UNIVERSITY OF LUCKNOW

D.Pharm Entrance Examination

Biology Group — Model Test Paper Set 13

Total Questions: 100 | Section A: Chemistry & Physics (50) + Section B: Biology (50)

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SECTION A — Chemistry & Physics [50]

Chemistry

1. Manganin is an alloy containing:

(a) Cu, Mn, Ni (b) Zn, Cu, Mn

(c) Ni, Mn, Zn (d) Mn, CO, Fe

Answer: (a) Cu, Mn, Ni

2. Half-filled f-shell of lanthanide ion is: ueWLeeveeF[Dee :

(a) Ce4+ (b) Eu3+

(c) Tb4+ (d) Yb2+

Answer: (c) Tb4+

3. Which of the following ions have magnetic moment as 7.9 BM?

(a) Ce4+ (b) Gd3+

(c) Eu3+ (d) Yb2+

Answer: (b) Gd3+

4. Graphite has_____

(a) sp2 (b) sp3

(c) sp3 and sp (d) sp

Answer: (a) sp2

5. Which of the following has the lowest bond angle?

(a) CH 4 (b) +NH

(c) NH (d) NH 3

Answer: (c) NH

6. In monochlorination of methane, methyl radical is formed in _____.

(a) None of these options (b) Initiation step

(c) Propagation step (d) Termination step

Answer: (c) Propagation step

7. Chain Initiation :

(a) sp3d 95 YCT (b) sp

(c) sp3 (d) sp2

Answer: (b) sp

8. The resonance hybrid structure of benzene indicated _____

(a) Pentagonal (b) Hexagonal

(c) Tetrahedral (d) Heptagonal

Answer: (b) Hexagonal

9. Benzene is_____.

(a) [3] Annulene (b) [16] Annulene

(c) [6] Annulene (d) [18] Annulene

Answer: (c) [6] Annulene

10. Which of the following :

(a) Hydrogen bonds (b) Ionic bonds and Hydrogen bonds

(c) Vander walls attraction (d) Ionic bonds

Answer: (c) Vander walls attraction

11. Calcium carbide reacts vigorously with water to yield:

(a) Acetylene (b) Ethane

(c) Ethene (d) Carbon

Answer: (a) Acetylene

12. Reaction of alkyne with a solution of an alkali metal in liquid ammonia gives: lejue Deceesefve :

(a) Trans alkene (b) Primary amine

(c) Alkane (d) Cis alkene

Answer: (a) Trans alkene

13. Benzene is less dense than: yeWpeerve efke :

(a) Water (b) Alkane

(c) Both Alkane and Alkene (d) Alkene

Answer: (a) Water

14. Which of the following organic compounds will give fouling smell of isocyanide on heating with trichloromethane and alcoholic potassium hydroxide?

(a) Glycine (b) N-Methylaniline

(c) N-Methyl-o-methylaniline (d) p-Toluidine

Answer: (d) p-Toluidine

15. 'Silver salt' method is used for the determination of molecular mass :

(a) Aniline (b) Benzamide

(c) Ethyl benzoate (d) Benzoic acid

Answer: (d) Benzoic acid

16. A liquid organic compound that decomposes at its boiling point, can conveniently be purified by Ske :

(a) all the above methods (b) vacuum distillation

(c) fractional distillation (d) simple distillation

Answer: (b) vacuum distillation

17. Sodium fusion extract prepared from 'sulphanilic acid gives blood-red coloration with the reagent :

(a) Mohr's salt (b) Barium chloride

(c) Silver nitrate (d) Ferric chloride

Answer: (d) Ferric chloride

18. Natural rubber obtained from the rubber tree, 'Hevea Brasiliensis' consists of 'Hevea Brasiliensis' :

(a) poly (isobutylene) (b) cis-poly (isoprene)

(c) poly (chloroprene) (d) trans-poly (isoprene)

Answer: (b) cis-poly (isoprene)

19. The isoelectric point of alanine is 6.0. If its pK a1 value is 2.3, then its pK value will be a2 Deuesefveve :

(a) 7.0 (b) 8.3

(c) 9.7 (d) 3.7

Answer: (c) 9.7

20. Which of the following reaction is not possible during catalytic reforming of petrol in petroleum industry?

(a) n-Heptane (b) CH (CH) CH

(c) n-Octane (d) Methycyclohexane

Answer: (b) CH (CH) CH

21. In which of the following molecules, intermolecular hydrogen bonding is possible?

(a) Trimethylamine (b) N,N-Dimethylaniline

(c) Nitrobenzene (d) N-Methylaniline

Answer: (d) N-Methylaniline

22. Arrange the following compounds in the decreasing order of their bond angles:

(a) (i) > (ii) > (iii) (b) (i) > (iii) > (ii)

(c) (ii) > (i) > (iii) (d) (iii) > (ii) > (i)

Answer: (b) (i) > (iii) > (ii)

23. The major product formed when p- chlorotoluene is treated with sodamide in presence of liquid ammonia :

(a) o-Toluidine (b) p-Toluidine

(c) m-Toluidine (d) p-Chlorobenzylamine

Answer: (c) m-Toluidine

24. Arrange the following compounds in the order of their decreasing base-strength. efvecve :

(a) (IV) > (III) > (I) > (II) (b) (I) > (II) > (III) > (IV)

(c) (II) > (I) > (IV) > (III) (d) (III) > (IV) > (II) > (I)

Answer: (a) (IV) > (III) > (I) > (II)

25. Identify the compound E in the following reaction scheme, :

(a) Chlorobenzene (b) Benzene sulphonic acid

(c) Phenol (d) p-Nitrophenol

Answer: (c) Phenol

Physics

26. The ratio of light intensity scattered by two ° ° colours of wavelengths 4000A and 6000A is ?

(a) 2 (b) 5

(c) 7 (d) 1

Answer: (b) 5

27. In case of diffraction due to an opaque circular disc, the centre of the shadow is always ?

(a) none of the above (b) bright

(c) coloured (d) dark

Answer: (b) bright

28. Light is polarized to the maximum, when it is incident on a glass surface at an angle of incidence ?

(a) 530 (b) 670

(c) 370 (d) 570

Answer: (d) 570

29. The Clausius – Mossotti relation holds best for ?

(a) Gases and dilute solutions (b) Solids

(c) Polar molecules (d) Concentrate solutions

Answer: (c) Polar molecules

30. In Young's experiment the distance between 10-3 the slits was obtained as m, the distance between the slits and the screen as 3.0 m. The 2.1×10-3 width of the fringe is obtained as m. The colour of light used in the experiment will be ?

(a) Green (b) Violet

(c) Red (d) Yellow

Answer: (c) Red

31. Two lenses of powers +4D and –2D are kept in contact. The combinations focal length will be ?

(a) 25cm (b) 100cm

(c) 50cm (d) 75cm

Answer: (c) 50cm

32. A person hears an explosion 17.7 s after it took 140 place. If the atmospheric–temperature is C, the approximate distance of the place of explosion from the person is:

(a) 3.0 km (b) 4.0 km

(c) 2.0 km (d) 6.0 km

Answer: (d) 6.0 km

33. For diffraction at a single slit, the width of the central maximum is_____ the wavelength of light ?

(a) Proportional to (b) Proportional to the square of

(c) Independent of (d) Inversely proportional

Answer: (a) Proportional to

34. Which of the following has least surface area for a given volume?

(a) Cube (b) Sphere

(c) Cylinder (d) Cone

Answer: (b) Sphere

35. A heat engine is operating between termperatures 500 K and 400 K. What is the efficiency of the engine?

(a) 0.50 (b) 0.20

(c) 0.80 (d) 1.25

Answer: (b) 0.20

36. A gas is kept in a rigid container. Heat equal to 500 J is supplied to the gas. Change in the internal energy of the gas is:

(a) 50 J (b) 23.8 J

(c) 11.9 J (d) 500 J

Answer: (d) 500 J

37. In a potentiometer experiment, two cells connected in series get balanced at 8 m length on wire. It the connection of the terminal of cell of lower emf are reversed, the balance length is obtained at 4 m. The ratio of emf's of two cells is ?

(a) 3 : (b) 1 :

(c) 4 : (d) 2 :

Answer: (a) 3 :

38. There is a diode connected to an external resistance and an e.m.f. source as shown in figure. Assuming that potential barrier developed in diode – is 0.5 V, the value of current in the circuit is ?

(a) 0.05 A (b) 0.02 A

(c) 0.03 A (d) 0.025 A

Answer: (b) 0.02 A

39. A bulb is stamped as 60 W/240 V. The resistance when lighted by 240 volt is:

(a) 560 ohm (b) 480 ohm

(c) 240 ohm (d) 960 ohm

Answer: (d) 960 ohm

40. Internal resistance of a cell depends on ?

(a) Area of the electrode (b) Distance between electrode

(c) All of these (d) Nature of electrode

Answer: (c) All of these

41. The population inversion in He-Ne laser is produced by ?

(a) chemical reaction (b) inelastic atomic collisions

(c) electron excitation (d) Photon excitation

Answer: (c) electron excitation

42. The total energy of a particle executing simple harmonic motion depends upon its ?

(a) frequency only (b) amplitude only

(c) initial state (d) frequency and amplitude both

Answer: (d) frequency and amplitude both

43. At a given temperature, mean free path of a gas is ?

(a) Inversely proportional to the pressure (b) Directly proportional to the pressure

(c) Independent of pressure (d) None of the above

Answer: (a) Inversely proportional to the pressure

44. When a perfect gas is supposed to expand freely against vacuum in an insulated vessel, the gas undergoes:

(a) a change in temperature (b) a change in pressure

(c) a change in phase (d) a change in pressure and phase both

Answer: (a) a change in temperature

45. The dimensions of Planck's constant are equivalent to which of the following ?

(a) Angular momentum (b) Force

(c) Energy (d) Linear momentum

Answer: (a) Angular momentum

46. A star is emitting yellow light. If it is accelerated towards earth, then to an observer on earth it will appear :

(a) unchanged (b) gradually changing to blue

(c) shining yellow (d) gradually changing to red

Answer: (b) gradually changing to blue

47. When water freezes, the distance between its molecules :

(a) not changes (b) becomes zero

(c) increases (d) decreases

Answer: (c) increases

48. Which thermometer is preferred for rapidly changing temperature ?

(a) Thermo couple thermometer (b) Liquid in glass

(c) Gas thermometer (d) Resistance thermometer

Answer: (a) Thermo couple thermometer

49. Heat transfers by the process of convection occurs:

(a) Only in liquids and gases (b) Only in solids

(c) Only in liquids (d) In solids, liquids and gases

Answer: (a) Only in liquids and gases

50. If the density of aluminium is 2600 and its Young modulus is 7.8 × 1010 N/m², the speed of sound in aluminium will be :

(a) 6431 m/s (b) 5477 m/s

(c) 3000 m/s (d) 340 m/s

Answer: (b) 5477 m/s

SECTION B — Biology [50]

Zoology

51. The animal cell is different from a plant cell in having ?

(a) Male cockroach (b) Chromoplast

(c) Golgi apparatus (d) Centrosomes

Answer: (d) Centrosomes

52. The model given by Singer and Nicolson in ____ was _____ for plasma membrane ?

(a) Compound eyes and mosaic vision (b) First digit of the forelimbs

(c) 1972, fluid mosaic model (d) Schleiden and Schwann

Answer: (c) 1972, fluid mosaic model

53. The main chemical component of fungal cell wall is ?

(a) Senseory (b) Mushroom gland

(c) Chitin (d) SER

Answer: (c) Chitin

54. The surface of RER has ?

(a) Rudolf Virchow (b) Ribosomes

(c) Telocentric (d) Male cockroach

Answer: (b) Ribosomes

55. ____ cell organelle is responsible for the synthesis of steroids and lipids ?

(a) 70S (b) SER

(c) Mimicry (d) Ribosome

Answer: (b) SER

56. RER are found in the cells actively involved in ?

(a) Golgi apparatus (b) Nactatins membrane

(c) Protein synthesis (d) Centrioles

Answer: (c) Protein synthesis

57. _____ is common in both ER and Golgi complex ?

(a) Golgi apparatus (b) Ribosome

(c) Cell membrane (d) Cisternae

Answer: (d) Cisternae

58. A number of proteins synthesised by ribosome present on the ER are transferred to ?

(a) Chromoplast (b) Golgi apparatus

(c) Rudolf Virchow (d) Circular

Answer: (b) Golgi apparatus

59. Cell organelle is involved in the synthesis of the cell organelle that contains hydrolytic enzymes ?

(a) Periplaneta americana (b) Plasma membrane 7

(c) Telocentric (d) Golgi apparatus

Answer: (d) Golgi apparatus

60. The vacuoles which help in the digestion of food particles engulfed by protists are ?

(a) Squamous epithelium (b) Golgi apparatus

(c) Food vacuoles (d) Centrioles

Answer: (c) Food vacuoles

61. The stain is used to observe mitochondria ?

(a) Janus green (b) DNA and histones

(c) 2 large (d) Food vacuoles

Answer: (a) Janus green

62. Cell organelle is known as power house of the cell ?

(a) Mitochondrion (b) Rudolf Virchow

(c) Janus green (d) Tergites

Answer: (a) Mitochondrion

63. The inner membrane of mitochondria forms a number of infoldings called ?

(a) Golgi apparatus (b) Frog

(c) Cristae (d) Protein synthesis

Answer: (c) Cristae

64. The type of ribosomes found inside the mitochondria is ?

(a) Nucleolus (b) Ribosomes

(c) 70S (d) SER

Answer: (c) 70S

65. The plastids, store proteins are ?

(a) Aleuroplasts (b) Mushroom gland

(c) Nucleolus (d) Cristae

Answer: (a) Aleuroplasts

66. _____ plastid is coloured and contains carotenoids ?

(a) Chitin (b) Squamous epithelium

(c) Arthrodial membrane (d) Chromoplast

Answer: (d) Chromoplast

67. _____ plastid contains chlorophyll which is responsible for photosynthesis ?

(a) Protein synthesis (b) Centrosome

(c) Chloroplast (d) Janus green

Answer: (c) Chloroplast

68. The orange colour of carrot root due to the presence of is ?

(a) Periplaneta americana (b) Cell membrane

(c) Phospholipid synthesis (d) Chromoplast

Answer: (d) Chromoplast

69. Centrosome is an organelle containing two cylindrical structures called ?

(a) Food vacuoles (b) Contractile vacuoles

(c) Golgi bodies (d) Centrioles

Answer: (d) Centrioles

70. The structure present inside the nucleus responsible for ribosomal unit formation is ?

(a) Rudolf Virchow (b) Nucleolus
(c) Plasmid (d) Cisternae
Answer: (b) Nucleolus

71. Chromatin found in nucleus was discovered by ?
(a) Flemming (b) Nuclear envelope
(c) Ribosome (d) Ribosomes
Answer: (a) Flemming

72. Chromatin is essentially composed of ?
(a) Phospholipid synthesis (b) DNA and histones
(c) Supra-oesophageal ganglion (d) Golgi apparatus
Answer: (b) DNA and histones

73. The chromatids of a chromosome are held together at a point called ?
(a) Rudolf Virchow (b) Centromere
(c) Protein synthesis (d) Janus green
Answer: (b) Centromere

74. An elaborate network of filamentous proteinaceous structure present in the cytoplasm which helps in the maintenance of cell shape is called ?
(a) Golgi apparatus (b) Cytoskeloeton
(c) Cisternae (d) Mitochondria
Answer: (b) Cytoskeloeton

75. The chomosomes having centromere at terminal end are called ?
(a) Eukaryotic cell (b) Rudolf Virchow
(c) Telocentric (d) Phospholipid synthesis
Answer: (c) Telocentric

Botany

76. Lupin belongs to ?
(a) Bilobed (b) Fabaceae
(c) Eubacteria (d) Androecium
Answer: (b) Fabaceae

77. Indigofera is a ?
(a) Solanum (b) Dye
(c) Fabaceae (d) Castor
Answer: (b) Dye

78. Fabaceae was earlier known as ?
(a) Chemosynthetic bacteria (b) Thalamus
(c) Sporozoans (d) Papilionoideae
Answer: (d) Papilionoideae

79. Atropine, used for dilating pupil is obtained from Atropa belladona, angiospermic family is ?
(a) Protista (b) Chemosynthetic bacteria
(c) Solanaceae (d) Fruit
Answer: (c) Solanaceae

80. Gram belongs to the family ?
(a) Fabaceae (b) Calyx

(c) Thalamus (d) Protista

Answer: (a) Fabaceae

81. Flower of Fabaceae is ?

(a) Position of ovary (b) Blue-green algae (Anabaena)

(c) Complete, zygomorphic, pentamerous (d) Billions of years

Answer: (c) Complete, zygomorphic, pentamerous

82. Pulses yielding main family of plants is ?

(a) Aquatic (b) Heterocyst

(c) Monera (d) Fabaceae

Answer: (d) Fabaceae

83. Phylogenetic classification systems is ?

(a) Are based on evolutionary relationship (b) Presence and absence of red blood

(c) G Description of Some Important Families (d) Mycoplasma 17 gical Classification

Answer: (a) Are based on evolutionary relationship

84. Aristotle divided animals into two groups on the basis of is ?

(a) Epicarp, mesocarp, endocarp The Seed (b) Are based on evolutionary relationship

(c) G Description of Some Important Families (d) Presence and absence of red blood

Answer: (d) Presence and absence of red blood

85. Contagium vivum fluidum was proposed by ?

(a) Cell wall composition (b) M. W. Beijerinck

(c) Monocot embryo (d) Gut of cow

Answer: (b) M. W. Beijerinck

86. The five kingdom classification was proposed by ?

(a) Siliceous wall (b) M. W. Beijerinck

(c) R. H. Whittaker (d) Chemosynthetic bacteria

Answer: (c) R. H. Whittaker

87. Mycoplasmas are classified under kingdom of ?

(a) Solanum (b) Monera

(c) Endospermic (d) Hilum

Answer: (b) Monera

88. In five-kingdom classification system, the kingdom that includes the blue-green algae, nitrogen-fixing bacteria and methanogenic archaebacteria is ?

(a) Hard endocarp (b) Diatoms

(c) Monera (d) Aquatic

Answer: (c) Monera

89. Two classification system was a kingdom system of classification proposed by ?

(a) Sporozoans (b) Linnaeus

(c) Monera (d) Gonyaulax group

Answer: (b) Linnaeus

90. In Whittaker's five kingdom system of classification, eukaryotes are distributed among ?

(a) Four kingdoms (b) Chrysophytes

(c) Linnaeus (d) Sporozoans

Answer: (a) Four kingdoms

91. Whittaker's classification is not mentioned ?

(a) Virus, Viroids, Lichens (b) M. W. Beijerinck

(c) Chemosynthetic bacteria (d) Air currents

Answer: (a) Virus, Viroids, Lichens

92. Four kingdom system of classification was proposed by ?

(a) Euglena (b) Slime moulds

(c) Marginal (d) Copeland

Answer: (d) Copeland

93. Two Kingdom system of classification was developed by ?

(a) Diatoms (b) Marginal

(c) Linnaeus (d) Siliceous wall

Answer: (c) Linnaeus

94. Cell wall of fungi is made up of ?

(a) Monera (b) Dye

(c) Chitin (d) Linnaeus

Answer: (c) Chitin

95. This characteristic placed the fungi in a separate kingdom is ?

(a) Four kingdoms (b) Mycoplasma 17 gical Classification

(c) Cell wall composition (d) Euglenoids, Diatoms and Dinoflagellates

Answer: (c) Cell wall composition

96. Methanogens are present in the ?

(a) Cell wall composition (b) Plantae, Fungi, Animalia

(c) Gut of cow (d) Monocot embryo

Answer: (c) Gut of cow

97. Specialized cells for fixing atmospheric nitrogen in Nostoc and Anabaena are ?

(a) Spores (b) Slime moulds

(c) Endospermic (d) Heterocyst

Answer: (d) Heterocyst

98. Currently bacteria are included in ?

(a) Monera (b) Siliceous wall

(c) Air currents (d) Solanum

Answer: (a) Monera

99. During unfavourable conditions, bacteria produce is ?

(a) Fabaceae (b) Solanum

(c) Spores (d) Aquatic

Answer: (c) Spores

100. The organisms that completely lack a cell wall is ?

(a) Plantae, Fungi, Animalia (b) Cell wall composition

(c) Euglenoids, Diatoms and Dinoflagellates (d) Mycoplasma 17 gical Classification

Answer: (d) Mycoplasma 17 gical Classification