly in:**

(A) Colon (B) Small intestine

(C) Large intestine (D) Stomach

(E) None of them

66. **Flame cells are commonly found in:**

(A) Platyhelminthes (B) Annelida

(C) Coelenterate (D) All of above

67. **The number of vertebrate in horse neck are:**

(A) 5 (B) 6

(C) 7 (D) 10

68. **Least distance vision for a person of hypermetropia is:**

(A) 25cm (B) Less than 25 cm

(C) More than 25 cm (D) Infinity

69. **The nerve center for sight is located in:**

(A) Thalamus (B) Cerebral cortex

(C) Both a and b (D) None of these

70. **On land frogs are:**

(A) Hypermetric (B) Myopic

(C) Normal sighted (D) None of these

71. **The sense organs of taste in tongue are known as:**

(A) Olfactory receptors (B) Gustatory receptors

(C) Cutaneous receptors (D) All of these

72. **The process of cartilage formation in known as:**

(A) Chondrioblasts (B) Chondriocutosis (

C) Chondrogenesis (D) None of these

73. **Significant flight muscles in birds is:**

(A) Pectoral (B) Tensor

(C) Appendicular (D) All of these

74. **Which of the following concepts is attributed to Lamarck?**

(A) Struggle for existence

(B) Survival of the fittest

(C) Inheritance of acquired characters

(D) Cells come from pre-existing cells

75. **Which of the following theories of evolution can best explain the vestigial organs.**

(A) Darwinism (B) Lamarckism

(C) Natural selection (D) Special creation

76. **Food is assimilated into the body from digestive tract in:**

(A) Esophagus (B) Stomach

(C) Small intestine (D) Rectum

77. **Sea horse is included in:**

(A) Pisces (B) Mammals

(C) Insects (D) Mollusca

(E) None of them

78. Pond is an example of ecosystem:

(A) Complete (B) In complete

(C) Almost complete (D) None of these

79. Despite the structural diversities they ate characterized by having soft body protected by calcareous shell developing from the mantle layer.

(A) Corals (B) Foraminiferous

(C) Molluses (D) None of these

80. Chlorine upon reaction with NaOH in cold yields:

(A) NaCl, NaClO ,H_2 O (B) NaCl , NaClO3 ,H_2O

(C) NaClO, $NaClO_3$,H_2O (D) NaCl, H_2O

81. Farming salt is:

(A) NaCl (B) HF

(C) KHF_2 (D) $KClO_3$

82. Which of the following is least polarizable?

(A) Ne (B) He

(C) X (D) Kr

83. Transfer of heat from hot surrounding to cold refrigerator is an example of:

(A) Spontaneous reaction (B) Non Spontaneous reaction

(C) First law of thermodynamics (D) All of above

84. Alkaline KMn04 converts ethylene into:

(A) Methanol (B) Ethanol

(C) Ethane (D) Ethylene glycol

85. Which one of the following is not an isotope of hydrogen:

(A) Deuterium (B) Tritium

(C) Ortho hydrogen (D) None of these

86. Blue litmus turn reds in a solution of pH.

(A) Below 7 (B) 7

(C) Above 7 (D) at all 7

87. Maximum ionization potential is of:

(A) Ca (B) Na

(C) Be (D) Mg

88. Strongest acid among the following is:

(A) CCL3COOH (B) CH3COOH

(C) CF3COOH (D) CBr_3COOH

89. Which molecule is planar.

(A) SF4 (B) XeF4

(C) NF3 (D) SiF4

90. A certain radioactive isotope has a half-life of 50 days. Fraction of the material left behind after 100 days will be:

(A) 125% (B) 25%

(C) 50% (D) 100%

91 The rams speed at NTP of a gas can be calculated from the expression:

(A) Under root 3 P/d (B) Under root 3 Pv/M

(C) under root 3RT/m (D) All of above

92. Prussian blue is:

(A) K 2Fe[FeCN6] (B) K4[FeCN6]

(C) Fe4[Fe(CN) 6] 3xH20 (D) K3FeCN6]

93. Which of the following are the fundamental ways of transferring energy?

(A) Pressure and work (B) Volume and pressure

(C) Heat and work (D) Pressure and heat

94. A mixture of camphor and benzide acid can be separated by:

(A) Fractional crystallization (B) Sublimation

(C) Chemical method (D) Extraction with solvent

95. Diameter of an atom is in the range of?

(A) 0.2m (B) 0.2 nm

(C)2x10-19nm (D) 0.2Pm

96. The relative abundance of ion with a definite m/e value is measured by?

(A) Quantity of fast moving electrons

(B) Strength of electric current measured

(C) High pressure of vapors

(D) Electron gas

97. 0.078 g of a hydrocarbon occupies 22.414 ml of volume at S.T.P the empirical formula of hydrocarbon is CH. The molecular formula of hydrocarbon is?

(A) C_2H_4 (B) C_6H_6

(C) C_8H_8 (D) C_4H_4

98. Identify correct statement.

(A) Element sodium can be prepared and isolated by electrolyzing an aqueous solution of NaCl

(B) Elemental Na is strong oxidizing agent

(C) Elemental Na is insoluble in NH3

(D) Elemental Na is easily oxidizing

99. Which of the following statements is true?

(A) Alkali metal hydroxides are stable to heat except KOH

(B) CaOH is a stronger base than NaOH

(C) When NaOH is made the gas released at the cathode is Cl2

(D) NaOH is named as caustic soda because it reacts with fats to form soap.

100. The substance which conducts electricity by the movement of ions:

(A) Graphite (B) Copper

(C) Molten NaCl (D) Mercury

101. Point out the property which is not characteristic of alkali metal:

(A) Low electronegativity

(B) Low melting point

(C) Their ions are isoelectronic with noble gas

(D) High ionization energy

102. Metal belonging to the same group in the periodic table:

(A) Magnesium and Na (B) Magnesium and Copper

(C) Magnesium and Barium (D) Magnesium and Potassium

103. Magnesium keep on burning in:

(A) N_2 (B) $C0_2$

(C) N_20 (D) N_2 as well as $C0_2$

104. Red lead is:

(A) PbO (B) Pb_3O_4

(C) Pb_2O_4 (D) Pb_2O_5

105. Solid $C0_2$ dry ice has a structure just like:

(A) Diamond (B) Sulphur

(C) Graphite (D) None of

106. Silicon is found in nature in form of:

(A) Isolated or free silicon (B) Sulphides

(C) Silica or silicates (D) Only silicates

107. Choose the correct statement:

(A) Diamond is the hardest and graphite is softest

(B) Graphite is the hardest while lamp black is softest

(C) Coal is the hardest and coke is softest

(D) Diamond is the hardest and coke is softest

108. Which one is not organic compound?

(A) Fats (B) Carbohydrates

(C) Water (D) None

109. The isomers due to the unequal distribution of carbon atoms on either side of the functional group belonging to the same homologous series are called:

(A) Functional isomers (B) Position isomers

(C) Chain isomers (D) Metamers

110. The active part in organic molecules is called:

(A) Homologous series (B) Functional group

(C) Chemical bonding (D) Ionic complex

111. The four bonds of carbon in methane are directed towards the corners of:

(A) Cube (B) Pentagon

(C) Hexagon (D) Tetrahedron

112. Which of the following compounds will form a hydrocarbons on reaction with Grignard reagent?

(A) CH_3CH_2CH (B) CH_3COCH_3

(C) CH_3COOCH_3 (D) CH_3CHO

113. Acetylene on reacting with ammonium silver nitrate gives.

(A) Silver metal (B) Silver mirror

(C) Silver acetylide (D) Silver acetate

114. Aromatic compounds burn with a sooty flame because:

(A) They are resistant to react with oxygen

(B) They have a cyclic structure

(C) They have high percentage of Carbon

(D) They have high percentage of hydrogen

115. In a resonance structure of a molecule:

(A) Pairing scheme should be same

(B) Arrangement of atom should be same

(C) Same energy

(D) All are true

116. An ester is prepared by:

(A) Two alcohols (B) Carboxylic acid and alcohol

(C) Ketone and alcohol (D) Aldehyde and alcohol

117. Which of the following does not give iodoform test?

(A) Ethanol (B) Ethanal

(C) Acetophenone (D) Benzophenone

118. Which of the following molecules has ^{K} bond?

(A) H_20 (B) C_2H_6

(C) 0_2 (D) NH_3

119. Ionic radius in period from left to right:

(A) Decreases (B) Increases

(C) 1st increase and then decrease (D) 1st decrease and then increase

120. Which of the following molecules has no net dipole moment?

(A) HCl (B) H_20

(C) CCI_4 (D) CH3Cl

121. Choose the value of the Rydberg constant among the following value:

(A) $1.09678 \times 10^{7}\ nr^{-1}$ (B) 1.602x10-19C

(C) 1.7588 x1011 (C) $1.007x107m^{-1}$

122. A 4s orbital has:

(A) One node (B) Two node

(C) three node (D) 0 node

123. Electronic configuration of k is:

(A) [Ar] $4s^2$ (B) [Ar] $4s^1$

(C) [Kr] $4s^1$ (D) [He] $4S^1$

124. The spectrum of He is expected to be similar to that of:

(A) H (B) Na

(C) He+ (D) Li+

125. Triatomic molecules have following movements:

(A) translation and vibrational (B) vibrational and rotational

(C) all the above (D) none the above

126. Law of mass action was derived by:

(A) Newton (B) CM guldbrug

(C) P wage (D) CM guldbrug and P wage

127. If we move down in electrochemical series:

(A) Reduction potential will increase

(B) Reduction potential will decrease

(C) Oxidizing ability decrease

(D) None of them

128. The periodic table consist of:

(A) 7 horizontal series, 7 vertical series and 2 blocks

(B) 8 horizontal series, 7 vertical series and 2 blocks

(C) 7 horizontal series, 18 vertical series and 4 blocks

(D) 8 horizontal series, 18 vertical series and 8 blocks

129. Variable valency is generally exhibited by:

(A) Normal elements (B) Transition elements

(C) Metallic elements (D) None of them

130. Which of the following oxides is amphoteric in character?

(A) CaO (B) CO_2

(C) SiO_2 (D) SnO_2

131. Salt of weak bases react with strong acid to give

(A) Basic solution (B) Acidic solution

(C) Neutral solution (D) None

132. .....is a technique to separate impurities from chemical products:

(A) Lands Berger's method (B) Fractional crystallization

(C) Beckmann method (D) None

133. A carbohydrate that cannot be acid hydrolyzed is called:

(A) Monosaccharide's (B) Disaccharides

(C) Polysaccharides (D) Oligosaccharides

134 One gram of carbohydrate yields energy:

(A) 10kcal (B) 100kcal

(C) 4kcal (D) 9kcal

135. Ascorbic acid is a chemical name of:

(A) Vitamin D (B) Vitamin A

(C) Vitamin C (D) Vitamin B6

136. The number of amino acids found in proteins that a human body can synthesize is:

(A) 230 (B) 10

(C) 5 (D) 14

137. Choose the correct statement:

(A) Ultraviolet radiation from sun causes a reaction that produces ozone

(B) Ozone hole is depletion in total amount of O

(C) A single chlorine free radical can destroy 10000 ozone molecules

(D) All of above

138. Which of the following is not an air pollutant?

(A) N_2 (B) N_20

(C) NO (D) CO

139. Pick up the correct statement about photochemical smog.

(A) Photo chemical smog contains nitric oxide and unburnt hydrocarbon as main reactants

(B) Photo chemical smog is caused by N02

(C) Photochemical smog occurs in day time whereas the classical smog occurs In early morning hours

(D) Both B and C

140. The physical quantity which produces angular acceleration in the body is

(A) Force (B) Moment of inertia

(C) Impulse (D) Torque

141. The dimension of angular momentum is

(A) M. L 1 T-1 (B) M1 L2 T -1

(C) M.L2 T-1 (D) m_2L_1T

142. If A =B +C and A,B,C have scalar magnitudes of 5,4,3 unit respectively then the angle between vector A and Vector B is:

(A) Cos-1 (3/5) (B) Cos-1 (4/5)

(C) 3.14/2 (D) Sin-1 (3/4)

143. Pick up the correct statement about photochemical smog:

(A) Photo chemical smog contains nitric oxide and unburnt hydrocarbon as main reactant

(B) Photochemical smog is caused by N02

(C) Photo chemical smog occurs in day time whereas the classical smog occurs in early in mornings hours

(D) Both B and C

144. A particle is travelling along a straight line OX. The distance x in meters of the particle from O at a time t is given by $X = 37 + 27t\ t^3$ where t is given by X in the seconds. The distance of particles from O when it comes to rest is. w3.

(A) 81m (B) 91m

(C) 101m (D)111m

145. A particle is projected from the ground with a kinetic energy E at an angle of 60 degree with the horizontal. Its kinetic energy at the highest point of its motion will be:

(A) (B) E/2

(C) E/4 (D) E/8

146. A bullet on penetrating 30cm into its target loses its velocity by 50%. What additional distance will it penetrate into the target before it comes to rest?

(A) 30cm (B) 20cm

(C) 10cm (D) 5cm

147. When a spring is stretched by 10cm, the potential energy is stored is E. When the spring is stretched by 10cm more, the potential energy stored in the spring becomes.

(A) 2E (B)4E

(C)6E (D) 10E

148. Average distance of the earth from the sun is L1. If one year of the earth =D days one year of another planet whose average distance from the sun is L_2 will be:

(A) D(L2/L1)1/2 days (B) D(L2/L1)3/2 days

(C) D(L2/L1)2/3 days (D) D(L2/L1) days

149. The point at which an applied force produces linear motion but no rotatory motion is:

(A) Mid-point (B) Center of gravity

(C) Optical center (D) Pole

150. When a certain mental surface is illuminated with light of frequency v. the stopping potential for photoelectric current is V0. When the same surface is illuminated by light of frequency V/2, the stopping potential is V0-/4. The threshold frequency for photoelectric emission is:

(A) V/6 (B) V/3

(C) 2V/3 (D) 4V/3

151. Let L be the length and d be the diameter of cross section of a wire. Wires of the same material with different L. and d are subjected to the same tension along the length of the wire. In which of the following cases the extension of wire will be the maximum?

(A) L=200cm, d=0.5mm (B) L=300cm, d=1.0mm

(C) L=50cm, d=0.05mm (D) L=100cm, d=0.2mm

152. An object placed in front of a concave mirror at a distance of X cm from the pole gives a 3 times magnified real image if it is moved to distance of X+5cm, the .magnification of the image becomes 2. The focal length of the mirror is:

(A) 15cm (B) 20cm

(C) 25cm (D) 30cm

153. **22320 cal heat is supplied to 100g of ice at zero degree centigrade. If the latent heat of fusion of ice is 80 cal /g and latent heat of vaporization of water is 540 cal/g the final amount of water thus obtained and its temperature respectively are:**

(A) 8 g, 100degree centigrade (B) 100 g, 90degree centigrade

(C) 92 g, 100degree centigrade (D) 82g, 100degree centigrade

154. **A progressive wave moving along X axis is represented by y = [(2π/λ-x)] . The wavelength ? at which the maximum particle velocity is 3 time the wave velocity is:**

(A) A/3 (B) 3π

(C) 3/4πA (D) 2/3(πA)

155. **Two radioactive substances A and B have decay constants 5? and ? respectively. At t= 0 , they have the same number of nuclei of A to that of B will be 1/e2 after a time interval of:**

(A) 1/λ. **(B) 1/2λ.**

(C) 1/3λ. **(D) 1/4λ.**

156. **A magnetic needle is placed in a uniform magnetic field and is aligned with the field. The needle is now rotated by an angle of 60 degree and the work done is W. the torque on the magnetic needle at this position.**

(A) 2V3w (B) 3 W

(C) (3/2)W (D) (3/4)W

157. **A body when fully immersed in a liquid of specific gravity 1.2 weight 44gwt.The same body when fully immersed in water weights 50gwt.The mass of the body is a. 36g b. 48g c. 64g d. 80g 158) The equation of state of a gas is given by (P + a/V8) (v-b 2)=cT, where P,V,T, are pressure. Volume and temperature respectively, and a, b. c are constants the dimensions of a and bare respectively.**

(A) ML 8T -2 and L3/2 (B) ML 8T -2 and L3

(C) ML 5T -2 and L6 (D) ML 6T -2 and L3/2

158. **The R.M.S speed of the molecules of a gas at 100 degree centigrade is v. The temperature at which the R.M.S speed will be ?3v is:**

(A) 546 degree centigrade (B) 646 degree centigrade

(E) 746 degree centigrade (D) 846 degree centigrade

159. **A frictional piston cylinder based enclosure contains some amount of gas at a pressure of 400kPa. Then heat is pressure in a quasi-static process. The piston moves up slowly through a height of 10cmIf the piston has across section area of 0.3m2 ,the work done by the gas in the process is:**

(A) 6kj (B) 12kj

(C) 75kj (D) 24kj

160. **An electric cell of e.m.f E is connected across a copper wire of diameter d and length I. The drift velocity of electrons in the wire is v0. If the length of the wire is changed to 21, the new drift velocity of electrons in the copper wire will be:**

(A) V (B) 2V

(C) V2 (D) V4

161. **A bar magnet has a magnetic moment of 200A.m2 . The magnet is suspended in a magnetic field of 0.30 NA-1 m-1 . The torque required to rotate the magnet from its equilibrium position through at an angle of 300 will be:**

(A) 30Nm (B) 3073 Nm

(C) 60Nm (D) 604Nm

162. **A ball is thrown vertically upward with a velocity of 98 m/s if it takes 10 seconds to reach the highest point then the acceleration of the ball is:**

(A) $9.8m/s^2$ (B) $980m/s^2$

(C) $98m/s^2$ (D) $-9\ 8m/s^2$

163. **The velocity of a car travelling on a straight road is 36 km/h at an instant of time. Now travelling with uniform acceleration for 10s. the velocity becomes exactly double if the wheel radius of the car is 25cm then which of the following numbers is the closest to the number of revolutions that the wheel makes during this 10s?**

(A) 84 (B) 95

(C)126 (D) 135

164. **Two glass prisms P1 and P2 are to be combined together to produce dispersion without deviation. The angle of the prisms P1 andP2 are selected as 40 and 30 respectively. If the refractive index of prism P1 is 1.54, then that of P2 will be:**

(A) 1.48 (B) 1.58

(C) 1.62 (D) 1.72

165. A man throws a ball vertically upward in compartment of an accelerated train. The ball will fall

(A) In front of him (B) In his hand

(C) Behind him (D) Beside him

166. Water is flowing in stream line motion through a horizontal tube. The pressure at a point in the tube is P where the velocity of flow is v. At another point, where the pressure is P/2 ,the velocity of flow is [density of water=ρ]

(A) $(V2 + p/\rho)$ (B) $(V2 - p/\rho)$

(C) $(V2 + 2p/\rho)$ (D) $(V2 - 2p/\rho)$

167. A wire of initial length L and radius r is stretched by a length I. another wire of same material but with initial length 2 L and radius 2r is stretched by length 2l.tho ratio of the stored elastic energy per unit volume in the first and second wire is:

(A) 1:4 (B) 1:2

(C) 2:1 (D) 1:1

168. A current of 1A is flowing along positive x-axis through a straight wire of length 0.5m placed in a region of magnetic field given by B=(2? +2j) T. The magnitude and the direction of the force experienced by the wire respectively are:

(A) $\sqrt{18}$ N, along positive z-axis (B) $\sqrt{20}$N , along positive x-axis

(C) 2N, along positive axis (D) 4N, along positive axis

169. A bomber drop a bomb, when it is vertically above the target, it missed the target because of :

(A) Vertical component of the velocity of bomber

(B) Force of gravity

(C) Acceleration of the bomber

(D) Horizontal component of the velocity of bomber

170. There was a surprising story in the paper about the_____car was stolen:

(A) Man which his (B) Man whose his

(C) Man that his (D) Man whose

171. Several times during the session the director_____to tell his success story to the other promotion:

(A) Asked he (B) Asked who

(C) Asked him (D) Asked his

172. When one need career counseling go to the college career advisor?

(A) You should (B) It should

(C) He should (D) One should

173. Did anybody do the work_____?

(A) Themselves (B) Himself

(C) His self (D) None

174. Take your application to the_____you think can help you.

(A) Person whom (B) Person

(C) Person who (D) Person which

Read the passage and answer the questions given at the end of passage (5-10).

Recent advances in science and technology have made it possible for geneticists to find out abnormalities in the unborn fetus and take remedial action to rectify some defects which would otherwise prove to be fatal to the child. Though genetic engineering is still at its infancy, scientists can now predict with greater accuracy a genetic disorder. It is not yet an exact science since they are not in a position to predict when exactly a genetic disorder will set in. While they have not yet been able to change the genetic order of the gene in germs, they are optimistic and are holding out that in the near future they might be successful in achieving this feat they have however, acquired the ability in manipulating tissue cells. However, genetic misinformation can sometimes be damaging for it may adversely affect people psychologically. Genetic information may lead to a tendency to brand some people as inferiors. Genetic information can therefore be abused and its application in deciding the sex of the fetus and its subsequent abortion is now hotly debated on ethical lines. But on this issue geneticists cannot be squarely blamed though this charge has often been leveled at them. It is mainly a societal problem. At present genetic engineering is costly process of detecting disorders but scientists hoped to reduce the costs when technology becomes more advanced. This is why much progress in this area has been possible in scientifically advanced and rich country like the U.S.A, U K and Japan .It remains to be seen if in the future this science will lead to the development of a race of supermen or will be able to obliterate disease from this world.

175. Which of the following is the same in meaning as the phrase "holding out" as used in passage?

(A) Catching
(B) Expounding
(C) Sustaining
(D) Restraining

176. According to the passage the question of abortion is:

(A) Ignored
(B) Hotly debated
(C) Unanswered
(D) Left to the scientists to decide

177. Which of the following is true regarding the reasons for progress in genetic engineering?

(A) It has become popular to abort female fetuses
(B) Human beings are extremely interested in heredity
(C) Economically sound and scientifically advanced countries can provide the infrastructure for such research
(D) Poor countries desperately need genetic information.

178. Which of the following is same in meaning as the word "obliterate" as used in passage?

(A) Wipe off
(B) Eradicate
(C) Give birth to
(D) Wipe out

179. Which of the following is the opposite in meaning to the word "charged" as used in the passage?

(A) Calm
(B) Disturbed
(C) Discharged
(D) Settled

180. Agenda: conference (analogy):

(A) Teacher: class
(B) Agency : assignment (analogy)
(C) Map : trip
(D) Man : women

181. Manacle : male factor (analogy):

(A) Juvenile : delinquent
(B) Suave Maniac
(C) Muzzle : dog
(D) Pinto : tether

182. Aerie : Eagle (analogy):

(A) Venom : rattle snake
(B) Viper: reptiles
(C) Hawk : falcon
(D) Lair: wolf

183. Altimeter: height (analogy):

(A) Speedometer: speed
(B) Observatory :constellation
(C) Racetrack : furlong
(D) Vessel: knots

184. Slipshod : organization (analogy):

(A) Clever: shroud
(B) Cringing : obsequious
(C) Prodigal : generosity
(D) Phlegmatic : emotion

185. Rookie synonyms:

(A) An old man
(B) A new recruit
(C) A fighter
(D) A wrestler

186. Catharsis synonyms:

(A) Sudden
(B) outlet for strong emotions
(C) anti-climax
(D) informal discussion

187. Adapt Antonym:

(A) Approve
(B) Applaud
(C) Shed
(D) Reject

188. Atheist Antonym:

(A) Hypnotic
(B) Bane
(C) Believer
(D) Theorist

189. Generous antonym:

(A) Cruel
(B) Noble
(C) Selfish
(D) Lavish

190. 2,5,9____20,27:

(A) 14
(B) 16
(C) 18
(D) 24

191. 3, 6, 18, 72,____

(A) 144
(B) 2 16
(C) 288
(D) 360

192. 12, 32, 72, 152_____

(A) 312
(B) 325
(C)515
(D)613

193. 2, 15, 41,80----

(A) 111 (B) 120

(C) 121 (D) 132

194. 8,10,14,18,____34,5 0, 60:

(A) 24 (B) 25

(C) 26 (D) 27

195. Sick is to Sack as Lick is to:

(A) Lack (B) Luck

(C) Eat (D) Meat

(E) Lock

196. What letter comes next in the following series? B D G K P

(A)C (B) E

(C) B (D) V

(E)Q

197. What number comes next in the following series? 34 24 16 10 6

(A) 5 (B) 10

(C) 3 (D) 2

(E) 4

198. If 4 is more than 9 write a as your answer otherwise write b?

(A) A (B) B

(C) C (D) D

(E)E

199. Children go to school because

(A) they want to learn poems

(B) they want to be away from home

(C) They want to look beautiful

(D) they want to gain knowledge

(E) they want to tease the teacher

Answer Key NUMS 2014

1. (C)	2. (B)	3.(A)	4. (D)	5.(C)	6. (D)
7. (B)	8. (C)	9. (C)	10. (B)	11. (C)	12. (A)
13. (D)	14. (B)	15. (A)	16. (D)	17. (C)	18. (A)
19. (C)	20. (C)	21. (D)	22. (C)	23.	24. (C)
25. (B)	26. (C)	27. (A)	28. (D)	29. (A)	30. (A)
31. (D)	32. (D)	33. (B)	34. (B)	35. (C)	36. (C)
37. (A)	38. (B)	39. (C)	40. (D)	41. (D)	42. (B)
43. (B)	44. (A)	45. (C)	46. (D)	47. (B)	48. (C)
49. (A)	50. (B)	51. (D)	52. (E)	53. (E)	54. (D)
55. (C)	56. (A)	57. (B)	58. (C)	59. (D)	60. (C)
61. (C)	62. (C)	63. (B)	64. (C)	65. (B)	66. (A)
67. (C)	68. (A)	69. (B)	70. (B)	71. (C)	72. (C)
73. (A)	74. (C)	75. (A)	76. (C)	77. (A)	78. (A)
79. (C)	80. (A)	81. (A)	82. (B)	83. (A)	84. (D)
85. (C)	86. (A)	87. (C)	88. (B)	89. (A)	90. (C)
91. (C)	92. (C)	93. (C)	94. (C)	95. (B)	96. (A)
97. (B)	98. (A)	99.	100. (C)	101. (A)	102. (C)
103. (B)	104. (B)	105. (A)	106. (C)	107. (A)	108. (C)
109. (D)	110. (B)	111. (D)	112. (A)	113. (C)	114. (C)
115. (D)	116. (B)	117. (D)	118. (C)	119. (A)	120. (C)
121. (A)	122. (C)	123. (B)	124. (A)	125. (B)	126 (D)
127. (D)	128. (C)	129. (B)	130. (D)	131. (B)	132. (B)
133. (A)	134. (C)	135. (C)	136. (D)	137. (C)	138. (C)
139. (D)	140. (D)	141. (C)	142. (D)	143. (A)	144. (B)
145. (C)	146. (A)	147.	148. (A)	149. (A)	150. (A)
151. (B)	152. (A)	153.	154.	155.	156. (A)
157. (B)	158. (A)	159. (B)	160. (B)	161. (D)	162. (D)
163. (C)	164. (C)	165. (B)	166. (B)	167. (B)	168. (C)
169. (A)	170. (D)	171. (C)	172. (C)	173. (B)	174. (A)
175. (C)	176. (D)	177. (B)	178. (B)	179. (C)	180. (B)
181. (B)	182. (C)	183. (C)	184. (C)	185. (B)	186. (B)
187. (D)	188. (C)	189. (C)	190. (A)	191. (D)	192. (A)
193. (C)	194. (A)	195. (A)	196. (D)	197. (D)	198. (A)
199. (B)					

NATIONAL UNIVERSITY OF MEDICAL SCIENCES

ENTRANCE TEST - 2015

For F.Sc. and Non-F.Sc. Students Time Allowed: 3 Hours Total MCQs: 200

Instructions:

i. Read the instructions on the MCQ Response Form carefully. - '

ii. Choose the Single Best Answer for each question.

iii. Candidates are strictly prohibited from giving any identification mark except Roll No. & Signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE C) PINK

C) BLUE D) GREEN

Ans: Color of your question Paper is blue. Fill the Circle corresponding to letter 'B' Against 'ID' in your MCQ response form

1. Y chromosome in humans:

(A) Is completely inert

(B) Carries few genes

(C) Carries many genes

(D) Contains genes for hemophilia and colour blindness

2. Wood is not formed in:

(A) Monocots (B) Dicots

(C) Gymnosperms (D) All of Given

3. Which type of chlorophyll is found in all types of algae?

(A) Chlorophyll a (B) Chlorophyll b

(C) Chlorophyll c (D) Chlorophyll d

4. Which of the following is not related with apoptosis?

(A) loss of tail of developing human embryos

(B) loss of tissue between developing digits

(C) Controlling the number of neurons

(D) None of Given

5. Which of the following is not parasitic fungus of plants?

(A) Rust (B) Mildews

(C) Armillaria (D) None of Given

6. Which of the following is not component of extra-cellular matrix in bacteria?

(A) Cell wall (B) Slime

(C) Capsule (D) Cell membrane

7. Which of the following is not an infection of the lungs/ respiratory tract?

(A) Histoplasmosis (B) Tuberculosis

(C) Cystic fibrosis (D) None of Given

8. Which of the following is correct in humans?

(A) Both sperm and egg contain Yolk

(B) All genetic information comes from sperm

(C) Sperm contains little cytoplasm

(D) Fertilization commonly occurs in uterus

9. The organism having wings with claws.

(A) Eagle (B) Kestrel

(C) Archaeopteryx (D) Mallard

10. The fungus provides chemotherapeutic agent that is used to inhibit fungal growth?

(A) Penicillium notatum (B) Aspergillus

(C) Penicillium griseofulvum (D) Claviceps purpurea

11. Which of the following feature is not related to vexillium in pea family?

(A) Large (B) Single

(C) Outermost (D) Anterior

12. Which of the following does not belong to same linkage group?

(A) Sickle cell anemia (B) Albinism

(C) Leukemia (D) Gout

13. Which of the following correctly explains the structure of myoglobin:

(A) 4 polypeptide chains + 4 haeme portions

(B) 4 polypeptide chains + 1 haeme portions

(C) 1 polypeptide chains + 4 haeme portions

(D) 1 polypeptide chains + 1 haeme portions

14. The leg of cockroach which acts as 'prop' during walking?

(A) Anterior leg (B) Posterior leg

(C) Middle leg (D) All Given

15. Which component enters into mitochondria after glycol sis?

(A) Pyruvate (B) Acetate

(C) Oxaloacetate (D) Acetyl-CoA

16. **What will be the approximate length of a DNA strand having 500 nucleotides?**

(A) 100 nm (B) 130 nm

(C) 170 nm (D) 150 nm

17. **Viral disease that is widely spread and caused by enveloped RNA virus is:**

(A) AIDS (B) Hepatitis

(C) Measles (D) Influenza

18. **Vaccination can be done against:**

(A) Bacterial diseases only (B) Viral diseases only

(C) Both Viral and Bacterial (D) All type of disease causing organisms

19. **Useful bacteria at large intestine of humans produce:**

(A) Vitamin K (B) Vitamin E

(C) Vitamin D (D) Vitamins C

20. **Undigested food in cockroach is stored in:**

(A) Crop (B) Rectum

(C) Gizzard (D) Crop & Rectum

21. **Type of sclerenchyma cells found in seed coats are:**

(A) Fibers (B) Tracheids

(C) Sclerids (D) Vessels

22. **Type of lichen which is leaf-like in appearance is:**

(A) Lecanor (B) Ramalina

(C) Parmelia (D) Bacida

23. **Trichome of Nostoc is surrounded by:**

(A) Pellicle (B) Capsule

(C) Mucilaginous sheath (D) None of Given

24. **The ultimate source of all changes is:**

(A) Mutation (B) Migration

(C) Genetic drift (D) Change in allelic frequency

25. **The lymph vessels empty in:**

(A) Arteries (B) Viens

(C) Cappileries (D) None of given

26. **The helical structure of a protein is kept by formation of hydrogen bond between amino acid molecules which are :**

(A) Adjacent to each other

(B) In successive turns of spiral

(C) Between two different polypeptide chains

(D) None of Given

27. Tail can be regenerated in:

(A) Larvae of amphibian (B) Lizard

(C) Both lizard and larvae of amphibian (D) None of Given

28. Symptoms of malaria occur specifically due to formation of:

(A) Sporozoit (B) Merozoit

(C) Gametocyte (D) Oocyte

29. Such inflorescence in which main axis is elongated and bears sessile flowers is called

(A) Raceme (B) Spike

(C) Cyme (D) Panicle

30. Semilunar valves are not present:

(A) At base of pulmonary trunk (B) At base of aorta

(C) In veins (D) Coronary artery

31. Second major form of hepatitis is:

(A) Hepatitis A (B) Hepatitis B

(C) Hepatitis C (D) Hepatitis D

32. Scales are present in:

(A) Fishes (B) Amphibians

(C) Birds (D) Reptiles

33. Reduction division is:

(A) Amitosis (B) Mitosis

(C) Meiosis I (D) Meiosis II

34. Reactive parts of an amino acid are:

(A) Alpha carbon & amino group (B) Amino group & carboxyl group

(C) Carboxyl group & R group (D) R group & alphacarbon

35. Ptyalin can convert starch into:

(A) Monosaccharide form (B) Oligosaccharide form

(C) Polysaccharide form (D) All Given Options

36. Process of aging:

(A) Can be slowed down by adequate sleep

(B) Can be slowed down by regular meal

(C) Cannot be slowed down in any way

(D) Both by Adequate Sleep and Regular meal

37. Plant protects itself from rapid chilling through:

(A) Increasing unsaturated fatty acids

(B) Increasing protein contents

(C) Both Increasing protein contents and unsaturated fatty acids

(D) None of Given

38. Plant on which teliospores attack produces.....in its seeds.

(A) Teliospores (B) Dikaryotic hyphae

(C) Monok4ryotic hyphae (D) None Of Given

39. Pick the mismatched pair for birds:

(A) Air spaces - lighter body

(B) Pectoral muscles - strong pull of wings

(C) Urinary bladder, producing semisolid urine

(D) Keel - attachment of muscles

40. Pick the correct option about Drosophila?

(A) Male is larger with pointed abdomen

(B) Female has sex combs on front legs

(C) It has generation time of just eight weeks

(D) Salivary gland cells have giant chromosomes in their nuclei

41. Percentage of magnesium by mass of a human being is:

(A) 0.005% (B) 0.25%

(C)0.15% (D) 0.35%

42. Pectoral fins are enlarged in:

(A) Whale (B) Shark

(C) Skates (D) Plaice

43. Oxygen is transported by combining with.....in Hb.

(A) Nitrogen (B) Iron

(C) Carbon (D) Hydrogen

44. Only one ovary is functional at a time in:

(A) Human (B) Eagle

(C) Pigeon (D) Pigeon and human

45. Nitrogen fixing bacteria in root nodules fix nitrogen in soil air into:

(A) Ammonia (B) Nitrite

(C) Nitrate (D) Amino acid

46. Metabolically dormant body produced within the bacterial cell membrane is:

(A) Capsule (B) Spore

(C) Cyst (D) Cyst and spore

47. Menstrual cycle can be divided into:

(A) Single phase (B) Two phases

(C) Three phases (D) Four phases

48. Maximum mammalian characters are present in these:

(A) Metatheria (B) Prototheria

(C) Eutheria (D) None of Given

49. Leptocardii is group of:

(A) Urochordata (B) Cephalochordata

(C) Vertebrata (D) Mollusca

50. Leaves of.....are used to cure cough and cold in horses:

(A) Glycyrrhiza glabra (B) Cassia alata

(C) Bamboo (D) Both Bamboo and Glycyrrhiza glabra

51. J.Seiler in 1914 discovered which type of sex determination in moths?

(A) XO-XX (B) XY-XX

(C) ZZ-ZW (D) None of Given

52. It is the most critical phase of mitosis:

(A) Prophase (B) Tellophase

(C) Anaphase (D) Metaphase

53. In which of the following, mitotic division is involved:

(A) Oogonium to primary oocyte (B) Primary oocyte to secondary oocyte

(C) Secondary oocyte to egg (D) None of Given

54. In Maxam-Gilbert method, DNA threads are:

(A) Chemically synthesized

(B) Synthesized from mRNA

(C) Synthesized by using terminating nucleotides

(D) Chemically cut into pieces

55. If allele frequency for a dominant allele is 0.4. What will be number of hetrogeneous individuals if population is of 100 individuals with diploid traits.

(A) 36 (B) 48

(C) 52 (D) 74

56. How much carbon dioxide is transported through blood proteins?

(A) 5% (B) 20%

(C) 25% (D) 70%

57. Highest blood pressure is found in:

(A) Arteries (B) Veins

(C) Capillaries (D) None of Given

58. Green house gases are those that:

(A) Prevent entry of ultraviolet rays (B) Prevent rain fall

(C) Prevent heat to escape (D) All Given Options are Correct

59. Grassland of Argentina is:

(A) Praries (B) Savana

(C) Boreal (D) Pampas

60. Genetic recombination in bacteria can occur through :

(A) Conjugation (B) Transformation

(C) Transduction (D) All Given

61. Founder of cell biology is:

(A) Schleiden & Schwann (B) Galileo

(C) Robert Hooke (D) Robert Brown

62. Etioplasts found in plants are actually one of the type of:

(A) Chloroplasts (B) Chromoplasts

(C) Leucoplasts (D) None of Given

63. Drosophila sperm cell contains:

(A) 4 chromosomes (B) 8 chromosomes

(C) 8 pair of chromosomes (D) 3 chromosomes

64. DNA fingerprinting is basically done for:

(A) DNA cloning (B) DNA analysis

(C) DNA sequencing (D) DNA slicing

65. Diameter of DNA double helix is:

(A) 3.4 nm (B) 0.3 nm

(C) 2 nm (D) 0.2 nm

66. Diameter of an artery can be changed by:

(A) nervous stimulation

(B) Chemical stimulation

(C) Both Chemical and Nervous Stimulation

(D) None of Given

67. **Dermal, denticle scales of fishes are called:**

(A) Placoid scales (B) Ganoid scales

(C) Ctenoid scales (D) Cycloid scales

68. **Dark purple or black spore case of Claviceps purpurea is:**

(A) Smut (B) Rust

(C) Ergot (D) Aspergin

69. **Continuous variations in a population were first observed by:**

(A) Mendel (B) Correns

(C) Nilsson (D) Darwin

70. **Condensation of chromosomes reaches to maximum during:**

(A) Zygote (B) Pachytene

(C) Diplotene (D) Diakinesis

71. **Cloning is production of genetically identical copies of organisms/ cells by:**

(A) Sexual reproduction (B) Asexual reproduction

(C) Both sexual and asexual (D) None of Given

72. **Carotenoids are related to:**

(A) Vitamin A (B) Vitamin B

(C) Vitamin C (D) Vitamin D

73. **Bryophytes and ferns both require water for fertilization but ferns are not placed in bryophyte because they have:**

(A) Ciliated spermatozoa instead of flagellated spermatozoa

(B) sporpohyte as main generation instead of gametophyte generation

(C) Vascular tissue

(D) None of Given

74. **Blood group of a person having and hh genotypes:**

(A) have AB phenotype

(B) Only be Rh-ive

(C) Do not have antigens attached on RBCs

(D) None of Given

75. **Annually.....%of fruit is lost due to fungi.**

(A) 15-20% (B) 35-70%

(C) 25-35% (D) 15-50%

76. **Amylase is not produced by following type of salivary gland:**

(A) Parotid (B) Submandibular

(C) Sublingual (D) None of Given

77. **Among invertebrates, which possesses the greatest power of regeneration?**

(A) Sponges (B) Platyhelminthes

(C) Annelids (D) Echinoderms

78. **All of the photosynthetic bacteria use except**

(A) Purple sulphure bacteria (B) Green sulphure bacteria

(C) Purple non-sulphure bacteria (D) None of Given

79. **75% osmotic pressure of blood is maintained by:**

(A) Globulin (B) Prothrombin

(C) Fibrinogen (D) Albumin

80. **1 NADH in respiratory chain produces:**

(A) 1 ATP (B) 2 ATP

(C) 3 ATP (D) 4 ATP

81. **A 500g tooth paste sample has 0.2 g fluoride concentration. What is the concentration of fluoride in terms of ppm level?**

(A)2509 (B)200

(C)400 (D)1000

82. **Acetone and Chloroform are soluble into each other due to:**

(A) Hydrogen Bonding (B) Dipole-dipole interaction

(C) London forces (D) Both (a) and (b)

83. **An element M forms a hydride which contains 90% of M by mass. What is the relative atomic mass of M?**

(A) 27 (B) 30

(C) 87 (D) 90

84. **An ionic compound is most likely to be formed when**

(A) ionization energy of A is high but electron affinity of B is low

(B) The ionization energy of A is low but electron affinity of B is high

(C) Both ionization energy of A and electron affinity of B are high

(D) Both ionization energy of A and electron affinity of B are low

85. **Basicity of H_3PO_4 is:**

(A) 1 (B) 2

(C) 3 (D) 4

86. **Boiling of dilute HCL acid does not increase its concentration beyond 22 percent because HCl acid:**

(A) Is very volatile (B) Highly soluble in water

(C) Forms boiling mixture (D) Forms saturated at this concentration

87. Both ionic and covalent bonds are present in:

(A) CH_4 (B) SO_2

(C) KCl (D) NaOH

88. Half life period of the first order reaction depends upon:

(A) Initial Concentration (B) Temperature

(C) Catalyst (D) All of above

89. Hydrocarbons which burn with smoky flame are called:

(A) Aliphatic (B) Aromatic

(C) Alicyclic (D) None of these

90. If the compressibility factor for one mole of an ideal gas is 1, then what will be the

(A) Same (B) Different

(C) Zero (D) None of the above

91. In Beta elimination reaction , nucleophile attacks on:

(A) Alpha hydrogen (B) Beta hydrogen

(C) Hydrogen (D) Alpha carbon

92. In which of the following cases , the benzene rings are isolated?

(B) Phenanthrene (D) Triphenylmethane

(A) Napthalene (C) Anthracene

93. Ninhydrin reacts with amino acid to form product which has colour:

(A) Blue (B) Violet

(C) Bluish Violet (D) Red

94. Sod-Benzoate on reacting with soda lime forms:

(A) Benzoic Acid (B) Benzene

(C) Toluene (D) Benzaladehyde

95. Starch is a polymer of:

(A) Fructose (B) d-D Glucose

(C) B-D Glucose (D) Sucrose

96. The C-H bond distance is the longest in:

(A) C_2H_4 (B) C_2H_2

(C) C_2H_6 (D) C_2H_2Br

97. The decreasing order of second ionization energy of K,Ca,Ba is:

(A) K>Ca>Ba (B) Ca>Ba>K

(C) Ba>K>Ca (D) K>Ba>Ca

98. The essential condition for Optically Activity of an organic-compound is:

(A) Dextrorotatory (B) Levorotatory

(C) Presence a-symmetric carbon (D) Molecular dy-symmetry

99. The formula of washing soda is:

(A) N_2CO_3 (B) $Na_2CO_3.H_2O$

(C) $Na_2CO_3.7H_2O$ (D) $Na_2CO_3.10H_2O$

100. The maximum number of electrons with n:3 and L:2 is

(A) 10 (B) 6

(C) 18 (D) 0

101. The molecule with zero dipole moment is:

(A) NH_3 (B) H_2O

(C) BF_3 (D) SO_2

102. The number of sigma and pi bonds in l-butene-3-yne?

(A) 5 sigma and 5 pi (B) 7 sigma and 3 pi

(C) 8 sigma and 2 pi (D) 6 sigma and 4 pi

103. The overall positive reaction potential value predicts that process is:

(A) Not feasible (B) Feasible

(C) Impossible (D) No indication

104. The radiation from a naturally occurring radioactive substance, as seen after deflection by a magnetic field in one direction, are:

(A) Definitely a-rays (B) Definitely B-rays

(C) Both Alpha and Beta rays (D) Either Alpha or Beta rays

105. The rate of a reaction in general can be increased by all the following factors except:

(A) By increasing temperature

(B) Using a suitable catalyst

(C) By an increase in activation energy

(D) By increasing conc. of reactants

106. The Sweetest of All Sugars is :

(A) Glucose (B) Maltose

(C) Sucrose (D) Fructose

107. The vapour pressure of water at room temperature is 23.8mm Hg. The vapour pressure of an aqueous solution of sucrose with mole fraction 0.2 is equal to:

(A) 19.04 mm Hg (B) 24.2 mm of Hg

(C) 21.42 mm of Hg (D) 21.4 mm of Hg

108. The number of moles of N02 which contains 16 g of Oxygen :

(A) 0.25 (B) 0.50

(C) 1.0 (D) 1.50

109. Tincture of Iodine is :

(A) in alcohol CHI_3 (B) in alcohol I_2

(C) in KI I_2 (D) in KI CH_3I

110. Transition Elements Usually show:

(A) Para magnetism (B) Diamagnetism

(C) Ferromagnetism (D) Both Ferromagnetism and Para magnetism

111. What is the mass of same no of atoms of potassium as are present in 11.5 grams of sodium?

(A) 19 g (B) 19.5 g

(C) 39 g (D) 78 g

112. What is the molarity of 25 % NaOH solution?

(A) 5.0 (B) 6.25

(C) 3.125 (D) 2.5

113. When ethylene ozonide is treated with Zn-dust we get:

(A) Ethanal (B) Methanal

(C) Methanol (D) Ethanol

114. When fused PbBr2 is electrolyzed:

(A) Bromine appears at the cathode (B) Lead is deposited at the cathode

(C) Lead appears at the anode (D) None of Given

115. Which compound shows maximum hydrogen bonding with water?

(A) C_6H_5OH (B) C_2H_50

(C) $CH_3 - O - CH_3$ (D) n-hexagonal

116. Which is the configuration of Cr?

(A) $3d^4\ 4s^2$ (B) $3d^5\ 4s^1$

(C) $3d^6\ 4s^1$ (D) $2d^1\ 4s^2$

117. Which of the following contains the co-ordinate covalent bond?

(A) $BaCl_2$ (B) NH^+

(C) BF_3^+ (D) Both B and C

118. Which of the following do not have variable valency?

(A) Cobalt (B) Iron

(C) Manganese (D) Zinc

119. Which of the following gas is more ideal at STP?

(A) SO_2 (B) NH_3

(C) H_2 (D) H_2S

120. Which of the following gas is not present in coke:

(A) Carbon dioxide (B) Carbon monoxide

(C) Oxygen (D) Hydrogen

121. Which of the following has maximum Hydration power?

(A) Na+ (B) K^+

(C) Mg+ (D) Ca^{+2}

122. Which of the following has the maximum no of unpaired electrons?

(A) Mg^{-2} (B) V^{3-}

(C) $Ti^{3}+$ (D) Fe^{2+}

123. Which of the following is having inert gas configuration?

(A) Pb^{+4} (B) As^{+3}

(C) Zn^{+2} (D) Ti^{+4}

124. Which of the following is not locating agent?

(A) H_2S (B) CS_2

(C) Rubenaic acid (D) Ninhydrin

125. Which of the following is the reducing agent:

(A) C_3H_8 (B) C_2H_5CHO

(C) C3H7OH (D) $(CH_3)_2CO$

126. Which of the following transition metals in it's ground state have unpaired electron in an *s*-orbital?

(A) Cr (B) CO

(C) Fe (D) Cu

127. Which one is not related with evaporation?

(A) Continuous (B) Endothermic

(C) Exothermic (D) Spontaneous

128. The property of liquid that is measured by polarimeter?

(A) Conductance (B) Refractive Index

(C) Optical activity (D) Change in Volume

129. $NaN0_3$, on heating gives:

(A) O_2 (B) NO_2

(C) $O_2 + NO_2$ (D) $NaNO_2$

130. How many ballons of capacity $0.25dm^3$ at atm can be filled from hydrogen.

(A) 50 (B) 90

(C) 180 (D) 200

131. The bonds present in N2O5 are:

(A) Only Ionic (B) Covalent and Coordinate

(C) Only Covalent (D) Covalent and Ionic

132. A crystal system having all sides (a, b, and c) unequal and angles $\alpha = \beta = \gamma = 90$ is:

(A) Cubic (B) Rhombohedral

(C) Orthorhombic (D) Hexagonal

133. SN_2 can be best carried out with:

(A) Primary alkyl halide (B) Secondary alkyl halide

(C) Tertiary alkyl halide (D) All of the above

134. 15g of urea is dissolved in $180cm^3$ of water. The relative lowering of vapour pressure:

(A) 0.024 (B) 25.024

(C) 2.5 (D) 10.25

135. The KSP of AgCl is 2.0×10^{-10} $mol^2.dm^{-6}$. The maximum concentration of Ag^+ ions:

(A) $2.0x10^{-10}$ $mol.dm^{-6}$ (B) $1.41 x10^{-5}$ $mol.dm^{-3}$

(C) $1.0x10^{-5}$ $mol.dm^{-3}$ (D) $4.0x10^{-20}$ $mol.dm^{-3}$

136. Which of the following has least electron affinity value?

(A) $^{12}_{6}C$ (B) $^{14}_{7}N$

(C) $^{16}_{7}8$ (D) $^{19}_{9}F$

137. The shape of $SnCl_2$ is:

(A) Linear (B) Teterahedral

(C) Angular (D) Trignoal Planar

138. IUPAC name for $|Pt\ Cl\ Br(NO_2)(NH_3)_3|Cl$ is:

(A) Triammine chlorobromonitro platimum (iv) Chloride

(B) Triammine chlorobromonitro platimate (iv) Chloride

(C) Triammine chlorobromonitro platimum (iv) Chloride

(D) Triammine chlorobromonitro platimum (vi) Chloride

139. Rate = $K[A]^2[B]$ for the reaction $2A + 3B + C \rightarrow$ product where A and B are present in:

(A) 1^{st} (B) 2^{nd}

(C) 3^{rd} (D) 4^{th}

140. P_2O_5 is Hygroscopic powder which sublimes at:

(A) 260 Degree Celsius (B) 360 Degree Celsius

(C) 630 Degree Celsius (D) 690 Degree Celsius

141. A body of mass of 2 kg absorbed 10j of radioactive radiations then absorbed dose of radiation in rad is

(A) 5 (B) 5×10^{-2}

(C) 500 (D) 20

142. A disc, a hoop and a sphere of same mass and radius are rolled down from a Frictionless.....inclined plane. Which has greater speed on reaching the ground?

(A) Disc (B) Loop

(C) Sphere (D) All have same speed

143. A logic gate has four inputs, its possible input combination will be:

(A) 4 (B) 16

(C) 32 (D) 64

144. A maintenance crew is working on a section of a three-lane highway only lane open to traffic. The result is much slower of traffic flow. Do cars on a highway behave like:

(A) The molecules of an incompressible fluid

(B) The molecules of a compressed fluid

(C) Both (A) and (B)

(D) None of the above

145. A square coil of side 16 cm has 200 turns and rotates in a uniform magnetic field of magnitude 0.05 T. If the peak emf is 12 V, what is the angular velocity of the coil?

(A) 43 rad s^{-1} (B) 49 rad s^{-1}

(C) 47 rad s^{-1} (D) 45 rad s^{-1}

146. According to Einstein bodies and Light rays follow:

(A) Rectilinear Path (B) Circular Path

(C) Geodesics (D) Parabolic

147. An A.C emf of V=200 sin (100 ^t) volt is concerned to a choke of negligible resistance. In order to produce current of amplitude 1 A, the inductance of choke should be:

(A) 200 H (B) 2π H

(C) $\frac{1}{\pi}$ H (D) $\frac{2}{\pi}$ H

148. Aero plane is flying in a straight line at a constant altitude. If a wind gust strikes and raises the nose of the airplane, the nose will bob up and down until the plane eventually return's to it's original position altitude. Are these oscillation's are:

(A) Undamped (B) Underdamped

(C) Critically damped (D) Overdamped

149. An electron describes a circular orbits of radius 2 cm in a uniform magnetic field. If speed of electron is doubled then radius of the orbit will:

(A) 0.5 cm (B) 1 cm

(C) 2 cm (D) 4 cm

150. An electron is moving along the axis of a solenoid carrying a current which of the following is a correct statement about the electromagnetic force acting on the electron?

(A) The force acts perpendicular to its motion

(B) The force acts anti-parallel to its motion

(C) The force acts in the direction of motion

(D) No force acts

151. As temperature of the black body is raised the black body radiations become richer in :

(A) Intermediate Wavelenths (B) Longer Wavelengths

(C) Shorter Wavelengths (D) Low Frequencies

152. At which of the following places, motion of simple pendulum becomes slowest:

(A) Murree (B) Karachi

(C) K-2 (D) Peshawar

153. Equation of SHM, with amplitude 'a' is given by:

(A) $X = a(\sin^2 \omega t + \cos^2 \omega t)$ (B) $X = a(\sin \omega t \cos^2 \omega t)$

(C) $X = a \sin \omega t$ (D) $X = a^2 \sin(\sin \omega t)$

154. How much more thumb pressure must a nurse use to administer an injection with a hypodermic needle of inside diameter 0.30 mm compared to one with inside diameter 0.60 mm? Assume that the two needles have the same length and that the volume flow rate is the same in both cases.

(A) Twice as much (B) 4 times as much

(B) 8 times as much (D) 16 times as much

155. If the length of a second's pendulum is L, then the length of pendulum having a period 1 sec will be:

(A) L/2 (B)2L

(C)4L (D) L/4

156. In RLC series circuit at resonance the voltage across R, L and C are 10 V, 30 V and 30 V respectively then applied voltage will be:

(A) 30 V (B) 10 V

(C) 40 V (D) 20 V

157. Let an emf of 120 volt of negligible internal resistance connected across a resistance of 1000 ohm. Then the current flowing through the circuit will be:

(A) 120 A (B) 120×10^3 A

(C) 120×10^{-3} A (D) None

158. A glider moves on a horizontally surface back and fourth.

(A) $v_x -> u$ and $a_x > u$ (B) $v_x = 0$ and $a_x < 0$

(C) $v_x < u$ and $a_x < u$ (D) $v_x = u$ and $a_x < u$

159. The first excitation energy of H atom will be:

(A) 10.2eV (B) 3.4 eV

(C)-136eV (D)13.6eV

160. The number of LED segments used in a Calculator Display:

(A) 8 (B) 10

(C) 7 (D) None

161. The ratio of angular speed of moon around the Earth to its angular speed about its own axis is :

(A) 2:1 (B) 1 : 6

(C) 1 : 30 (D) 1 : 1

162. The six strings of a guitar are the same length under nearly the same tension, but they have different thickness. On which string do waves travel the fastest?

(A) The thickest string

(B) The thinnest string

(C) The wave speed is the same on all the strings

(D) None of the above

163. To double the total energy for a mass spring system oscillating in SHM, by what factor must the amplitude increase?

(A) 4 (B) 2

(C) $\sqrt{2}$ =1.414 (D) $\sqrt[3]{2}$ = 1.189

164. Two points charges of +5 C and -12 C attract each other with a force of 1.48 N. charge of -5C is added to each of these charges. Now the force will be:

(A) 1.48 N(attractive) (B) 1.48 N(repulsive)

(C) 2.96 (repulsive) (D) Zero

165. Two spheres of the same size, one of mass 5 kg and other of mass 50 g are dropped simultaneously from a tower. When they are about to touch the ground, they have the same:

(A) Kinetic Energy (B) Potential Energy

(C) Momentum (D) Acceleration

(E) All Given Options

166. When an observer move with velocity of light relative to a timing device at rest, he would notice:

(A) Absolute time (B) Improper time

(C) Infinite time (D) Proper time

167. When brakes of a car are applied, angular velocity of a flywheel reduces from 900 cycle/min to 720 cycle/min. in 6 sec. Angular retardation is:

(A) π rad/s^2 (B) 9π rad/s^2

(C) 8π rad/s^2 (D) $\frac{2}{3}\pi$ rad/s^2

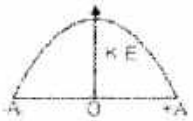
(E) Insufficient Data

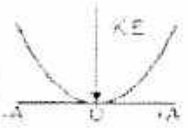
168. When the output power equals to one-half of the input power, efficiency of the transformer becomes:

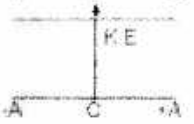
(A) 0 % (B) 100 %

(C) 50 % (D) 200%

169. Which Graph in SHM show K.E of body:

(A) 

(B) 

(C) 

(D) None

170. Which of the following represent $\tan\theta$?

(A) $\frac{\vec{A}.\vec{B}}{\vec{A}\times\vec{B}}$ (B) $\frac{\vec{A}\times\vec{B}}{\vec{A}\times\vec{B}}$ (C) $\frac{\vec{A}\times\vec{B}}{\vec{A}.\vec{B}}$ (D) $\frac{|\vec{A}\times\vec{B}|}{\vec{A}.\vec{B}}$

171. Which one has proper use of preposition?

(A) "If I am lying, the curse of Allah be on me and may I be drowned in some period. May I even be deprived from a decent burial!"

(B) "If I am lying, the curse of Allah be on me and may I be drowned in some period. May I even be deprived at a decent burial!"

(C) "If I am lying, the curse of Allah be on me and may I be drowned in some period. May I even be deprived off a decent burial!"

(D) "If I am lying, the curse of Allah be on me and may I be drowned in some period. May I even be deprived of a decent burial!"

172. Voracious means.....

(A) Excitable (B) Honest

(C) Greedy (D) Circular

173. The secretary _____agreed to_____the president's decision, knowing that the information was less than factual and against her basic beliefs regarding deceptive sales practices.

(A) Willingly. . . support (B) Maliciously. . sway

(C) Secretively. . . acknowledge (D) Furtively. . . foster

(E) Grudgingly. . . abide by

174. The parade route was down the main boulevard.

(A) Alley (B) Highway

(C) Avenue (D) Driveway

175. The chess master promised to_____havoc upon his opponent's pawn for **taking his bishop.**

(A) Endow (B) Placate

(C) Ensue (D) Warrant

(E) Wreak

176. The boy was incorrigible and a constant source of trouble to his mother.

(A) Truant (B) Bad Beyond correction

(C) Rash (D) Dishonest

177. Shakespeare, a (an)_____ writer, entertained audiences by writing many tragic and comic plays.

(A) Numeric (B) Obstinate

(C) Dutiful (D) Prolific

(E) Generic

178. Read the Passage and Answer the Question: Poetry begins in trivial metaphors, petty metaphors. "grace" metaphors, and goes on to the profoundest thinking that we have. Poetry provides the one permissible way of saying one thing and meaning another. People say. "Why don't you say what you mean?" We never do that, do we, being all of us too much poets. We like to talk in parables and in hints and in indirections whether from diffidence or some other instinct. What selection best describes the word "diffidence" as used in the passage?

(A) Shyness (B) Consternation

(C) Bewilderment (D) Reservations

(E) Caution

179. Point Out the correct one:

(A) A pair of shoes for his first born, Mehrunnisa, had cost him one rupee.

(B) A pair of shoes for his first born, Mehrunnisa, had costed him one rupee.

(C) A pair of shoes for his first born, Mehrunnisa, had costed him one rupee.

(D) A pair of shoe for his first born, Mehrunnisa, had cost him one rupee.

180. Mongoose : mammal : granite :_____

(A) Marker (B) Mineral

(C) Headstone (D) Bird

181. Mitigate means:

(A) Aggravate (B) Attenuate

(C) Contemplate (D) Virulent

182. Identify Correct One:

(A) Now observe it's effect on a human being

(B) Now observe its effect on a human being

(C) Now observe its affect on a human being

(D) Now observe it effect on a human being

183. His credulous nature often landed him in touble:

(A) Dreamy (B) Naughty

(C) Innocent (D) Willing to believe easily

184. Her_____demeanor was understandable given the loss of her brother; indeed, most of us were rather_____.

(A) Lachrymose.. . dolorous (B) Reprehensible. . . enigmatic

(C) Subtle... raucous (D) Determined. . . committed

(E) Displaced. .. focused

185. **Given Below is a Paragraph. Read it and Answer the Question:! fretted the other night at the hotel at the stranger who broke into my chamber after midnight, claiming to share it. But after his lamp had smoked the chamber full and I had turned round to the wall in despair, the man blew out his lamp, knelt down at his bedside, and made in low whisper a long earnest prayer. Then was the relation entirely changed between us. I fretted no more, but respected and liked him. The probable purpose of the author using the phrase, "lamp had smoked the chamber full" is to**

(A) Establish a period of time

(B) Show a low grade fuel was used

(C) Establish the faultiness of the lamp

(D) indicate the lamp was turned up too high

(E) Utilize figurative language.

186. Football players, generally known for their elevated testosterone levels, would see crying as unmanly rather than a humanistic trait by either sex.

(A) inherently. .. experienced (B) inexplicably. . . enjoyed

(C) Intentionally... fostered (D) Plausibly. .. envisioned

(D) Sickeningly. . . thwarted

187. DISSENSION has the same meaning as

(A) Discord (B) Analysis

(C) Swelling (D) Injury

188. Choose the correct one:

(A) She reminded me the nice days of my childhood

(B) She reminded me of the nice days of my childhood

(C) She reminded me for the nice days of my childhood

(D) She reminded me on the nice days of my childhood

189. Choose the best match According to given relation:

DWELL : DENIZEN

(A) Shun : outcast

(B) Inherit: heir

(C) Squander: miser

(D) Obey : autocrat

(E) Patronize: protege

190. Ballet was_____ delighting the children with its imaginative characters and unpredictable sets.

(A) Prosaic

(B) Archaic

(C) Soporific

(D) Whimsical

(E) Inimical

191. Which word does not belong to the group in each of the following questions?

(A) chest

(B) Ear

(C) Lip

(D) Nose

192. What is the missing number in the triangle on the right?

(A) 448

(B) 39

(C) 338

(D) 340

(E) None of these

193. Suppose in a certain language MADRAS is coded as NBESBT. Then BOMBAY is coded in that language as:

(A) CPNCPZ

(B) CPNCBX

(C) CPOCBZ

(D) CQOCBZ

194. Odd one Out:

(A) Eagle

(B) Cloud

(C) Squirrel

(D) Plane

195. Let UDOMETER is coded as DUMOTERE then how will SUBLEASE be coded?

(A) USBAELES

(B) USLBESAE

(C) USLBAEES

(D) USLBEAES

196. **If EXPLAINING is written as PXEALNIGNI. Then PRODUCED is written in that code as:**

(A) ORPBUDEC (B) ROPUDECD

(C) ORPUDECD (D) None of Given

197. **Identify Which do not possess the same kind of meaning as the others:**

(A) Honesty and Integrity (B) Bondage and Freedom

(C) Risk and Danger (D) Pain and Agony

198. **Find the missing number in the Box Given Below:**

7	10	16
1	22	40
3	58	?

(A) 122 (B) 112

(C) 69 (D) 98

199. **A man walks 3 km northwards and then turns left and goes 2 km. He again turns left and goes on 3 km. He turns right and walks straight. In which direction he is walking?**

(A) EAST (B) WEST

(C) NORTH (D) SOUTH

200. **100 + 11 = 32111 + 1000 = 43100 + 100 = ?**

(A) 224 (B) 245

(C) 22 (D) 25

Answer Key NUMS 2015

1. (C)	2. (A)	3. (A)	4.(D)	5.(D)	6. (D)
7. (D)	8. (A)	9. (C)	10. (C)	11. (D)	12. (D)
13. (D)	14.(C)	15. (D)	16. (C)	17. (D)	18. (C)
19. (A)	20. (B)	21. (C)	22. (C)	23. (C)	24. (A)
25. (B)	26. (B)	27. (C)	28. (C)	29. (A)	30. (C)
31. (B)	32. (B)	33. (C)	34. (B)	35. (B)	36. (D)
37. (A)	38. (A)	39. (C)	40. (A)	41. (A)	42. (C)
43.	44. (C)	45. (D)	46. (B)	47. (D)	48. (C)
49. (B)	50. (C)	51. (C)	52. (C)	53. (A)	54. (D)
55. (A)	56. (A)	57. (D)	58. (A)	59. (D)	60. (A)
61. (C)	62. (A)	63. (B)	64. (B)	65. (C)	66. (D)
67. (A)	68. (A)	69. (D)	70. (D)	71. (B)	72. (A)
73. (C)	74. (C)	75. (D)	76. (C)	77. (A)	78. (D)
79. (D)	80. (C)	81. (B)	82. (A)	83. (A)	84. (D)
85. (C)	86. (C)	87. (D)	88. (B)	89. (B)	90. (A)
91. (B)	92. (D)	93. (C)	94. (B)	95. (A)	96. (C)
97. (A)	98. (C)	99. (D)	100. (A)	101. (C)	102. (A)
103. (B)	104. (A)	105. (A)	106. (D)	107. (A)	108. (B)
109. (B)	110. (D)	111. (B)	112. (B)	113. (C)	114. (B)
115. (B)	116. (A)	117. (D)	118. (D)	119. (C)	120. (C)
121. (C)	122. (D)	123. (A)	124. (B)	125. (B)	126. (A)
127. (C)	128. (C)	129. (D)	130. (D)	131. (C)	132. (C)
133. (A)	134. (A)	135. (B)	136. (B)	137.(C)	138.(D)
139. (A)	140. (B)	141. (C)	142. (C)	143. (B)	144. (A)
145. (C)	146. (C)	147. (D)	148. (B)	149. (A)	150. (A)
151. (C)	152. (C)	153. (C)	154. (D)	155. (D)	156. (B)
157. (A)	158. (B)	159. (A)	160. (C)	161.(D)	162. (A)
163.(C)	164. (D)	165. (D)	166. (C)	167. (A)	168. (C)
169.(A)	170. (D)	171. (A)	172. (C)	173. (E)	174. (C)
175. (E)	176. (B)	177. (D)	178. (D)	179. (A)	180. (C)
181. (B)	182. (D)	183. (D)	184. (A)	185. (A)	186. (A)
187. (A)	188. (B)	189. (B)	190. (A)	191. (A)	192. (A)
193. (A)	194. (C)	195. (A)	196. (A)	197. (B)	198. (B)
199. (A)	200. (C)				

FMDC PAPER PATTERN 2012

Subjects	:	No. of Questions
Physics	:	30
Chemistry	:	30
Biology	:	30
English	:	10
Total	:	100

Note: FMDC paper pattern changed after 2013.

ENTRANCE TEST 2012-13

General Instructions:

1. All Answers must be given by completely filling the circles having the correct answer i.e. A, B, C. D or E. with blue ball pen only.
2. Mobile phones, calculators, laptops palmtops, tablet, PC and books are prohibited in the premises of examinations.
3. Once an answer has been given on the response form, the candidate will not be permitted to change any of his/her answers in any way.
4. Any evidence of cheating or non compliance of instructions will disqualify the candidate from the test.
5. There will be no negative marking in the test.

FEDERAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ENTRANCE TEST - 2012

Time Allowed: 150 Minutes

Total MCQs = 100

Instructions:

i. Read the instructions on the MCQ Response Form carefully.

ii. Choose the Single Best Answer for each question.

iii. Candidates are strictly prohibited from giving any identification mark except Roll No. & Signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE C) PINK

B) BLUE D) GREEN

Ans: Color of your question Paper is blue. Fill the Circle corresponding to letter 'B' Against 'ID' in your MCQ response form (Exactly as shown **in** the diagram).

ENGLISH

1. Ambition is one of those is never satisfied.

(A) Ideas (B) Fancies (C) Energies (D) Passions

2. The opponents were out numbered, but still the commander refused to

(A) Out (B) Way (C) Over (D) In

3. Spot the error:

The dean of this college is a good friend of me.

A B C D

4. Spot the error:

There have been heavy rainfall yesterday.

A B C D

5. Choose similar meanings: Barbarian.

(A) Uncivilized (B) Civilized (C) Cultured (D) Vagabond

6. **Choose opposite meaning: Uncertain.**

(A) Vague (B) Doubtful (C) Sure (D) Clownish

7. **Choose the opposite meaning: Quote.**

(A) Cite (B) Analyze (C) Saying (D) Feel

8. **He was very polite.....me.**

(A) To (B) With (C) On (D) For

Read the passage to answer the question: 9-10.

Doctors are people who examine other people in their clinics. When patients visit them, the doctors follow a certain procedure. They take the pulse, thumb the chest and listen to the heart beats through the stethoscope, and perhaps a miniature rubber tyre is put around the patient's arm and is blown up to check what is called blood pressure

9. **Who are the other people whom doctors examine?**

(A) Men (B) Women (C) Patients (D) Children

10. **Patients visit doctors means:**

(A) They address them (C) They visit their homes

(B) They go to them as patients (D) They make courtesy calls on them

PHYSICS

11. **Two masses of 7 kg and 3kg respectively are hanging on a frictionless pulley. Calculate the acceleration due to gravity.**

(A) 1 ms^{-2} (B) 2ms^{-1} (C) 3ms^{-2} (D) 4ms^{-2} (E) 5ms^{-2}

12. **A body is moving upward with a velocity of 500m/sec^2. What will be the height?**

(A) 12.7 km (B) 13.7 km (C) 15 km (D) 16 km

13. **A ball is thrown vertically upward with a velocity of 98 m/s. How high does the ball rise? g = 9.8 m/sec^2.**

(A) 360m (B) 380m (C) 490m (D) 510m

14. **Which quantity can be described in terms of only two base quantities?**

(A) Current (B) Charge (C) Force (D) Temperature

15. **If in a parallel plate capacitor we insert a metal sheet of half the thickness as compared with the spacing between the plates of the capacitor, the capacitance becomes:**

(A) % (B) | (C) 2c (D) 4c

16. **At given t taken a body at rest which then moves with an acceleration, after 3sec, its momentum:**

(A) 2 (B) 3 (C) 1 (D) 0.5

17. **Which pair includes a scalar quantity and a vector quantity?**

(A) Kinetic energy and momentum (B) Potential energy and work

(C) Velocity and acceleration (D) Weight and force

18. **A stone is whirled, it experiences an inward force by string which is:**

(A) Centrifugal force (B) Proportional to square of speed

(C) Tangent (D) Inverse of square of speed

19. **One volt can be defined as:**

(A) One joule work done in moving unit positive charge from one point to another

(B) Ratio of energy dissipated at one and other point

(C) Ratio of power dissipated at one and other point

(D) All of these

20. **Work done by a constant source of 1Kw power that is 1000 J per sec in one hour is:**

(A) Kwh (B) Watt (C) Watt hour (D) M Watt

21. **The focal length (f = 10cm). At what distance object should be placed to get an image twice size of object?**

(A) 15cm (B) 20cm (C) 25cm (D) 30cm

22. **In diffraction experiment, something done by moving apparatery away from screen such that plane wavelengths obtained. This describes:**

(A) Michelson diffraction (B) Newton's diffraction

(C) Einstein's diffraction (D) None of the above

23. **Which of the following electromagnetic phenomenon wave nature is not enough to explain?**

(A) Photoelectric effect (B) Interference

(C) Diffraction (D) Polarization

24. **A freely falling objects is an example of:**

(A) Newton's first law (B) Newton's 2nd law

(C) Archimedes principle (D) All of these

25. **If resulting intensity is greater than individual intensities of two waves then it is:**

(A) Constructive interference (B) Destructive interference

(C) Instinctive interference (D) None

26. **For 0 to 10 degree Celsius rise in temperature, volume of water will:**

(A) Increase (B) Decreases

(C) First increases then decreases (D) No effect

27. **In an organ pipe, if a person blows it fast then Q what change will occurs in sound waves?**

(i) speed (ii) Amplitude (iii) Frequency (iv) Intensity

(A) I and II (B) I only (C) III only (D) I, II, III and IV

28. **A gas has a volume of 500ml at 760 torr. What will be the pressure if the volume is reduced to 300ml.**

(A) 1266.67 torr (B) 1366.67 torr (C) 1566 torr (D) 1866 torr

29. **A student calculates the result of an experiment as 1.65, 1.72 and 1.89. But when he checks its answer comes out to be 2.35. What would it be called?**

(A) Precision and no accuracy (B) No precision but accurate

(C) No accuracy but precise (D) Accurate and precise

30. **Heating a gas at constant volume will cause:**

(A) Increase in temperature

(B) Increase in temperature and internal energy

(C) Increase in internal energy

(D) Decrease in internal energy and increase in temperature

31. **Light passes through two parallel slits and falls on a screen. The pattern produced is due to interference and:**

(A) Reflection (B) Refraction

(C) Polarization (D) Diffraction

32. **A racing car accelerates uniformly through three gears, changes with the following average speed: 20 for 25, 40 for 2.05, 60 for 6 sec what is the over all average speed of the car?**

(A) 12 m/sec (B) 13.3 m/sec (C) 40 m/sec

(D) 48 m/sec (E) 37

33. **Radiations the chief method of energy transfer:**

(A) From the sun to an earth satellite

(B) From a gas flame to water in a tea Kettle

(C) From a soldering iron to metals being soldered.

(D) From water to an ice cube floating on it.

(E) From materials to surrounding air

34. **A Rocket moves according to the principle of conservation of:**

(A) Mass (B) Force (C) Energy (D) Momentum

35. **The property of bending of light around obstacles is called:**

(A) Reflection (B) Refraction (C) Diffraction (D) Interference

36. **The drag force acting on a sphere of radius r moving slowly through a viscous fluid is proportional to:**

(A) r^2 (B) r (C) $\frac{1}{r^2}$ (D) $\frac{1}{r}$

37. **Weber is a unit of:**

(A) Magnetic force (B) Magnetic flux

(C) Electric flux (D) Magnetic induction

38. **To observer the position of micro particle with greatest accuracy, one must use light of:**

(A) Long wavelength (B) Short wavelength

(C) Low intensity (D) High intensity

39. **The unit of electromotive force is:**

(A) Newton (B) Newton/Coulomb (C) Watt (D) Volt

40. **The cross products of two parallel vectors is:**

(A) A null vector (B) Unit vector

(C) Zero (D) The products of magnitudes

BIOLOGY

41. **The difference between the rough endoplasmic reticulum and smooth endoplasmic reticulum is due to the presence of:**

(A) Mesosomes (B) Ribosomes

(C) Golgi bodies (D) Mitochondria

42. Which of the following is correctly paired with its function?

(A) Mitochondria: store lipids

(B) Golgi bodies: formation of polysaccharides

(C) Lysosomes, is a single celled organelle for packing

(D) Ribosome: work more efficiently in acidic medium (E) None

43. Which of the following hormones of endocrine system is not paired correctly?

(A) Anterior pituitary gland = LH (B) Adrenal cortex = Glucocorticoids

(C) Posterior pituitary gland = FSh (D) Adrenal medulla = Epinephrine

(E) Parathyroid = Parathormone

44. Ascaris belongs to the phylum:

(A) Annelida (B) Arthropoda

(C) Nematoda (D) Echinodermata

45. The process of formation of RNA from DNA is called:

(A) Translation (B) Transcription

(C) Mutation (D) Replication

46. Loss of water through Hydathodes is called:

(A) Guttation (B) Transpiration

(C) Photosynthesis (D) Respiration

47. Which of the following is the part of pectoral girdle?

(A) Patella (B) Pubis (C) Femur (D) Glenoid cavity

48. Antibodies are not present in:

(A) Blood (B) Lymph (C) Plasma (D) Saliva

49. Two or more populations of different species living and inter active in same area are called:

(A) Group (B) Community (C) Habitat (D) Population

50. Apple trees, oaks and palm trees are:

(A) Angiosperms (B) Gymnosperms

(C) Chordates (D) Bryophytes

51. Cerebellum causes:

(A) Muscle contraction (B) Blinking of eyes

(C) Dilation and constriction of pupil (D) Knee jerking

52. **If a man is color blind and marry with normal woman, what will be correct?**

(A) 100% of females will be carrier and 100% males will be normal.

(B) 50% normal males 100% affected females.

(C) 50% males affected 50% females carriers.

(D) 100% females normal, 50% males affected.

53. **Pepsin is a……..and secreted by……..**

(A) Acid-intestine (B) Enzyme-stomach

(C) Protein-Jejunum (D) Secretion-pancreas

54. **Which of the following is the correct outline of the main events in photosynthesis:**

(A) Oxygen reacts with carbohydrates to produce water and carbon dioxide in the presence of light.

(B) Lights join carbon dioxide to an acceptor compound which is then reduced by hydrogen obtained from water.

(C) Light splits water and the resulting hydroxyl group combines with a compound which has incorporated carbon dioxide.

(D) Light splits water and the resulting carbon then combines with a oxygen and hydrogen obtained from water.

(E) Carbon dioxide combines with acceptor compound and this is reduced by hydrogen split from water by light.

55. **Progesterone causes:**

(A) Makes uterus ready for implantation (B) Release FSH

(C) Produce follicle (D) Inhibits LH

56. **Which one is not a respiratory organ of arthropods?**

(A) Cills (B) Book hung (C) Trachea (D) Antenna

57. **What is that response in which organism does not show any differences on repeated UN-harmful effect?**

(A) Imprinting (B) Habituation (C) Instinct learning (D) Learning

58. **Which one is the correct for the theory of Darwin?**

(i) Struggle for existence (ii) Survival (iii) Over production (iv) Evolution

(A) I, II, III, IV (B) III, I, IV (C) IV, III, II, I (D) II, I, III, IV

59. **Which one is not an STD?**

(A) Gonorrhea (B) Syphilis (C) AIDs (D) Meningitis

60. **The common disease caused by lack of vitamin C is called:**

(A) Diabetes mellitus (B) Typhoid (C) Scurvy (D) Malaria

(E) None of the above

61. **The cells transmits impulses from the:**

(A) Effectors organ to the spinal cord

(B) Receptor cells tot he effectors organ

(C) Receptor cells to the spinal cord cells

(D) Spinal cord to the effectors organ

(E) Spinal cord to the receptor cell

62. **How many bones are present in the wrist?**

(A) Four bones (B) Six bones (C) Eight bones

(D) Ten bones (E) Many bones

63. **Molds and yeast are classified as:**

(A) Rhodophytes (B) Bryophytes (C) Fungi

(D) Ciliates (E) Flagellates

64. **A gamete without any sex chromosome termed as:**

(A) Nullo gamete (B) Neo-gamete (C) Homozygous (D) None

65. **Phosph-di-ester bond is present in:**

(A) ATP (B) GTP (C) NAD (D) All

66. **Pick the opposite working pair:**

(A) RBC and platelet (B) Neutrophil and monocytes

(C) Basophils and eosinophil's (D) Lymphocytes and monocytes

67. **Protein found in highest concentration in blood is:**

(A) Albumin (B) Globulin

(C) Prothrombi (D) Fibrinogen

68. **A page virus is a virus that infects:**

(A) Other viruses (B) Protozoa (C) Bacteria (D) Algae

69. **Which one of the following does not change when the muscle contracts?**

(A) A-band (B) I-band

(C) H-zone (D) length of muscles

70. The swelling of structure due to absorption of water is called:

(A) Guttation (B) Plasmolysis

(C) Deplasmolysis (D) Imbibition

CHEMISTRY

71. The PH of 1 molar KOH is:

(A) 8 (B) 7 (C) 14 (D) 1

72. The electronic configuration $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^7$ depicts an atom of the element.

(A) Br (B) CO (C) Ga (D) Mg (E) CD

73. Oxidation of secondary Alcohol gives:

(A) Aldehyde (B) Ketone (C) Ethene (D) Mineral acid

74. If two atoms of different elements having different electro negativities combine such a way that they share electrons……..then the bond between them is:

(A) Polar covalent (B) Non polar covalent

(C) Hydrogen bond (D) Ionic bond

75. Shiny, electrically non conducting and brittles these characteristics depicts that under consideration is:

(A) Halogen (B) Transition metal

(C) Alkali metals (D) Alkaline earth metals

76. Which of the following is most highly reactive metal?

(A) Na (B) Cl (C) Mg (D) Fe

77. There is a chemical under consideration. We do not know if it is HCI or H_2S0_4. Which of the following compounds will react with the chemical under consideration to produce a precipitate and hence confirming the fact that the chemical is H2SO4.

(A) UNO3 (B) $Ba(N0_3)_2$ (C) $AgN0_3$ (D) NaCI

78. Give the IUPAC name of

(A) Neobutane (B) Hexabutane

(C) 2-phenylbutane (D) 2-hexabutane

79. How many electrons are in CI-37 with charge minus 1?

(A) 18 (B) 19 (C) 20 (D) 21

80. A gaseous organic compound C, was burnt in an excers of oxygen. A = 0.112dm Sample of C measured at S.T.P, produced 0.88g of carbon dioxide. How many carbon atoms are there is one molecular?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 8

81. In neutralization:

(A) The base is neutralized (B) The acid is neutralized

(C) Salt is formed (D) All of the above

82. α-rays (Alpha) are:

(A) Fast moving electrons (B) Protons

(C) Neutrons (D) Positively charged helium nuclei

83. Which orbital has lowest energy?

(A) 3d (B)4s (C)3p (D) 4f (E) 5f

84. Which one of the following one has largest ionic radius?

(A) Pb^{-3} (B)Cr^{-1} (C)K^{+} (D) Na^{+}

85. Which of the following has greatest energy in the reaction?

(A) Transition state (B) Reactants (C) Products (D) None

86. Coinage metals are:

(A) Ni, Pd, Pt (B) Cu, Ag, Au (C) An, Al, Pb (D) Fe, Si, Sn

87. Orbital of same energy are called as……..orbital.

(A) Atomic (B) Molecular (C) Degenerate (D) All

88. Which of the following does not form alcohol with Grignard reagent?

(A) HCHO (B) CH_3CHO (C) CH3COCH3 (D) CO_2

89. In gas and liquid temperature is measure of:

(A) Vibrational kinetic energy (B) Transitional kinetic energy

(C) Rotational kinetic energy (D) Potential energy

90. Which one of the following has lowest critical temperature?

(A) CO_2 (B) Ar (C) N_2 (D) O_2

91. Purity of solid substances can be checked by:

(A) Shape (B) Melting point (C) Density (D) Color

92. **Boiling point of water depends upon:**

(A) Amount of water (B) Surface area

(C) Vapour pressure (D) Atmospheric pressure

93. **Bond present in diamond is:**

(A) Ionic (B) Molecular (C) Covalent (D) Metallic

94. **Aluminum does not corrode due to the formation of:**

(A) O_2 layer (B) H2O layer (C) H2O layer (D) AI2O3 layer

95. **AI2O3.2SiO2.2H2O is the formula of:**

(A) Feldspar (B) Corundum (C) Clay (D) Gypsum

96. **Dissociation of solute does not depend on:**

(A) Size of solvent (B) Temperature

(C) Nature of solute (D) Concentration of solute

97. **Shape of the orbital is given by:**

(A) Principle Quantum number (B) Azmuthal quantum number

(C) Magnetic quantum number (D) Spin quantum number

98. **Electrical energy is converted into chemical energy by:**

(A) Electrical cell (B) Electrolytic cell

(C) Galvanic cell (D) Daniel cell

99. **When strong acid is added to the buffer solution, it results in the formation of:**

(A) Strong Acid (B) Weak Acid (C) Weak Acid (D) Weak base

100. **Vapour pressure of water and ethanol is:**

(A) Greater than water (B) Lesser than water

(C) Equal to water (D) None

FEDRAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ANSWERS KEY

FMDC Paper 2012

1. (D)	2. (D)	3. (D)	4. (B)	5. (A)	6. (C)
7. (B)	8. (A)	9. (C)	10. (C)	11. (D)	12. (A)
13. (C)	14. (B)	15. (C)	16. (A)	17. (A)	18. (A)
19. (A)	20. (C)	21. (A)	22. (A)	23. (A)	24. (A)
25. (A)	26. (C)	27. (C)	28. (A)	29. (A)	30. (B)
31. (D)	32. (D)	33. (A)	34. (D)	35. (C)	36. (B)
37. (B)	38. (B)	39. (D)	40. (C)	41. (B)	42. (E)
43. (C)	44. (C)	45. (B)	46. (A)	47. (D)	48. (D)
49. (B)	50. (A)	51. (A)	52. (A)	53. (B)	54. (E)
55. (A)	56. (D)	57. (B)	58. (C)	59. (D)	60. (C)
61. (D)	62. (C)	63. (C)	64. (A)	65. (D)	66. (C)
67. (A)	68. (C)	69. (A)	70. (D)	71. (C)	72. (B)
73. (B)	74. (A)	75. (A)	76. (A)	77. (B)	78. (C)
79. (A)	80. (D)	81. (D)	82. (D)	83. (C)	84. (C)
85. (A)	86. (B)	87. (C)	88. (D)	89. (B)	90. (C)
91. (B)	92. (C)	93. (C)	94. (D)	95. (C)	96. (D)
97. ( )	98. (B)	99. (D)	100. (A)		

FEDERAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ENTRANCE TEST-2013

Time Allowed: 150 Minutes

Total MCQs = 100

Instructions:

(i) Read the instructions on the MCQ Response Form carefully.

(ii) Choose the Single Best Answer for each question.

(iii) Candidates are strictly prohibited from giving any identification mark except Roll No. & Signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE C) PINK

B) BLUE D) GREEN

Ans: Color of your question Paper is Blue. Fill the Circle corresponding to letter 'B' Against 'ID' in your MCQ response form (Exactly as shown in the diagram).

BIOLOGY

1. **A student is trying to determine the type of membrane transport occurring in a cell. She finds that the molecules to be transported is very large and when transported across the membrane, No ATP is used. Which of the following is the most likely mechanism of transport?**

(A) Active transport (B) Simple diffusion

(C) Facilitated diffusion (D) Exocytosis

2. **In the course of glycolysis:**

(A) NADH is reduced to NAD^+ (B) NAD^+ is oxidized to NADH

(C) Glucose is degraded into two molecules (D) Both A and B

3. **The epiglottis is to trachea as the lower oesophaged (cardiac) sphincter is to the:**

(A) Stomach (B) Heart (C) Small intestine (D) Liver

4. **Starch is hydrolyzed into maltose by:**

(A) Salivary amylase (B) Maltose

(C) Pancreatic amylase (D) Both A and B

5. **Which of the following best describes the residual volume of the lungs?**

(A) The amount of air normally inhaled and exhaled with each breath.

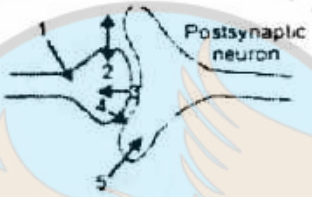
(B) The maximum amount of air that can be forcibly inhaled and exhaled from the lungs.

(C) The volume of air that can still be forcibly exhaled following a normal exhalation.

(D) The volume of air that always remains in the lungs.

6. **The diagram show the sequence of events occurring as an action potential arrives at a synapse.**

The numbered arrows represent movement of substances across the membranes.



What are the substances moving across the membranes?

	1	2	3	4	5
(A)	K^+	Na^+	Acetylcholine	Ca^{+2}	K^+
(B)	K^+	Na^+	K^+	Ca^{+2}	Acetylcholine
(C)	Na^+	K^+	Ca^{+2}	Acetylcholine	Na^+
(D)	Na^+	K^+	Ca^{+2}	Acetylcholine	Ca^{+2}

7. **Arthropods can be characterized by all of the following except.**

(A) A hard exoskeleton (B) A water vascular system

(C) Joined appendages (D) Molting (E) Segmented body

8. **The role of decomposers in the nitrogen cycle is to:**

(A) Fix atmospheric nitrogen into ammonia.

(B) Incorporate nitrogen into amino acids and organic compounds.

(C) Convert ammonia to nitrate, which can be then absorbed by plants.

(D) Denitrify ammonia, thus returning nitrogen tot he atmosphere.

(E) Release ammonia from organic compounds, thus returning into the soil.

9. **Black coat color in horses is caused by a dominant allel, while white coat color is due to the recessive allel. Two black horses produce a foal with coat. If they were produce a second foal what would be the probability of the second foal having a black coat?**

(A) 0 (B) $\frac{1}{0}$ (C) $\frac{1}{2}$ (D) $\frac{1}{4}$

10. **Organisms that live in the intertidal zone might have which of the following characteristics?**

(i) Ability to conduct photosynthesis **(ii) Tolerance of periodic drought**

(iii) Tolerance of wide range of temperatures

(A) I only (B) II only (C) I and II only (D) I and III only

(E) I, II and III

11. **In floral formula K stands for:**

(A) Corolla (B) Calyx (C) Perianth (D) Andraecium

(E) Gynaecium

12. **Hordeum vulgare is the botanical name of:**

(A) Wheat (B) Oats (C) Rice (D) Barly (E) Bajra

13. **The usual duration of luteal phase in the menstrual cycle of human female is:**

(A) 4-6 days (B) 8-10 days (C) 12-14 days (D) 10-12 days

14. **Response to plants to touch is called:**

(A) Geotropism (B) Thigmotropism

(C) Nasticism (D) Mechanoreception

15. **Select the false statement.**

(A) All fungi are saprophytic (B) Mycology is the study of fungi

(C) Fungi are non coenocytes (D) Puccinia is a obligate parasite

16. **Photosynthetic product from leaves to all parts of plant are disturbed through:**

(A) Vascular bundles (B) Phloem

(C) Cylem (D) Stomata

(E) None of the above

17. **In the F_2 generation of di hybrid cross between yellow, round seeded and green wrinkled seeded pea plants. 17 out of 254 seeds were green and wrinkled other seeds were:**

☆Yellow and round ☆Green and round ☆Yellow and wrinkled

What do these results indicate?

(A) Crossing-over has occurred

(B) Green and wrinkled are both recessive characters

(C) The alleles for green and wrinkled are linked

(D) The allele for green in recessive but not the allele for wrinkled

(E) The allele for wrinkled is recessive but not the allele for green

18. **Duck bill platypus and spiny ant eater have internal fertilization and are:**

(A) Ovoviviparous (B) Viviparous

(C) Oviparous (D) None of the above

19. **Nematocysts are characteristics of:**

(A) Porifera (B) Protozoa (C) Cnidarians (D) Annelida

20. **Which of the following is an acceptable nitrogen base composition for double stranded DNA?**

(A) 31%, A: 19% T; 31% C; 19%G (B) 36% A; 36% U; 24% C; 24% G

(C) 48% A; 48% T; 52% C' 52% G (D) 31% A; 31% T; 19% C; 19% G

(E) 24% A: 24% T; 36% C; 19% G

21. **The correct order of the structures through which air passes is:**

I Nasal cavity II Bronchi III Larynx IV Air sacs V Trachea

(A) I, V, III, II, IV (B) I, V, III, IV, II (C) I, III, IV, V, II (D) I, III, V, IV, II

(E) I, III, V, II, IV

22. **Which of the following pathways outlines the order of events during aerobic cellular respiration?** First → Last

(A) Glucose → triose phosphate → pyruvate → Krebs cycle → $CO_2 + H_2O + ATP$

(B) Glucose → triose phosphate → pyruvate → krebs cycle → $CO_2 + H_2O + ADP + Pi$

(C) Glucose → hexose phosphate → pyruvate → krebs cycle → $CO_2 + H_2O + ADP + Pi$

(D) Glucose → Hexose phosphate → pyruvate → krebs cycle → ethanol + CO_2 + ATP

23. **The diameter of a tree is reduced slightly during the day and increased at night. Which of the following changes in environment condition cause the greatest reduction in diameter?**

(A) Increase in wind velocity. temperature. humidity and light intensity.

(B) Increases in temperature. humidity and light intensity.

(C) Increases in wind velocity, humidity and light intensity.

(D) Increases in wind velocity. temperature and light intensity.

(E) Increase in wind velocity, temperature and humidity.

24. **Why is there no glucose present in filtrate, in the distal end of nephron?**

(A) Glucose molecules are too large to pass across the basement membrane.

(B) Glucose removed by osmosis from the tubule.

(C) Glucose is passively absorbed by the cells lining the descending loop of Henle.

(D) Glucose is actively absorbed by the proximal tubule cells.

25. **Which of the following is the stage of meiosis during which Paris of homologous chromosomes align at the centre of cells?**

(A) Anaphase II (B) Metaphase I (C) Prophase II (D) Metaphase I

(E) Prophase I

26. **The tricuspid valves prevent back flow of blood from the:**

(A) Left ventricle into the left atrium. (B). Aorta into the left ventricle

(C) Pulmonary artery into the right ventricle. (D) Right ventricle into the right atrium.

27. **The liver:**

(A) Decreases blood glucose levels (B) Increases blood glucose levels

(C) Synthesizes glucose (D) All of the above are the functions of the liver

28. **At which two points of the menstrual cycle are the level estrogen height?**

(A) Immediately before and after ovulation

(B) At ovulation and during the menstrual flow

(C) During the menstrual flow and pregnancy

(D) Pregnancy and after menopause

29. **Herpes is a virus that enters the human body and remains dormant in the nervous system until is produces an outbreak, without any particular reason. Which of the following statements correctly describes herpes?**

(A) While it remains dormant in the nervous system, the virus in its lysogenic cycle.

(B) During an outbreak, the virus is in the lytic cycle.

(C) Herpes integrates itself into the DNA of the cell.

(D) All of the above

30. **Which of the following statements could not be used to describe a species?**

(A) A group of organism showing distinctly similar autosomes.

(B) A group of organism showing analogues body structure.

(C) A group of organism capable of mating to produce viable off spring.

(D) A group of organisms sharing the same ecological niche.

(E) A group of organisms sharing unique structural and functional characteristics.

PHYSICS

31. **A frictionless heat engine can be 100% efficient only its exhaust temperatures is:**

(A) Double of its input temperature (B) Half of its input temperature

(C) Equal of its input temperature (D) 100%

(E) 0K°

32. **The vector which only specifies the direction of a given vector is called:**

(A) Free vector (B) Position vector

(C) Null vector (D) Until vector

33. **A ball is thrown vertically upward with velocity of 196m/s. How high does the ball rise?**

(A) 1960 meters (B) 2960 meters

(C) 1000 meters (D) 1100 meters

34. **If there is no external force applied to a system, then the total momentum of that system remains constant. This is known as:**

(A) Law of conservation of mass (B) Elastic collision

(C) Law of conservation of momentum (D) Momentum of body

35. **A car travelling at a constant speed of 90 km/h rounds a curve of a radius 100m. What is its acceleration?**

(A) 4.0 m/sec^2 (B) 6.25 m/sec^2 (C) 6.5 m/sec^2 (D) 4.5 m/sec^2

(E) 7.5 m/sec^2

36. **A body on a 20m high cliff drops a stone. One second later, he throws down another stone. Both the stones hit the ground simultaneously. Find the initial velocity of the Second stone g = 10/sec^2.**

(A) 5m/sec^2 (B) 10m/sec^2 (C) 15m/sec^2 (D) 20m/sec^2

(E) 30m/sec^2

37. **An elevator, in which a man is standing moving upward with a constant speed of 10m/sec^2. If a man drops a coin from a height of 2.5m. Find the time taken by it to reach the floor of the elevation g = 9.8m/sec^2.**

(A) 0.707 sec (B) 1.9 sec (C) 3.1 sec (D) 6.17 sec

(E) 7.15 sec

38. **A 100 KG man runs up a hill through a height of 4mm in seconds. How much work does he do against gravitational force?**

(A) 2060 J (B) 3920 J (C) 5000 J (D) 5290 J

39. **Which statement describes the electrical potential difference between two points in a wire carrying a current?**

(A) The force required to move a unit positive charge between the points.

(B) The ratio of the energy discipated between the points to the current.

(C) The ratio of the power discipated between the points to the current.

(D) The ratio of the power discipated between the points to the charge moved.

(E) None of the above

40. **Find the time period of a simple pendulum whose length is 88.2cm. The value acceleration due to gravity is 9.8m/sec^2 at the place where experiment is performed?**

(A) 1.885 sec (B) 1.233 sec (C) 2.05 sec (D) 4 sec

41. **A light bulb has resistance of 1500. Find the voltage while the current is 1.5 A.**

(A) 250V (B) 300V (C) 224V (D) 225V

42. **An object that is moving with constant speed travels around a circular path. Which of the following is I are true concerning this motion?**

(i) The displacement is zero (ii) The average speed is zero

(iii) The circulation is zero

(A) I only (B) I and III only (C) I and III only (D) III only

43. **A system absorbs 80 J through heating while doing 100J of experimental work. What is the change in the internal energy of the system?**

(A) -100J (B) -20J (C)+80J (D) +180J

44. **A region round a charge body in which another charge experiences an electric force is called:**

(A) Electric flux (B) Electric field (C) Electric potential (D) Capacitance

45. **A convex lens of focal length 40cm is in contact with a concave lens of focal length 25cm. The power of the combination in diopters is:**

(A)-5.0 (B) -6.5 (C) +6.5 (D)+6.67

(E) -7.7

46. **A simple pendulum suspended from the ceiling of a train has a period T when the train is at rest. When the train is accelerating with a uniform acceleration, the time period of simple pendulum will:**

(A) Decrease (B) Increase (C) Remain unchanged (D) Become infinite

(E) Insufficient information

47. **Lenz's law states that:**

(A) The flow of a fluid in a medium under same applied force experiences some sort of friction or resistance in its path.

(B) A body remains at rest of continuous to move with uniform velocity unless acted upon by an unbalanced force.

(C) The induced current always flows in such a direction as to oppose the change which giving rise to it.

(D) When a particle bearing a charge q and moving with a velocity V enters the region of a uniform magnetic field of induction B, it is acted upon by a force.

48. **Two rail cargo cars are being hitted together. The first car has a mass 15750 KG and is moving at a speed of 4m/sec. Calculate the final velocity of the two cars.**

(A) 1.8 m/sec (B) 3.8 m/sec (C) 5.8 m/sec (D) 7.8 m/sec

(E) 9.8 m/sec

49. **Two capacitors Ci = 2(.iF are connected series across a 100V supply. Find the effective capacitance.**

(A) $\frac{1}{2}\mu F$ (B) $\frac{3}{2}\mu F$ (C) $\frac{4}{3}\mu F$ (D) $\frac{7}{2}\mu F$

(E) $\frac{9}{2}\mu F$

50. **Consider two equal resistors wired in parallel. What is the equivalent resistance of the two?**

(A) $\frac{3R}{2}$ (B) $\frac{R}{7}\frac{R}{2}$ (C) $\frac{R}{3}$ (D) $\frac{R}{5}$ (E) $\frac{R}{7}$

51. **A detector with a surface area of 1 square meter is place 1m from an operating jackhammer. It measures the power of jackhammer sounds as being 10"^{3}W. Find the intensity of the jackhammer.**

(A) $\frac{10W}{m}$ (B) $10^{-3}W/m^2$ (C) 10^{-9} w/m^2 (D) 10^{-7} w/m^2

(E) 10^{-11} W/m^2

52. **Ultra violet light is more likely to cause a photoelectric effect than a visible light. This is because photons of ultraviolet light.**

(A) Have a longer wavelength (B) Have higher velocity

(C) Are not visible (D) Have a higher energy

53. **If an object is released 19.6 meter above the ground. How long does it take the object to reach the ground? (g = 9.8 m/sec^2)**

(A) 1 second (B) 2 seconds (C) 3 seconds (D) 8 seconds

(E) 10 seconds

54. **Two tuning forks are sounded, one has a frequency of 250 Hz while the other has a frequency of 245 Hz. What is the frequency of the beats?**

(A) 250 Hz (B) 245 Hz (C) 5 Hz (D) 10 Hz

(E) 235 Hz

55. **A rock is dropped from a high bridge at the end of 3 seconds of free fall the speed of he rock in cm/s.**

(A) 30 (B)100 (C) 500 (D)1000

(E) 2940

56. **A body rolling freely on the surface of the earth eventually comes to rest because:**

(A) It has mass (B) It suffers friction

(C) It has inertia of rest (D) It has a momentum

(E) Its gravitation is less because it is already on the surface

57. **A 100 Kg car can accelerate from rest to speed of 25 m/sec in 10s. What average power (in kilo watts) must the engine of the car produce in order to cause this acceleration? Neglect the friction loss.**

(A) 33.25 (B) 3625 (C) 48.44 (D) 3125

(E) 4125

58. **The kinetic energy of a projectile at the highest point is half of its kinetic energy. The angle of projection is:**

(A) 0° (B) 30°C (C) 60°C (D) 45°C

(E) 90°

59. **A small and a large rain drops are falling through air:**

(A) The small drop will evaporate (B) The large drop moves fasters

(C) The small drop moves faster (D) Both move with the same speed

(E) No conclusion can be drawn unless the exact sizes of the drops are known

60. **A container is divided into two equal portions. One portion contains an ideal gas at pressure P and temperature T while the other portion is a perfect vaccurti. If a hole is opened between the two portions.**

(A) There will be a change in internal energy. (B) There will be a change in temperature.

(C) There will be no change in internal energy.

(D) The external pressure will increase. (E) The external pressure will decrease. -

61. Which gaseous hydride most readily decomposes into its elements on contact with a hot glass rod?

(A) Ammonia (B) Hydrogen chloride

(C) Hydrogen iodide (D) Steam

62. A hydrocarbon, which is a liquid at a room temperature, decolorizes aqueous bromine. What could be the molecular formula of the compound?

(A) C_2H_2 (B) C_2H_4 (C) C_7H_{16} (D) $C_{10}H_{20}$

(E) $C_{12}H_{26}$

63. Bleaching powder is a good:

(A) Hydrating agent (B) Oxidizing agent

(C) Dehydrating agent (D) Reducing agent

64. The value of the enthalpy change for the process represented by the equation.

$N3_{(S)}$ »$Na^*_{g)}$ + e js equal to:

(A) The first ionization energy of sodium.

(B) The enthalpy change of vaporization of sodium.

(C) The sum of the enthalpy change of the atomization and the first ionization energy of sodium.

(D) The sum of the enthalpy change of atomization and the electron affinity of sodium.

65. Which statement about one mole of metal is always correct?

(A) It contains the same number of atoms as 1 mole of hydrogen atoms.

(B) It contains the same number of atoms as ½ mole of C^{12}

(C) It has the same mass as 1 mole of carbon atoms.

(D) It is liberated by 1 mole electrons.

66. As the atomic number increases in group, the chemical properties:

(A) Change (B) Stay roughly the same

(C) Decreases (D) Increases

67. The crystals formed as a result of Vander Waals interactions are:

(A) Molecular crystals (B) Covalent crystals

(C) Metallic crystals (D) Ionic crystals

68. **All the following are the true statement concerning catalyst except.**

(A) A catalyst will speed up the rate determining step.

(B) catalyst will be used up in a reaction.

(C) A catalyst may induce steric strain in a molecule to make it react more readily.

(D) A catalyst will lower the activation energy of reaction.

69. **Which of the following process is endothermic?**

(A) The condensation (B) The electrolysis of water

(C) The freezing of the water (D) $Ca_{(s)} + 2H_20_{(l)}$ $>CaO_{(aq)} + H_2$

(E) $H(aq)^{+} OH(aq) \rightarrow H_20_{(j)}$

70. **Which reagent gives a colorless homogeneous solution when added to phenol?**

(A) Aqueous bromine (B) Aqueous sodium carbonate

(C) Aqueous sodium hydroxide

(D) Aqueous sodium hydroxide and benzoyl chloride

71. **Which substance has tetrahedral geometry?**

(A) Banzene (B) Methane (C) Cyclohexane (D) None of the above

72. **The.....free radical takes part in the destruction of the ozone layer.**

(A) Chlorine (B) Helium (C) Neon (D) Xenon

73. **How many atoms of carbon are present in 17g of glucose He H-j_2 06?**

(A) 6.0×10^{22} (B) 3.6×10^{23} (C)6.0×10^{23} (D)3.6×10^{24}

(D) 6.0×10^{24}

74. **Which property of a gas effects the rate at which it spreads throughout a laboratory?**

(A) Boiling point (B) Molecular mass (C) Reactivity (D) Solubility in water

75. **The bonding in sulphuric Acid can be represented by the structure shown. What is the total number of electrons in the covalent bonds surrounding the sulphur atom?**

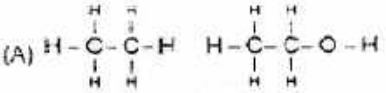
(A) 4 (B) 6 (C) 8 (D) 12

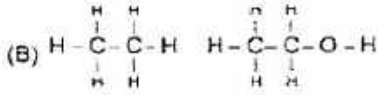
76. **One mole of an organic compound is completely burnt in oxygen. Which compound produces exactly three moles of water.**

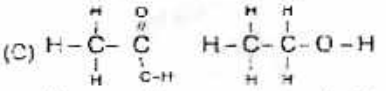
(A) Butane (C4 H20) (B) Butanol C4 Hg OH

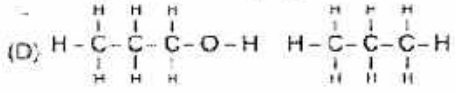
(C) Ethanol C_2 H5 OH (D) Propane C3 Hg

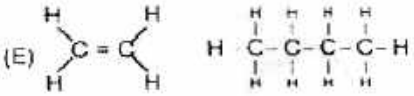
77. **Which pair of structures are isomers of each other?**

(A) 

(B) 

(C) 

(D) 

(E) 

78. **When must a substance must be an alkane?**

(A) When it burns in air or in oxygen.

(B) When it contains carbon and hydrogen only.

(C) When it has the general formula $C_n H_{2n} + 2$

(D) When it is generally un-reactive.

79. **Which statement shows that diamond and graphite are allotropes of carbon?**

(A) Both have giant molecular structures

(B) Complete combustion of equal masses of carbon dioxide as the only product

(C) Graphite conducts electricity, whereas diamond does not

(D) Under suitable conditions, graphite can be converted into diamond.

80. **If Auf bau rule is not followed in filling to the sub-shell then the block of which element will change in the periodic table.**

(A) K(19) (B) Se_{21} (C) V_23 (D) Ni_2s

81. **Which gas shows real behavior?**

(A) 8g of 0_2 at S.T.P occupies a volume of 5.6 liters.

(B) 1g of H_2 in 0.5 liter flask exerts pressure of 24.63 atm at 3K.

(C) 1 mole of NH_3 at 3K and 1 atm occupies volume 22.4 liters.

(D) 5.6 liters of $C0_2$ at STP is equal to 11 g.

82. **Heat of neutralization of strong acid by strong base is constant value because:**

(A) Salts formed does not Hydrolyze

(B) Only H^+ and OH" ions react in every case.

(C) Strong acid strong base react completely.

(D) Strong base and strong acid react in aqueous solution.

83. Compared with alkaline earth metals the alkali metals exhibit:

(A) Smaller ionic radii (B) Greater hardness

(C) High boiling point (D) Lower ionization energy

84. The number and types of bonds between two carbon atoms in CaC2 are:

(A) One sigma and one Pi bond. (B) One sigma and two Pi bonds.

(C) Two sigma, two Pi bonds. (D) One sigma bond.

85. The alloy of copper and tin is called:

(A) Brass (B) Bronze (C) German silver (D) Metal

86. Which of the following is not an electrophile?

(A) NH_3 (B) $B/_3$ (C) $A/C/_3$ (D) Hg^{2+}

87. How many isomers are possible for the compound having molecular formula $C_3 H_5$ Br.

(A) 5 (B) 4 (C) 6 (D) 8

88. Which xylene is most easily sulphonated.

(A) Ortha (B) Para (C) Meta (D) All at the same rate

89. Which one of the following is likely to give a precipitate with $AgN0_3$ solution?

(A) NaCI (B) $CH_3C/_3$ (C) $CH_2 = CHCl$ (D) $(CH_3)_3$ CCI

90. In SP^3d hydridization, the o orbital that participates in hybridization is:

(A) $dx^2 - y^2$ (B) dz^2 (C) dxy (D) dxz

ENGLISH

91. Which is not a past form of verb?

(A) Was (B) Looked (C) Had (D) Spoke

(E) Hear

92. Which contains an adjective?

(A) Old man (B) On Tuesday (C) She said (D) And you

(E) Afternoon

93. Which contains on adverbs?

(A) Fuel house (B) Three women (C) Was dirty (D) Very funny

(E) Early morning

94. Which is not correct?

(A) In February (B) On 5:00 o'clock (C) At my house (D) Near me

(E) Only May 2

Choose the incorrect word for Question # 95 to 97.

95. Sharks differ from other fish is that their skeleton are made of cartilage instead bone.

A B C D

96. The hormone insulin controls over the amount of sugar in the blood which provides

A B C D

energy for the body.

97. I use a bike both to ride to school and going to market.

A B C D

Which one of the following four options is nearest in meaning to the word capitals?

98. ASTOUND:

(A) Shock (B) Confer (C) Condescend (D) Strengthen

99. SCOPE:

(A) Cleans (B) Mock (C) Scrutinize (D) Stifle

100. WISP:

(A) Tuft (B) Pack (C) Smell (D) Spry

FEDRAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ANSWERS KEY

FMDC Paper 2013

1. (C)	2. (A)	3. (C)	4. (A)	5. (A)	6. (B)
7. (C)	8. (B)	9. (C)	10. (B)	11. (B)	12. (D)
13. (B)	14. (C)	15. (C)	16. (B)	17. (E)	18. (D)
19. (B)	20. (C)	21. (E)	22. (D)	23. (A)	24. (C)
25. (B)	26. (D)	27. (A)	28. (B)	29. (C)	30. (A)
31. (D)	32. (A)	33. (B)	34. (C)	35. (A)	36. (D)
37. (A)	38. (C)	39. (E)	40. (A)	41. (D)	42. (B)
43. (B)	44. (B)	45. (A)	46. (B)	47. (C)	48. (A)
49. (B)	50. (B)	51. (B)	52. (A)	53. (D)	54. (C)
55. (B)	56. (B)	57. (A)	58. (D)	59. (B)	60. (A)
61. (C)	62. (A)	63. (B)	64. (A)	65. (B)	66. (A)
67. (A)	68. (D)	69. (B)	70. (C)	71. (B)	72. (A)
73. (A)	74. (B)	75. (D)	76. (C)	77. (D)	78. (C)
79. (A)	80. (A)	81. (C)	82. (B)	83. (D)	84. (B)
85. (B)	86. (D)	87. (B)	88. (C)	89. (A)	90. (B)
91. (E)	92. (A)	93. (C)	94. (D)	95. (D)	96. (B)
97. (D)	98. (A)	99. (C)	100. (B)		

FMDC PAPER PATTERN 2014-15-16

Subjects	No. of Questions
Physics :	35
Chemistry :	35
Biology :	60
English	20
Total	150

Note: FMDC paper pattern changed after 2013.

ENTRANCE TEST 2014-15-16

General Instructions:

1. All Answers must be given by completely filling the circles having the correct answer i.e. A, B, C, D or E. with blue ball pen only.
2. Mobile phones, calculators, laptops palmtops, tablet, PC and books are prohibited in the premises of examinations.
3. Once an answer has been given on the response form, the candidate will not be permitted to change any of his/her answers in any way.
4. Any evidence of cheating or non compliance of instructions will disqualify the candidate from the test.
5. There will be no negative marking in the test.

FEDERAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ENTRANCE TEST - 2014

Time Allowed: 150 Minutes

Total MCQs = 150

Instructions:

i. Read the instructions on the MCQ Response Form carefully.

ii. Choose the Single Best Answer for each question.

iii. Candidates are strictly prohibited from giving any identification mark except Roll No. & Signature in the specified columns only.

COMPULSORY QUESTION FOR IDENTIFICATION

Q-ID. What is the color of your Question Paper?

A) WHITE C) PINK

B) BLUE D) GREEN

Ans: Color of your question Paper is pink. Fill the Circle corresponding to letter 'C' Against 'ID' in your MCQ response form (Exactly as shown in the diagram).

19. DISSIPATED:

(A) Degenerate (B) Pleased (C) Inundated (D) Encouraged

(E) Planned

20. COUNTENANCE:

(A) Procure (B) Insist (C) Approve of (D) Forego

(E) Interpret

PHYSICS

21. The time period of a pendulum is measured to be 3.0 seconds in the inertial reference frame of the pendulum. What is its period measured by an observer moving at a speed of 0.95 c with respect to the pendulum?

(A) 1,2 s (B) 3.4 s (C) 8.1 s (D) 9.6 s

(E) 9.6 s

22. **What is the mass "m" of a moving object with speed 0.8 c.**

(A) 1.67 m_0 (B) 3.67 m_0 (C) 4.67 m_0 (D) 6.67 m_0

(E) 7.67 m_0

23. **The emission of electrons from a metal surface when exposed to light of suitable frequency is known as:**

(A) Compton's effect (B) Photoelectric effect

(C) Coulomb's law (D) Faraday's law

(E) Ohm's law

24. **The special theory of relativity is based upon:**

(I) the laws of physics are the same in all inertial frames.

(II) The speed of light in free space has the same value for all observers regardless of their state of motion.

(A) I only (B) II only (C) I and II (D) None of the above

25. **What is the energy of a photon in a beam of infrared radiation of wavelength 1240 nm?**

(A) 1.0 eV (B) 3.0 eV (C) 5.0 eV (D) 7.0 eV

(E) 9.0 eV

26. **A nucleus consists of nucleons comprising of protons and neutrons. A proton has a positive charge equal to ..... and has a mass .....**

(A) 2.6×10^{-19} C ... $36. \times 10^{-28}$ kg (B) 1.6×10^{19} C ... 1.673×10^{-27} kg

(C) 3.6×10^{19} C ... 2.111×10^{-27} kg (D) 4.6×10^{-19} C ... 9.111×10^{-27} kg

(E) 5.6×10^{-19} C ... 8.111×10^{-27} kg

27. **Identify the isotope/s of Helium.**

(A) $\frac{3}{2}$He (B) $\frac{4}{2}$He (C) $\frac{1}{5}$He (D) $\frac{3}{7}$He

(E) Both A and B

28. **The half-life $T_{\frac{1}{2}}$ of a radioactive elements is that period in which.....of the atoms decay.**

(A) Nine times (B) Double (C) Half (D) Four times

(E) Seven times

29. **Fluorescence is the property of absorbing radiant energy of...frequency and re-emitting energy of....frequency in the visible region of electromagnetic spectrum.**

(A) low ... high (B) high ... low (C) low ... low (D) high ... high

30. **A reaction in which a heavy nucleus like that of uranium splits up into two nuclei of roughly equal size along with the emission of energy during the reaction is called as:**

(A) Fission reaction (B) Fusion reaction

(C) Counter reaction (D) Chemical reaction

31. **Identify the main type (s) of nuclear reactors:**

(A) Slow reactors (B) Fast reactors (C) Thermal reactors (D) Both A and B

32. **What is the average translational kinetic energy of molecules in a gas at temperature 27°C?**

(A) 3.23×10^{-21} J (B) 4.11×10^{-21} J

(C) 6.21×10^{-21} J (D) 7.71×10^{-21} J

(E) 9.11×10^{-21} J

33. **Numbers are expressed in standard form called scientific notation, which employs powers of:**

(A) 2 (B) 8 (C) 10 (D) 16

34. **A 1500 kg vehicle has its velocity reduced from 20 m/s to 15 m/s in 3.0 seconds. How large was the average retarding force?**

(A) -0.5 N (B) -1.5 N (C) -2.0 N (D)-2.5 N

(E) -3.5 N

35. **An object moving through a fluid experiences a retarding force known as drag force. The drag forceas the speed of the object**

(A) decreases ... decreases (B) decreases ... increases

(C) increases ... decreases (D) increases ... increases

36. **The property of bending of light around obstacles and spreading of light waves into geometrical shadow of an obstacle is known as:**

(A) Diffraction (B) Interference (C) Polarization (D) Optical Rotation

37. **The distance between the slits in Young's double slit experiment is 0.25cm. Interference fringes are formed on a screen placed at a distance of 100cm from the slits. The distance of the third dark fringe from the central bright fringe is 0.059cm. What is the wavelength of the incident light?**

(A) 390 nm (B) 590 nm (C) 690 nm (D) 790 nm
(E) 990 nm

38. **The ratio of the angles subtended by the image as seen through the optical device to that subtended by the object at the unaided eye is known as:**

(A) Magnifying power (B) Angular magnification
(C) Simple magnification (D) Both A and B

39. **Those waves in which the particles of medium have displacement along the direction of propagations of waves are known as:**

(A) Longitudinal waves (B) Transverse waves
(C) Simple waves (D) Electromagnetic waves

40. **A pipe has a length of 1m. Determine the frequencies of the fundamental and first two harmonic if the pipe is opened at both ends, (speed of sound in air = 340 m/s)**

(A) 170 Hz, 140 Hz, 510 Hz (B) 120 Hz, 220 Hz, 390 Hz
(C) 90 Hz, 230 Hz, 440 Hz (D) 210 Hz, 410 Hz, 510 Hz

41. **At points where the displacements of two waves cancel each other's effect, the path difference is an odd integral multiple of half the wavelength. This effect is known as:**

(A) Constructive interference (B) Destructive interference
(C) Stationary interference (D) Simple interference

42. **A steel wire 12 mm is diameter is fastened to a long and then pulled by tractor. The length of steel wire between the log and the tractor is 11m. A force of 10,000 N is required to pull the log. What is the stress in the wire?**

(A) 33.12 MPa (B) 44.12 Mpa (C) 66.15 Mpa (D) 77.29 Mpa
(E) 88.46 Mpa

43. **Identify the postulate I s which help to formulate a mathematical model of gases.**

(I) A finite volume of gas consists of very large number of molecules.
(II) The size of the molecules is much smaller than the separation between molecules.
(III) Molecules do not exert force on each other except during a collision.

(A) I only (B) II only (C) III only (D) I & II only

(E) I, II, & III

44. The turbine in a steam power takes steam from a boiler at 427°C and exhaust into a low temperature reservoir at 77°C. What is the maximum possible efficiency?

(A) 10% (B) 20% (C) 30% (D) 50%

(E) 70%

45. If a process cannot be retraced in the backward direction by reversing the controlling factors. It is a/an:

(A) Reversible process (B) Irreversible process

(C) Efficient process (D) Entropic process

46. A digital system deals with quantities or variables which have only two discrete values or states. Identify the example/s of such quantities.

(I) A switch can be either open closed.

(II) A bulb can be either off or on.

(III) A certain statement can be either true of false.

(A) I only (B) II only (C) I and II only (D) III only

(E) I, II, & III

47. The potential difference between the terminals of a battery in open circuit is 2.2V. When it is connected across a resistance of 5.0Q, the potential falls to 1.8V. What is the current of the battery?

(A) 0.36 A (B) 2.36 A (C) 3.39 A (D) 4.49 A

(E) 9.71 A

48. A platinum wire has resistance of 10Q at 0°C and 20Q at 273°C. What is the value of temperature coefficient of resistance of platinum?

(A) $3.66 \times 10^{-3}\ k^{-1}$ (B) $4.66 \times 10^{-3}\ k^{-1}$

(C) $6.31 \times 10^{-3}\ k^{-1}$ (D) $7.42 \times 10^{-3}\ k^{-1}$

(E) $9.49 \times 10^{-3}\ k^{-1}$

49. What shunt resistance must be connected across a galvanometer of 50.0Q resistance which gives full scale deflection with 2.0 mA current, so as to convert it into an ammeter of range 10.0 A?

(A) 105Q (B) 0.01Q (C) 2.5Q (D) 3.9Q

(E) 4.7Q

50. Find the radius of an orbit of an electron moving at a rate of 2.0×10^7 m/s in a uniform magnetic field of 1.20×10^{-3} T.

A. 3.15×10^{-2}m (B) 4.25×10^{-2}m (C) 9.93×10^{-2}m (D) 17.77×10^{-2}m

(E) 19.91×10^{-2}m

CHEMISTRY

51. Part of the periodic table is shown. The letters are not the symbols of the elements.

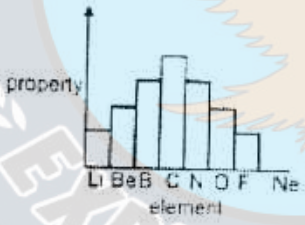
Period	Group							
	I	II	III	IV	V	VI	VII	0
1								
2	V	W					X	
3	Y						Z	

Which statement is correct?

(A) V is more reactive than Y (B) W has more metallic character than V

(C) Y has a lower melting point than V (D) Z is more reactive than X

52. The bar chart shows the period of elements from lithium to neon.



Which property of these elements is shown on the chart?

(A) The number of electrons used in bonding

(B) The number of orbits holding electrons

(C) The (proton) atomic number

(D) The relative atomic number

53. a- helices are secondary structures characterized by:

(A) Intermolecular hydrogen bonds (B) Disulfide bonds

(C) A rippled effect (D) Intermolecular hydrogen bonds

54. **A metal sulphate contains 9.87% of M. This sulphate is isomorphous with $ZnSO_4.7H_2O$. Determine the atomic weight of the metal M.**

(A) 24.31 (B) 34.31 (C) 25.25 (D) 44.41 (E) 50.75

55. **100 c.c of oxygen is collected over water at 23°C and 800mm pressure. If vapour pressure of water vapours at 23°C is 21.00mm, then calculate volume of the gas at NTP.**

(A) 100 c.c (B) 94.53 c.c (C) 150 c.c (D) 90.0 c.c

56. **Y g of the non-volatile substance (molecular mass M) is dissolved in 250 g of benzene. If Kb is the molal elevation constant, the value of AT us given by:**

(A) $4M/K_b.Y$ (B) $4K_b.Y/M$ (C) $K_b.Y/4M$ (D) K_bY/M

57. **A mixture of thanol and propanol has a vapour pressure of 290mm at 27°C. If mole fraction of ethanol is 0.65, then what will be its vapour pressure if vapour pressure of pure propanol is 210mm?**

(A) 333.1 mm (B) 441.5 mm (C) 890.2 mm (D) None of the above

58. **At 25°C, the equilibirum constant Ki and K2 in the reactions $2NH_3 \leftrightarrow N_2 + 3H_2$, $K_1 1/2N_2 + -H_2 = NH_3, K_2$ are related as:**

(A) $K_1 = K_2$ (B) $K_1 = \frac{1}{K_2^2}$ (C) $K_2 = \frac{1}{K_1^2}$ (D) $K_2 = 1/K_1$

59. **For the reaction $N_2 + O_2 \leftrightarrow 2NO$, the value of K is 0.0842 at 3500 K. Calculate the fraction of equilibrium mixture of N2 and O2 converted into NO.**

(A) 15.0% (B) 16.3% (C) 16.5% (D) 16.9%

60. **Chlorine is vinyl chloride is not very reactive because:**

(A) C - Cl bond developed partial double bond

(B) Of resonance

(C) SP^2 hybridized carbon has more acidic character than SP^3 hybridized carbon

(D) All of the above

61. **One of the isomers of C_6H_{12}(A) has chiral carbon but on hydrogenation it losses chirality. A is:**

(A) 2-Methyl-2-pontene (B) 2,3-Dimethyl-2-butene

(C) 3-Methyl-1-pentene (D) 3,3-DimethyM-butene

62. **An equimolar quantities of ethanol and methanol are heated with conc.H_2SO_4. The product formed is:**

(A) CH_3OCH_3 (B) $C_2H_5OCH_3$ (C) $C_2H_5OC_2H_5$ (D) All of the above

63. **Which one of the following phenol is more soluble in aq.NaHC03?**

(A) 2, 4-Dihydroxy acetophenone (B) 2,4,6-Tricyano phenol

(C) 3,4-Dicyano phenol (D) p-Cyano phenol

64. **A water soluble compound of molecular formula C3H6O gives yellow crystalline solid on heating with I_2 and Na_2CO_3. The compound is:**

(A) CH_3CH_2CHO (B) $CH_2OCH = CH_2$

(C) CH_3COCH_3 (D) $CH_2 = CHCH_2OH$

65. **Arrange the following compounds in order of increasing reactivity towards the addition of HCN.**

Acetone (I), acetaldehyde (II), methyl t-butyl ketone (III), di-t-butyl ketone (IV)

(A) IV < I < II < III (B) I < II < III < IV

(C) IV < III < I < III (D) II < I < IV < III

66. **The reaction $CH_3COOAg + Br_2 \rightarrow CH_3Br + CO_2 + AgBr$ is known as:**

(A) Reformat sky reaction (B) Huns dicker reaction

(C) Decarboxylation (D) Hell-Volhard-Zelinsky reaction

67. **γ- Butyrolactone (ester) does not react with:**

(A)NH_3 (B) UAIH4 (C) EtOH.H (D) $NaBH_4$ / EtOH

68. **Electric cookers have coating of ..... that protects then against fire.**

(A) Heavy lead (B) Magnesium oxide

(C) Zinc oxide (D) Sodium sulphate

69. **Macromolecules are of ..... types.**

(A) Three (B) Four (C) Five (D) Six

(E) Seven

70. **The long chains of Amino Acids are called:**

(A) Oils (B) Polypeptides (C) Monopeptides (D) Proteins

71. **The general formula for Carbohydrates is:**

(A) $N_n(H_2O)_n$ (B) $P_n(H_2O)_n$ (C) $C_n(H_2O)_n$ (D) $H_n(H_2O)_n$

(E) $H_n(C_2O)_n$

72. **Lipids are generally defined in terms of:**

(A) Solubility (B) Structure (C) Molarity (D) All of the above

73. **As a result of increased CO2 in the atmosphere, oceans will become more**

(A) Alkaline (B) Acidic (C) Saline (D) Cooler

74. **Infrared lamps are used in restaurants and cafeterias to keep food warm. The infrared radiation is strongly absorbed by water, raising its temperature and that of the food. If the wavelength of infrared radiation is assumed to be 1500nm, then the number of photons per second of infrared radiation produced by an infrared lamp that consumes energy of the rate of 100 watt and is 12% efficient will be:**

(A) $4x10^{10}$ (B) $9x10^{19}$ (C) 11×10^{12} (D) 15×10^{4}

75. **When is formed from N^{+}_{2}, bond order ..... and when O^{+}_{2} is formed from O_2, bond order .....**

(A) Increases ... increases (B) decreases ... decreases

(C) increases ... decreases (D) decreases ... increases

76. **The process requiring absorption of energy is:**

(A) $F \rightarrow F^{-}$ (B) $Cl \rightarrow Cl^{-}$ (C) $O \rightarrow O^{2-}$ (D) $H \rightarrow H^{-}$

77. **A solution of 500ml of 0.2M KOH and 500ml of 0.2M HCI is mixed and stirred, the rise in temperature is T-j. The experiment is repeated using 250ml of each of the solution; the temperature rise is T_2. Which of the following is true?**

(A) $T_1 = T_2$ (B) $T_1 = 2T_2$ (C) $T_1 = 4T_2$ (D) $T_2 = 9T_1$

78. **An aqueous solution of $Ti(H_2O)_6]^{3+}$ | appears:**

(A) Greenish yellow in colour (B) Blue in colour

(C) Violet in colour (D) Purple in colour

79. **Amongst the following ions, which has the highest Para magnetism?**

(A) $[Cr(H_2O)_6]^{2+}$ (B) $[Fe(H_2O)_6]^{2+}$ (C) $[Cu(H_2O)_6]^{2+}$ (D) $[Zn(H_2O)_6]^{2+}$

80. **$Zn(S) + Cu^{2+}(aq) \rightarrow Cu(s) + Zn^{2+}(aq)$. At 300 K, E_{cell} is 1.10V, and at 310 K, E_{cell} is 1.12 V. What is the entropy change (AS) for the above cell reaction?**

(A) 386J K^{-1} (B) 486J K^{-1} (C) 286J K^{-1} (D) 586J K^{-1}

81. For a gaseous reaction, $A_2 + 2B \rightarrow 2AB$, the following rate data obtained at 250K.

Rate of disappearance of A_2 $-d[A_2]$	Concentration of $[A_2]$ (mole l^{-1})	Concentration of [B] (mole l^{-1})
1.2×10^{-5}	0.10	0.01
4.8×10^{-5}	0.10	0.04
2.4×10^{-5}	0.20	0.01

Calculate the rate of formation of AB when $[A_2] = 0.02$ M and [B] = 0.01 M at 250K.

(A) 4.8×10^{-5} mole l^{-1} s^{-1} (B) 4.8×10^{-6} mole l^{-1} s^{-1}

(C) 5.8×10^{-6} mole l^{-1} s^{-1} (D) 5.8×10^{-5} mole l^{-1} s^{-1}

82. Which of the following conditions, listed as leaving group and nucleophile, respectively, would most favour an Sn2 reaction?

(A) I^-, cl^- (B) EtO^-, tosytate (C) Tosylate, CN^- (D) OH^-, H_2O

83. If 2-amino-3-methylbutane were treated with excess methyl iodide, silver oxide, and water, what would be the major reaction products?

(A) Ammonia and 2-methyl-2-butene (B) Trimethylamine and 3-methyl-1-butene

(C) Trimethylamine and 2-methyl-2-butene (D) Ammona and 3-methyl-1-butene

84. If an amino acid (pI = 9.74) in acidic solution is completely titrated with sodium hydroxide, what will be its charge at pH 3, 7, and 11 respectively?

(A) Positive, neutral, negative (B) Negative, neutral, positive

(C) Neutral, positive, positive (D) Positive, positive, negative

85. Amino acids with nonpolar R-groups have which of the following characteristics in aqueous solution?

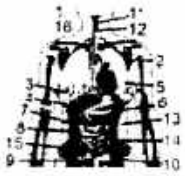
(A) They are hydrophilic and found buried within proteins

(B) They are hydrophobic and found buried within proteins

(C) They are hydrophobic and found on proteins surfaces

(D) They are hydrophilic and found on protein surface

BIOLOGY



86. At which side does digestion of starches begin?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

87. Structure 4:

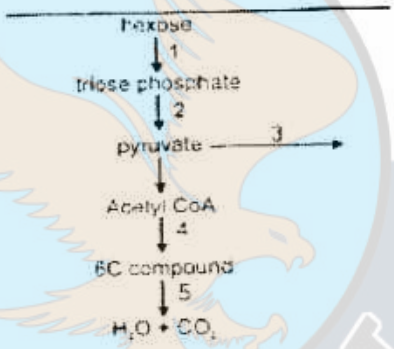
(A) Produces bite (B) Stores bile (C) Secretes lipase

(D) Secretes bicarbonate (E) Secretes HCl

88. Which structure is primarily responsible for water absorption during digestion?

(A) 5 (B) 6 (C) 7 (D) 8 (E) 9

89. The diagram summaries the pathway of glucose break-down:



Which two steps result in a net increase of ATP?

(A) 1 and 3 (B) 1 and 4 (C) 2 and 4 (D) 2 and 5

(E) 3 and 5

90. Which one of the following enables the mammalian kidney to regulate water reabsorption during states of dehydration?

(A) The cells of the tubules detect the osmotic pressure of the blood.

(B) Water is extracted from the glomerular filtrate in the proximal tubule.

(C) The kidney produces hypotonic urine.

(D) Hormones increases the permeability of the collecting ducts.

(E) A low solute concentration is maintained around the collecting ducts.

91. **A drug reduces mitochondrial activity in nephrons of kidney. Which chemical will be present in increased amount in the urine?**

(A) Ammonia (B) Glucose (C) Hydrogen bicarbonate (D) Urea

92. **Where, in the nephron, is most glucose reabsorbed?**

(A) In the ascending loop of Henle (B) In the descending loop of Henle

(C) In the proximal (first) convoluted tubule (D) In the distal (sound) convoluted tubule

93. **Consider the following statements about biological communities.**

(I) Their members share a common gene pool.

(II) The community remains stable even though some physical aspect of the environment may undergo change.

(III) They passes predictable kinds of species of predictable proportions.

(IV) Interactions between their members are more frequent within the community than between their members and those of neighboring communities.

Which two of the above statements apply to all stable biological communities?

(A) I and II (B) II and III (C) I and III (D) III and IV

(E) II and IV

94. **The spinal cord serves as the center of:**

(A) Sub conscious thought (B) Reflex actions

(C) Habits (D) Tropisms

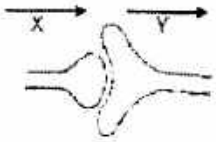
95. **The most abundant substance in protoplasm is:**

(A) Protein (B) Fat (C) Carbohydrate (D) Water (E) Minerals

96. **The placenta releases all of the following hormones EXCEPT:**

(A) Progesterone (B) LH (C) HCG (D) Estrogen

97. **The diagram below represents the synapse between two mammalian myelinated neurons, X and Y. The arrows show the direction of impulses.**



The transmission of umpulses across the synapse is brought about by the:

(A) Break-down of the terminal membrane of X.

(B) Passage of an electric current between X and Y.

(C) Release of sodium ions from X.

(D) Build-up of a potential difference between X and **Y.**

(E) Secretion of a chemical from X.

98. All of the following organs produce hormones involved in the reproductive cycle except the:

(A) Testes (B) Pituitary (C) Pancreas (D) Ovary

(E) Uterus

99. In human female FSH regulates the concentration of:

(A) Cortisol (B) Estrogen (C) Aldosterone (D) None of the above

100. The Reduction-division occurs during the process of:

(A) Cleavage (B) Differentiation (C) Fertilization (D) Meiosis

(E) Parthenogenesis

101. The muscles attached to the bones are:

(A) Voluntary and smooth (B) Involuntary and smooth

(C) Voluntary and striated (D) Involuntary and striated

(E) Smooth and striated

102. Which of the following statements regarding the periosteum is INCORRECT?

(A) The periosteum serves as the site of attachment of bone to muscle

(B) Cells of the periosteum differentiate into osteoblasts

(C) The periosteum is a fibrous sheath that surrounds long bones

(D) None of the above

103. The absorption and use of calcium are regulated by:

(A) Parathormone (B) Adrenaline (C) Prolactin

(D) Thiamin (E) Prolactin

104. The most correct statement about muscle contraction is:

(A) Actin moves to shorten the muscle

(B) Cross bridges connecting the two molecule of a myofibril is made up of G-Actin

(C) on traction of myosin molecule results in muscle contraction

(D) K is necessary for binding of cross bridges

105. **On a very cold day, a man waits for over an hour at the bus stop. Which of the following structures helps his body set and maintain a normal body temperature?**

(A) Hypothalamus (B) Kidneys (C) Heart (D) Brain stem

126. **Energy can be made available to the body in the following ways:**

(I) Conversion of surplus amino acids and glycerol to blood glucose and the mobilization of fat deposits which pass to the tissues for oxidation.

(II) Breakdown of liver and muscle glycogen to form glucose.

(III)Breakdown of tissue proteins to release amino acids which are then converted into glucose.

In which order does the body draw on potential energy when it is being starved of food?

(A) I → II → III (B) I → III → II (C) II → I → III

(D) II → III → I (E) III → I → II

127. **The nucleus contains all of the following structures except:**

(A) Mitochondria (B) Chromatin (C) Genes

(D) Nucleolus (E) Nuclear membrane

128. **Which of the following choices INCORRECTLY pairs of digestive enzyme with its site of secretion?**

(A) Pancreatic amylase ... pancreas (B) Aminopeptidase ... stomach

(C) Enterokinase ... intestinal glands (D) Maltase ... intestinal glands

129. **The division of biology that deals with classification is:**

(A) Cytology (B) Histology (C) Botany

(D) Morphology (E) Taxonomy

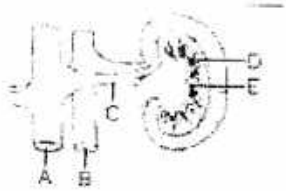
130. **All of the following are organelles except the:**

(A) Endoplasmic reticulum (B) Mitochondria

(C) Ribosome (D) Golgi complex

(E) Ultracentrifuge

131. **The diagram shows a section through a kidney and associated blood vessels.**



In which area is there the greatest movement of fluid from the blood through the wall of blood vessels?

(A) A (B) B (C) C (D) D (E) E

132. Which function is not carried out by the mammalian kidney?

(A) Removal of bile pigments from the body

(B) Removal of excess mineral salts from the body

(C) Maintenance of a constant osmotic pressure of the blood

(D) Maintenance of a constant pH of the blood

133. According to the Hardy-Weinberg principle, the gene pool may remain stable if there are:

(A) Random matings (B) Many mutations

(C) Frequent migrations (D) Selected matings

(E) Random mutations

134. Genes P, Q, R and S occur on the same chromosome.

Investigation of a large population produced the following cross-over values between pairs of genes.

P and R 34% P and Q 59% R and S 12% S and Q 37%

Which of the following sequence represents the sequence of genes on the chromosome?

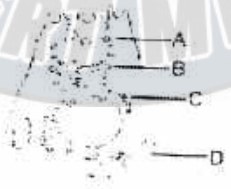
(A) PRSQ (B) PSRQ (C) QSPR (D) RQSP

(E) SPRQ

135. Which of the following kind of atom do not occur in carbohydrates?

(A) Carbon (B) Hydrogen (C) Nitrogen (D) Oxygen

136. The diagram is taken from an electron micro graph of a cell, name the organelle labeled D:



(A) Nucleus (B) Lysosome

(C) Golgi complex (D) Mitochondrion

137. **Endoplasmic reticulum**

Of the following organic compounds, the one that represents a protein is:

(A) $C_{12}H_{22}O_{11}$ (B) $C_6H_{12}O_6$ (C) $C_{17}H_{14}COOH$

(D) $(C_6H_{10}O_5)_{11}$ (E) $C_{108}H_{1130}O_{180}S_4$

138. **In which of the following organic compounds is a COOH (carboxyl) group found?**

(I) Carbohydrate (II) Lipid (III) Protein

(A) I only (B) II only (C) I and III only (D) II and III only

(E) I, II and III

FEDERAL MEDICAL AND DENTAL COLLEGE ISLAMABAD

ANSWERS KEY

FMDC Paper 2014-15

1.	**2.**	**3.**	**4.**	**5.**	**6.**
7.	**8.**	**9.**	**10.**	**11.**	**12.**
13.	**14.**	**15.**	**16.**	**17.**	**18.**
19. (C)	**20.** (C)	**21.** (E)	**22.** (A)	**23.** (B)	**24.** (C)
25. (A)	**26.** (B)	**27.** (E)	**28.** (C)	**29.** (B)	**30.** (A)
31. (D)	**32.** (C)	**33.** (C)	**34.** (D)	**35.** (D)	**36.** (A)
37. (B)	**38.** (D)	**39.** (A)	**40.** (A)	**41.** (B)	**42.** (E)
43. (E)	**44.** (D)	**45.** (B)	**46.** (E)	**47.** (A)	**48.** (A)
49. (B)	**50.** (C)	**51.** (C)	**52.** (A)	**53.** (A)	**54.** (A)
55. (B)	**56.** (B)	**57.** (A)	**58.** (B)	**59.** (D)	**60.** (D)
61.	**62.** (D)	**63.** (B)	**64.** (C)	**65.** (C)	**66.** (B)
67. (D)	**68.** (B)	**69.** (B)	**70.** (B)	**71.** (C)	**72.** (A)
73. (B)	**74.** (A)	**75.** (D)	**76.** (C)	**77.** (A)	**78.** (D)
79. (B)	**80.** (A)	**81.** (B)	**82.** (C)	**83.** (B)	**84.** (D)
85. (B)	**86.** (A)	**87.** (B)	**88.** (D)	**89.** (D)	**90.** (D)
91. (B)	**92.** (C)	**93.** (D)	**94.** (B)	**95.** (D)	**96.** (B)
97. (E)	**98.** (C)	**99.** (B)	**100.** (D)	**101.** (C)	**102.** (B)
103. (A)	**104.** (A)	**105.** (A)	**106.**	**107.**	**108.**
109.	**110.**	**111.**	**112.**	**113.**	**114.**
115.	**116.**	**117.**	**118.**	**119.**	**120.**
121.	**122.**	**123.**	**124.**	**125.**	**126.** (A)
127. (A)	**128.** (B)	**129.** (E)	**130.** (E)	**131.** (E)	**132.** (A)
133. (A)	**134.** (B)	**135.** (C)	**136.** (D)	**137.** (E)	**138.** (D)
139.	**140.**	**141.**	**142.**	**143.**	**144.**
145.	**146.**	**147.**	**148.**	**149.**	**150.**

HEC Past Paper (Phase-I)

Paper Pattern

1	Biology	40
2	English	20
3	Chemistry	30
4	Physics	30

Note: Same pattern will be followed for the test being held on 30th Sept. and 1st Oct. 2017.
Caution: Utmost care has been taken while compiling and formatting the paper.
Humbly sorry for any error or mistake if occurs through the paper.

BIOLOGY

Q1. **The excretory product that requires minimum water for its elimination compare to others:**

a) Creatinine
b) Ammonia
c) Urea
d) Uric Acid

Q2. **When a hemophilic carrier woman marries a normal man, who among her offsprings may be affected:**

a) All her children
b) All her daughters
c) Half of her daughters
d) None of above

Q.3 **The oxygen bonding protein present in the skeletal muscles is:**

a) Globin
b) Glycogen
c) Myoglycogen
d) Myoglobin

Q.4 **ADH which actively transports water from filtrate in collecting tubules back to kidney is released by:**

a) Pituitary Gland
b) Adrenal Gland
c) Rectal Gland
d) Both a & c

Q.5 **Homeostasis thermostat is present in brain:**

a) Hypothalamus
b) Medulla
c) Cerebrum
d) Pons

Q.6 **Pulmonary veins supply blood to heart chamber**

a) Right atrium
b) Left atrium
c) Right ventricle
d) Left Ventricle

Q.7 **Sensation of pleasure, punishment or sexual arousal when stimulated by the parts of brain:**

a) Hippocampus
b) Hypothalamus
c) Amygdala
d) Thalamus

Q.8 **Goiter is one of the abnormalities due to the deficiency of hormone:**

a) Adrenaline
b) Thyroxin
c) Oxytocin
d) Parathormone

9. **Which bond is present between the nucleotides of DNA:**

a) Peptide bond
b) Phosphodiester bond
c) Glyosidic bond
d) Ester bond

10. **Two parents one haemophilic & other carrier, chances among the male offspring to be haemophilic:**

a) 25 %
b) 50%
c) 75%
d) 100%

11. **Dark reaction of photosynthesis takes place:**

a) Grana
b) Stroma
c) Thylakoid
d) Both a & b

12. **Uncontrolled production of WBCs results in a disorder called:**

a) Leucaemia
b) Oedema
c) Thalassaemia
d) Atherosclerosis

13. **Which triain is not sex-linked recessive:**

a) Haemophilia
b) Colour blindness
c) Hypophosphatemic ricket
d) tfm syndrome

14. **Plants of this group are called ferns:**

a) Filicinae
b) Angiospermae
c) Gymnospermae
d) All of them

15. **The mechanism by which organisms stability of cellular movement is known as:**

a) Homeostasis
b) Natural health
c) Structural adaptation
d) Osmoregulation

16. **When the concentration of external medium is equal to the concentration of internal medium of cell, the situation is called:**
a) Hypertonic
b) Hypotonic
c) Isotonic
d) Heterotonic

17. **Brassica and rose plant belong to the group of plants:**
a) Hydrophytes
b) Mesophytes
c) Xerophytes
d) Succulant

18. **Animals which are unable to adjust their internal salt concentration according to external environment is:**
a) Anhydrobiosis
b) Osmoregulators
c) Thermoregulatory
d) Osmoconformers

19. **Which of the following animal can survive without drinking water?**
a) Kangaroo rat
b) Pig
c) Kangaroo
d) Camel

20. **Nitrogenous wastes are produced as a result of:**
a) Photosynthesis
b) Ingestion
c) Assimilation
d) Deamination

21. **Fresh water proteroants pumped out excess water by a special structure called:**
a) Oral groove
b) Contractive vacuole
c) Vesicle
d) Vacuole

22. **The word glycogenesis means, the conversion of:**

a) Glucose to glycogen
b) Lactic acid to glycogen
c) Glycogen to glucose
d) Amino acid to glycogen

23. Which of the following nitrogenous compound is much more soluble in water?
a) Uric Acid
b) Urea
c) Ammonia
d) Creatine

24. It is the smallest eukaryote:
a) Virus
b) Bacteria
c) Plasmodium
d) Sponge

25. Trypsinogen is activated by:
a) Chymotrypsin
b) Enteropeptidase
c) Trypsin
d) HCL

26. Role of lysosomes are:
a) Hydrolytic enzymes
b) Autophagy
c) Destruction of cell
d) All of above

27. Which of the following statement is incorrect:
a) Competitive inhibitor binds to alternative site
b) The substrate binds to active site
c) Enzymes work best in low pH
d) Both a & b

28. All of the following are characteristics of kingdom fungi except:
a) Heterotrophy
b) Sessile
c) Cell wall
d) All of above

29. Italic is the scientific name of a
a) Fungus
b) Smut

c) Bacterium
d) Yeast

30. The stored food in fungi is usually lipid droplets of:
a) Glucose
b) Glycogen
c) Starch
d) Protein

31. The haploid number of chromosomes in human beings:
a) 4
b) 10
c) 24
d) 23

32. Rod shaped bacteria are known as:
a) Cocci
b) Bacilli
c) Spirilla
d) None of these

33. Curve screw shaped bacteria are known as:
a) Cocci
b) Bacilli
c) Sprilla
d) None of these

34. In many bacteria cell wall is enclosed within a slime capsule made up of:
a) Polysaccharides
b) Cellulose
c) Amino Acids
d) Proteins

35. The DNA of the bacterium is present in distinct region called:
a) Nucleolus
b) Centrosome
c) Nucleoid
d) Nucleus

36. The cellular DNA of a bacterium is known as the
a) Plasmid
b) Genes
c) Chromosomes
d) Histone

37. **The bacteria can cope unfavourable condition by producing**
   a) Mesosomes
   b) Zygospores
   c) Endospores
   d) Cysts

38. **The cell membrane of a bacterial cell often invaginates to produce membranous structures referred to as:**
   a) Centrosomes
   b) Mesosomes
   c) Dictyosomes
   d) Polysomes

39. **Mitosis can't take place in bacteria because they lack ---**
   a) Chromosomes
   b) Nucleus
   c) Centrosome
   d) Mesosomes

40. **Apparently which bacteria is more resistance to antibiotics?**
   a) Gram positive bacteria
   b) Gram negative bacteria
   c) Both a & b
   d) None of these

1	D	11	B	21	B	31	D
2	A	12	A	22	C	32	B
3	D	13	C	23	B	33	C
4	A	14	A	24	C	34	A
5	A	15	A	25	B	35	C
6	A	16	C	26	D	36	A
7	C	17	B	27	D	37	C
8	B	18	B	28	E	38	B
9	B	19	A	29	D	39	B
10	B	20	D	30	B	40	B

41. **He invited ____ and Zia to dinner.**

a) we
b) you
c) us
d) them

42. **Neither they nor their friend _____ solved the question.**

a) has
b) have
c) was
d) were

43. **He asked me_____.**

a) how are you.
b) how was I?
c) how you are?
d) How I was.

44. **She asked me _____.**

a) bring a glass of water for her.
b) to bring a glass of water for me.
c) to bring a glass of water for her.
d) None of these

45. **When your friend _____, he'll be very tired.**

a) arrived
b) will arrive
c) arrives
d) is arriving

46. **The sentence which has one dependent and one independent class is called _____.**

a) Compound Sentence
b) Complex Sentence
c) Compound Complex Sentence
d) Exclamatory Sentence

Pick up the wrong one:

47. **<u>The beautiful</u> and <u>the most</u> attractive picture <u>was hanged</u> on the wall.**
A B C D

48. **Though I thought I <u>had</u> hardly left any book <u>unread</u> . I am surprised that I <u>have</u> read <u>none</u> of these two books.**
A B C D

49. Each of the defaulters were heavily fined for delay in payment of dues.
A B C D

50. Nothing can be helpful to check the evils than the fear of God.
A B C D

51. Neither Promises have been kept, regardless of numerous opportunities to do so.
A B C D

For Question 52-53 choose the word most similar in meaning to the given.

52. **REAL:**
a) Copied
b) Idea
c) Original
d) Given

53. **ABSOLUTE:**
a) Division
b) Complete
c) Small
d) Half

54. **UNFOLD:**
a) Conceal
b) Withhold
c) Maintain
d) Elaborate

55. **COMMENCE:**
a) To End
b) To Begin
c) Nearing Finish
d) To Run

For Question 56-57 choose the word nearly opposite in meaning to the given word.

56. **ANXIETY:**
a) Problem
b) Worry
c) Relaxed
d) Nervous

57. **FORTH:**
a) Back
b) Out
c) Into view
d) Onward

For Question 58-60 identify the word or phrase that needs to be changed for the sentence to be correct:

58. **He called me as a fool .**
A B D

59. **This is the house where Jack was born in.**
A B C D

60. **I have visited them a couple of times during my stay in Mexico.**
A B C D

41	**B**	**49**	**A**	**57**	**A**
42	**A**	**50**	**B**	**58**	**B**
43	**D**	**51**	**C**	**59**	**D**
44	**C**	**52**	**C**	60	**A**
45	**C**	**53**	**B**		
46	**B**	**54**	**D**		
47	**A**	**55**	**B**		
48	**D**	**56**	**C**		

CHEMISTRY

61. **The amount (in litres) of Oxygen at STP that is required for the combustion of 4gm of ethylene is:**

a) 96 litres
b) 9.6 litres
c) 44.8 litres
d) 67.2 litres

62. **CO_2 and O_2 diffuse in the ratio of 0.58:0.55 what is the mass of O_2:**

a) 2.44
b) 23.2
c) 48.93
d) 2.32

63. **H_2 and O_2 are diffusing under same condition how much H_2 gas will diffuse**

a) 4
b) 16
c) 32
d) 0.5

64. **The value of surface tension of isopropyl alcohol is:**

a) Less than water
b) Less than ethylene glycol

c) Less than methyl alcohol
d) Same as ethyl alcohol

65. A solution of Sodium Sulphate was electrolyzed using some inert electrode; the products at the electrodes are:

a) O_2, H_2
b) O_2, Na
c) O_2, SO_2
d) O_2, $S_2O_{4^{-2}}$

66. Which order reaction obey the expression $t_{1/2}$= —

a) First
b) Second
c) Third
d) Zero

67. Which of the following indicate the correct variation of electro negativity

a) F>N>O>C
b) F>N<O>C
c) F <N < O < C
d) F>N>O<C

68. The products of decomposition of $Mg(NO_3)_2$ are

a) MgO and NO2
b) Mg and NO2
c) MgO, NO2, O2
d) Mg(NO3)2

69. If a person is injected by shot of a gun and all the bullets are not removed from his body it may cause poisoning by

a) Hg
b) Pb
c) Fe
d) As

70. Nitric Oxide has valence electrons.

a) 10
b) 13
c) 11
d) 12

71. Which metal is used generally for the filament of electric bulbs?

a) Pt
b) Fe

c) Cu
d) W

72. Maleic Acid and fumaric acid are
a) Cis-Trans isomers
b) Chain isomers
c) Position isomers
d) Metamers

73. All of the following react with $KMNO_4$ but
a) Ethane
b) Ethyne
c) Ethyl benzene
d) Ethene

74. The test used to distinguish among Primary, Secondary and Tertiary alcohols
a) 2,4 – DNPH test
b) Tollen's test
c) Lucas Test
d) Fehling's Solution Test

75. In the reaction sequence: CaC_2 A B C. Identify the product 'C'.
a) CH_2OH
b) CH_3CHO
c) C_2H_5OH
d) C_2H_4

76. Which one of the following organic compound has the least carbon-carbon bond length?
a) Ethene
b) Ethane
c) Ethyne
d) Methane

77. The reaction $2RX+2Na \rightarrow RR+2NaX$ is an example of:
a) Cannizaro's reaction
b) Kolbe's reaction
c) Sabatier & Senderens's reaction
d) Wurtz reaction

78. Which is not a meta directing group:
a) $-NO_2$
b) $-COOH$
c) $-NH_2$
d) $-COR$

79. **Which one of the following free radical is most stable:**

a) CH_3

b) $(CH_3)_2CH$

c) $(CH_3)_3C$

d) C_2H_5

80. **The process of depositing a thin layer of expensive metals on ordinary or expensive metals is called:**

a) Electroplating

b) Conductivity

c) Galvanizing

d) Meallurgy

81. **A catalyst is a substance which:**

a) Stops the reaction

b) Decreases the rate of reaction

c) Alters the rate of reaction

d) Increases the rate of reaction

82. **For a single step reaction A→ B + 2C, the rate law is:**

a) Rate = k——

b) Rate = k [A][B]

c) Rate= k

d) Rate = k [B]

83. **The correct increasing order of electron affinity value of atoms is:**

a) I < Br < F < Cl

b) I < Cl < F < Br

c) I < F < Br < Cl

d) F < Cl < Br < I

84. **The elements with atomic numbers 10, 18, 36, 54 and 86 are:**

a) Light metals

b) Inert gases

c) Halogens

d) Rare earth metals

85. **The relation between first and second ionization potentials of a given atom is:**

a) I1 < I2

b) I1 > I2

c) I1 = I2

d) None of above

86. **Commercial hydrogen can be obtained by the action of a steam on:**

a) Marsh gas
b) Coal gas
c) Producer gas
d) None of these

87. **The number of isomers of C_3H_7-Cl**

a) 2
b) 3
c) 4
d) 6

88. **Which class of the compounds is represented by the type formula ROR'?**

a) Esters
b) Ethers
c) Aldehydes
d) Ketones

89. **Formalin is an aqueous solution of:**

a) Formic acid
b) Formaldehyde
c) Furfurabldehyde
d) Acetone

90. **In this reaction, $NH_4^+ + H_2O \rightarrow H_3O^+ + NH_3$ the conjugate base of H_3O^+ ion is:**

a) NH_4^+
b) H_2O
c) H^-
d) NH_3

61	B	71	D	81	D
62	C	72	A	82	B
63	A	73	A	83	A
64	D	74	C	84	B
65	A	75	C	85	A
66	B	76	C	86	A
67	B	77	D	87	A
68	C	78	C	88	B
69	B	79	C	89	B
70	C	80	A	90	B

91. **An object is thrown vertically upward with a velocity of 20m/s. How much time it will take to reach the highest point?**

a) 2 sec
b) 4 sec
c) 1 sec
d) Insufficient information

92. **Suppose you drop an object from the roof of your house. It takes 2 sec. to reach the ground. What is the height of your house?**

a) 10 m
b) 20 m
c) 5m
d) Insufficient information

93. **The dimension of Young's Modulus is**

a) $M_2L_{-1}T_2$
b) $ML_{-1}T_{-1}$
c) $ML_{-1}T_{-2}$
d) $ML_{-2}T_{-2}$

94. **The length and width of a rectangular plate are measured to be 15.3mm and 12.50mm. Find the area of plate upto appropriate number of significant figure.**

a) 195.84 mm_2
b) 195.8mm_2
c) 196mm_2
d) 200mm_2

95. **An alternate unit to $kgms_{-1}$ is**

a) N
b) Nm_2
c) Nm
d) Ns

96. **A force F= 0.12N is applied on a spring and spring elongates by 3cm. Specific constant of the spring is?**

a) 0.4 Nm_{-2}
b) 40 Nm_{-1}

c) 400 Nm^{-1}

d) 4 Nm^{-1}

97. A vector in space has _____ dimension:

a) 0

b) 1

c) 2

d) 3

98. A body will be in translational equilibrium if the vector sum of all the forces acting on it is:

a) 0

b) Min.

c) Max.

d) Equal

99. In rotator motion angular momentum plays a role which is analogous to that played by _____ in linear motion.

a) Linear velocity

b) Linear momentum

c) Linear acceleration

d) Inertia

100. In Young's Double slit experiment, if the spacing between the slit is doubled and the linear distance from the screen is reduced to one half then the spacing between the two adjacent bright fringes will be _____ of actual value.

a) remain same

b) reduce to one half

c) reduce too one quarter

d) increase to twice

101. Consider an object is placed on a frictionless inclined plane at a height of 5m, if it is released, what will be its velocity at the bottom of the inclined plane?

a) Insufficient information

b) 10m/s

c) 100m/s

d) 20m/s

102. A cricketer hits 4 runs, When middle of the bat hits the ball. This is an example of Newton's:

a) 2nd la w of motion

b) 3rd law of motion

c) 1st of motion

d) Law of gravity

103. k x

a)

b) -

c)

d) -

104. The object at equilibrium may have any:

a) Force acting upon it

b) Acceleration

c) Velocity

d) Torque acting upon it

105. A guy is standing in a lift falling freely under gravity releases a ball from hand. As seen by the ball, the boy

a) falls down

b) remains stationary

c) goes up

d) none of above

106. Wheat stone bridge is used to:

a) Compare resistances

b) Determine the current

c) Determine the charge

d) Determine the e.m.f

107. Lower fixed point of Celsius Scale is

a) 32 °C

b) 273 °C

c) O °C

d) 100 °C

108. According to the Guass's law, electric field intensity between two oppositely charged parallel plates is

a) 0

b) —

c) —

d) —

109. A fused can be savior against:

a) High voltage

b) High current

c) High power

d) Heating of wires

110. A current of 2A is passing though an inductor of 2mH. Energy stored by it is

a) 8mJ

b) 10mJ

c) 6mJ

d) 4mJ

111. Volume stress divided by volume strain equal to

a) Young's Modulus

b) Bulk Modulus

c) Shear Modulus

d) Hyper Modulus

112. A factor buys 100kg of radioactive chemical with a half-life of 5 years which decays to a stable compound. How much of the chemical will still be radioactive in 10 years' time

a) None

b) 25kg

c) 50kg

d) 75kg

113. Alpha, Beta and Gamma radiations are emitted from a radioactive substance:

a) When it is heated

b) When it is subjected to high pressure

c) When it interacts with another particle

d) Spontaneously

114. Change in entropy doesn't depend on:

a) Amount of heat added to the system

b) Amount of heat rejected from the system

c) Temperature of the substance

d) Amount of the substance

115. A frictionless heat engine can be 100% efficient if:

a) The temperature of the sink is 0 ^{o}C

b) The temperature of the sink is 0 ^{o}K

c) The temperature of the source is 0 ^{o}K

d) The temperature of the sink is equal to the temperature of the source

116. A body moving with velocity V can be stopped by a force F in direction of it. Same body moving with velocity 5V can be stopped by a force 5F in distance equal to:

a) X

b) 5x

c) 10x

d) x/2

117. One wheel has a diameter of 30 inches and a second wheel has a diameter of 20 inches. The first wheel travels a certain distance revolution in 240 revolutions. In how many revolutions did the second wheel travel the same distance.

a) 170

b) 160

c) 360

d) 420

118. Dark plastic handlers often used on kitchen utensils because:

a) The black material is good in radiation

b) The plastic is a good insulator

c) The plastic a good conductor

d) The plastic soften gradually with excessive heat

119. A parallel plate capacitor has a capacitance C. If the distance between the plates and the plates both halved. Now the capacitance will be?

a) 0.5C

b) 4C

c) 0.25C

d) C

120. Which of the following statement is true about energy in a quantum:

a) It varies directly with frequency

b) It is the same at all frequencies

c) It varies with frequency

d) None of the above choices

91	A	101	B	111	B
92	B	102	B	112	B
93	C	103	A	113	D
94	C	104	C	114	D
95	D	105	B	115	B
96	D	106	A	116	B
97	D	107	C	117	C
98	A	108	B	118	B
99	B	109	B	119	D
100	C	110	C	120	A

HAT-UG-M

BOOK COLOR GREEN

TEST TIME 8:00 AM

Q_No.	Answer	Q_No	Answer	Q_No	Answer	Q_No	Answer
1	D	31	D	61	B	91	A
2	A	32	B	62	C	92	B
3	D	33	C	63	A	93	C
4	A	34	A	64	D	94	C
5	A	35	C	65	A	95	D
6	A	36	A	66	B	96	D
7	C	37	C	67	B	97	D
8	B	38	B	68	C	98	A
9	B	39	B	69	B	99	B
10	B	40	B	70	C	100	C
11	B	41	B	71	D	101	B
12	A	42	A	72	A	102	B
13	C	43	D	73	A	103	A
14	A	44	C	74	C	104	C
15	A	45	C	75	C	105	B
16	C	46	B	76	C	106	A
17	B	47	A	77	D	107	C
18	B	48	D	78	C	108	B
19	A	49	A	79	C	109	B
20	D	50	B	80	A	110	C
21	B	51	C	81	D	111	B
22	C	52	C	82	B	112	B
23	B	53	B	83	A	113	D
24	C	54	D	84	B	114	D
25	B	55	B	85	A	115	B
26	D	56	C	86	A	116	B
27	D	57	A	87	A	117	C
28	E	58	B	88	B	118	B
29	D	59	D	89	B	119	D
30	B	60	A	90	B	120	A