

UNIVERSITY OF LUCKNOW

D.Pharm Entrance Examination

Biology Group — Model Test Paper Set 2

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

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SECTION A — Chemistry & Physics [50]

Chemistry

1. Diethyl ether is _____.

- (a) Unsymmetrical ether (b) Mixed ether
- (c) Heterocyclic compound (d) Symmetrical ether

Answer: (d) Symmetrical ether

2. Acetaminophen is an example of _____.

- (a) Anti-microbial (b) Anti-inflammatory
- (c) Antipyretic and analgesic (d) Antibiotic

Answer: (c) Antipyretic and analgesic

3. A powerful narcotic used for relief of pain and has high addictive property is _____.

- (a) Quinidine (b) Morphine
- (c) Caffeine (d) Aspirin

Answer: (b) Morphine

4. Acetylsalicylic acid, the most widely used mild analgesic is commonly known as _____.

- (a) Quinoid (b) Morphin
- (c) Aspirin (d) Paracetamol

Answer: (c) Aspirin

5. In ion exchange method, study of which factor helps in determination of stability constant of complexes in solution?

- (a) Conductivity (b) Solubility
- (c) Polarizability (d) Heterogenous equilibrium

Answer: (d) Heterogenous equilibrium

6. $[\text{Co}(\text{NH}_3)_6]^{3+}$ complex is _____.

- (a) Both kinetically and thermodynamically stable (b) Both kinetically and thermodynamically unstable
- (c) Thermodynamically inert but kinetically unstable (d) Thermodynamically unstable but kinetically inert

Answer: (d) Thermodynamically unstable but kinetically inert

7. During photochemical reaction of alkenes having cis and trans isomer, photolysis causes generation of _____.

- (a) Mixture richer in cis isomer (b) Mixture containing only trans isomer
- (c) Mixture richer in trans isomer (d) Mixture containing only cis isomer

Answer: (a) Mixture richer in cis isomer

8. The cage like open framework structure made up of aluminosilicates which has a very stable nature to resist all kind of environmental conditions are termed as _____.

- (a) Fullerenes (b) Zeolites
- (c) Mesh (d) Carbene

Answer: (b) Zeolites

9. In Paterno-Buchi reaction, the major product formed is _____.

- (a) cis adduct (b) trans adduct
- (c) Adduct formed from a long lived diradical intermediate (d) Racemic mixture

Answer: (a) cis adduct

10. When for any atom in a molecule, an identical atom exists diametrically opposite this centre at an equal distance then the molecule has _____.

- (a) Centre of symmetry (b) Symmetry axis
- (c) Identity (d) Plane of symmetry

Answer: (a) Centre of symmetry

11. When Electro-Magnetic radiation interacts with a single atom and molecule, its behaviour depends on the amount of _____.

- (a) Wavenumber (b) Wavelength
- (c) Energy per quanta (photons) (d) Electrons

Answer: (c) Energy per quanta (photons)

12. The red color of oxy-haemoglobin is mainly due to _____.

- (a) Intraligand (b) Metal to ligand charge transfer
- (c) Ligand to metal charge transfer (d) d-d transition

Answer: (d) d-d transition

13. Cerium can be separated from lanthanide mixture quite easily because _____.

- (a) It is inert in nature (b) It has Ln⁴⁺ structure in aqueous solution
- (c) It has Ln³⁺ ion structure in aqueous solution (d) It has higher mass

Answer: (b) It has Ln⁴⁺ structure in aqueous solution

14. Catalyst used in Haber-Bosch process for making NH₃ is _____.

- (a) MnO (b) Promoted Fe
- (c) FeSO (d) Pt

Answer: (b) Promoted Fe

15. A metalloprotein have Fe central metal and functions in electron transfer is _____.

- (a) Catalase (b) Ferredoxin
- (c) Haemoglobin (d) Cytochrome

Answer: (d) Cytochrome

16. Rhodium dimer [Cp*₂Rh(CO)₂] has _____.

- (a) Only 2 bridging groups (b) 2 bridging and 4 terminal groups
- (c) 2 bridging and 2 terminal groups (d) 4 bridging and 2 terminal groups

Answer: (c) 2 bridging and 2 terminal groups

17. Quantum confinement effect results in _____

- (a) Electric discharge (b) Magnetic dipole
- (c) Inactivity (d) Increased kinetic energy

Answer: (b) Magnetic dipole

18. Magnetic nanoparticle tends to behave as larger particle because of phenomena called _____.

- (a) Suspension (b) Dispersion
- (c) Agglomeration (d) Dissociation

Answer: (c) Agglomeration

19. Fragment ions with lower energy than normal appearing :

- (a) Metastable peak (b) Ion peak
(c) Fragment peak (d) Base peak

Answer: (a) Metastable peak

20. Hydrogenation of cyclohexene to form cyclohexane using Wilkinson's Catalyst $[RhCl(PPh_3)_3]$ is an example of _____.

- (a) Catalytic photolysis (b) Symmetric catalysis
(c) Complexating reaction (d) Asymmetric catalysis

Answer: (d) Asymmetric catalysis

21. d^4 or d^10 metal complexes where non-bonding orbitals are either partially or fully filled electronically favour which structure?

- (a) Square planar (b) Octahedral
(c) Distorted Square planar (d) Tetrahedral

Answer: (d) Tetrahedral

22. The complex $[Rh(CO)(Cl)(PPh_3)_2]$ has a $3d$ _____

- (a) Square planar (b) Distorted square planar
(c) Tetrahedral (d) Octahedral

Answer: (a) Square planar

23. An organometallic complex that is used as an anticancer drug that targets DNA to inhibit cell growth is called _____.

- (a) Salvarsan (b) cis-Platin
(c) Ferroquine (d) Chloroquine

Answer: (b) cis-Platin

24. The closeness of obtained values to the true value is called _____.

- (a) Accuracy (b) Ruggedness
(c) Error (d) Precision

Answer: (a) Accuracy

25. In thin-layer chromatography, the stationary phase used is _____.

- (a) Copper plate (b) Silica packed aluminium plate
(c) Glass beads (d) Carbon

Answer: (a) Copper plate

Physics

26. At Curie point, a ferromagnetic material becomes?

- (a) Non-magnetic (b) Diamagnetic
(c) Paramagnetic (d) Strongly ferromagnetic

Answer: (c) Paramagnetic

27. The wavelength of the radiations for which the energy is maximum in the spectrum is 490 nm. The effective temperature of the sun is ?

- (a) 5820 K (b) 5914 K
(c) 6920 K (d) 6000 K

Answer: (b) 5914 K

28. Transmission of heat by molecular collision is ?

- (a) Radiation (b) Scattering
(c) Conduction (d) Convection

Answer: (c) Conduction

29. Two photons each with velocity c are moving in opposite direction. Their relative velocity will be :

- (a) None of these (b) $2c$
- (c) c (d) Zero

Answer: (c) c

30. Two capillary tubes of same material having radii 1 mm and 2 mm respectively are immersed in a liquid. If the liquid rises to 30 cm in the first, then the height in second will be ?

- (a) 15 cm (b) 120 cm
- (c) 7.5 cm (d) 60 cm

Answer: (a) 15 cm

31. Critical velocity of a liquid may not possible be related to:

- (a) density of liquid (b) coefficient of viscosity
- (c) mass of liquid (d) radius of tube

Answer: (c) mass of liquid

32. The graph between square of time period and length of a simple pendulum is :

- (a) Parabola (b) Straight line
- (c) Hyperbola (d) Circle

Answer: (b) Straight line

33. Kepler's II law is a consequence of - ?

- (a) Conservation of angular momentum (b) None of these
- (c) Conservation of liner momentum (d) Conservation of energy

Answer: (a) Conservation of angular momentum

34. A body of mass 4 kg is moving in a circle of radius 1m with an angular velocity of 2 radian/sec. Find the Centripetal force acting on body ?

- (a) 24N (b) 16N
- (c) 8N (d) 20N

Answer: (b) 16N

35. Which of the following can NOT be obtained from rotational levels?

- (a) Force constant (b) Moment of inertia
- (c) Internuclear distance (d) Rotational frequencies

Answer: (a) Force constant

36. The packing fraction of a f.c.c. lattice is ?

- (a) 0.52 (b) 0.48
- (c) 0.68 (d) 0.74

Answer: (d) 0.74

37. With a decrease of current in primary coil from 2 Amp to 0 Amp in 0.01 sec, the e.m.f. generated in secondary coil is 100 Volt. The mutual inductance will be ?

- (a) 10 Henry (b) 1 Henry
- (c) 5 Henry (d) 0.5 Henry

Answer: (d) 0.5 Henry

38. Rotation of plane polarised light can be measured by :

- (a) Viscometer (b) Polarimeter
- (c) Manometer (d) Galvanometer

Answer: (b) Polarimeter

39. Which property of light shows it is a transverse wave?

- (a) Interference (b) Refraction
- (c) Polarization (d) Diffraction

Answer: (c) Polarization

40. Best way to demonstrate temporal coherence is ?

- (a) Fabry Parot interferometer (b) Michelson interferometer
- (c) Newton's ring (d) Fresnel biprism

Answer: (b) Michelson interferometer

41. What is the number of nodal points in a coaxial lens system?

- (a) Two (b) One
- (c) Zero (d) Any number

Answer: (a) Two

42. A car moving at 30 m/s is approaching a factory, whose whistle has a frequency of 500 Hz. If the speed of sound in air is 340 m/s, what is the apparent frequency of whistle as heard by the car driver?

- (a) 544 Hz (b) 500 Hz
- (c) 600 Hz (d) 480 Hz

Answer: (a) 544 Hz

43. The volume of hollow hall is 2000 m³ and total absorption coefficient is 165 unit. Then reverberation time of hall is ?

- (a) 0.5s (b) 2s
- (c) 4s (d) 1s

Answer: (b) 2s

44. The vibration of a string fixed at both ends are described by the equation $y = 5 \sin \sin 100\pi t$ If the length of the string is 16 cm, the number of loops formed in vibration shall be ?

- (a) 8 (b) 4
- (c) 16 (d) 12

Answer: (a) 8

45. The speed of wave in a medium is 960 m/s. If 3600 waves are passing through a point in one minute, the wavelength will be :

- (a) 64 m (b) 14 m
- (c) 16 m (d) 32 m

Answer: (c) 16 m

46. Vibrations of the diaphragm of a microphone are ?

- (a) Damped oscillations (b) resonant oscillations
- (c) free oscillation (d) forced oscillations

Answer: (d) forced oscillations

47. A system in contact with a heat reservoir can most suitably be represented by ?

- (a) Grand canonical ensemble (b) Micro canonical ensemble
- (c) Coulomb ensemble (d) Canonical ensemble

Answer: (d) Canonical ensemble

48. Newton's Law of cooling is an approximate form of ?

- (a) Kirchoff's law (b) Jeans's law

(c) Stefan's law (d) Wien displacement law

Answer: (c) Stefan's law

49. Which of the following laws has the same place in magnetostatics as the Gauss's law has in electrostatics?

- (a) Faraday's Law (b) Ampere's Law
(c) Coulomb's Law (d) Bio-Savart Law

Answer: (d) Bio-Savart Law

50. Current through a capacitive element is called :

- (a) Displacement current (b) Steady state current
(c) Conduction current (d) Transient current

Answer: (a) Displacement current

SECTION B — Biology [50]

Zoology

51. The Jelly fish is classified under the phylum ?

- (a) Interstitial cells (b) Aschelminthes
(c) Cnidaria (d) Spongin fibres

Answer: (c) Cnidaria

52. Bilateral symmetry does not occur in ?

- (a) Bioluminescence (b) Ctenophora
(c) Obelia (d) Flatworms

Answer: (c) Obelia

53. Portugese man of war is ?

- (a) Porifera Coelenterata/Cnidaria (b) Sea anemone
(c) Physalia Ctenophora (d) Sea walnuts Platyhelminthes

Answer: (c) Physalia Ctenophora

54. Animals reproduces only by sexual means is ?

- (a) Obelia (b) Bioluminescence
(c) Sycon (d) Ctenophora

Answer: (d) Ctenophora

55. _____ phylum are exclusively marine, radially symmetrical and diploblastic ?

- (a) Cnidaria (b) Turtle
(c) Mesoderm (d) Ctenophora

Answer: (d) Ctenophora

56. Comb jellies belong to ?

- (a) Crocodile (b) Pleurobrachia
(c) Cattle leech (d) Ctenophora

Answer: (d) Ctenophora

57. In case of poriferans, the spongocoel is lined with flagellated cells called ?

- (a) Body surface (b) Sea walnuts Platyhelminthes
(c) Choanocytes (d) Locomotion

Answer: (c) Choanocytes

58. A common characteristic of all vertebrates without exception is ?

- (a) Leeches, Earthworm and liver fluke (b) Fasciola and Taenia Aschelminthes

(c) The presence of well-developed skull (d) Annelida and arthropoda Arthropoda

Answer: (c) The presence of well-developed skull

59. The group of animals reproduces only by sexual means is ?

(a) Platyhelminthes (b) Aschelminthes

(c) Ctenophora (d) Annelida

Answer: (c) Ctenophora

60. Bioluminescence show is ?

(a) Osmoregulation, Excretion (b) Pleurobrachia

(c) Annelida (d) Cnidaria

Answer: (b) Pleurobrachia

61. Fertilisation and development in Ctenophora is ?

(a) Pleurobrachia (b) External, Indirect

(c) Flatworms (d) Coelenterata and Echinodermata

Answer: (b) External, Indirect

62. A well marked feature in ctenophores is ?

(a) Flatworms (b) Bioluminescence

(c) Choanocytes (d) Operculum

Answer: (b) Bioluminescence

63. Comb plates of ctenophores possess is ?

(a) Cattle leech (b) Coelenterata and Echinodermata

(c) Cilia for locomotion (d) Kingdom animalia

Answer: (c) Cilia for locomotion

64. Ctenophores are exclusively marine organisms. They are radially symmetrical and diploblastic. These are commonly called ?

(a) Kingdom animalia (b) Sea walnuts Platyhelminthes

(c) Fasciola and Taenia Aschelminthes (d) External, Indirect

Answer: (b) Sea walnuts Platyhelminthes

65. In amphibians, heart is ____ chambered ?

(a) Sea anemone (b) Porifera

(c) Three (d) Maggot

Answer: (c) Three

66. Heart is three-chambered in reptiles, except ?

(a) Crocodile (b) Radially symmetrical

(c) Longitudinal, Circular (d) Aedes

Answer: (a) Crocodile

67. Flame cells present in platyhelminthes are specialized in ?

(a) Osmoregulation and excretion (b) Proteinaceous pellicle

(c) Hookworm Annelida (d) Gastrovascular cavity

Answer: (a) Osmoregulation and excretion

68. Flame cells are main excretory structures of ?

(a) Platyhelminthes (b) Tunicata

(c) Locomotion (d) Porifera

Answer: (a) Platyhelminthes

69. Bilaterally symmetrical and acoelomate animals are exemplified by ?

- (a) Longitudinal, Circular (b) Platyhelminthes
- (c) Crocodile (d) Annelida

Answer: (b) Platyhelminthes

70. High regeneration power is present in ?

- (a) Sycon (b) Planaria
- (c) Crocodile (d) Three

Answer: (b) Planaria

71. Anus is absent in ?

- (a) Ommatidia (b) Nereis
- (c) Fasciola (d) Locomotion

Answer: (c) Fasciola

72. Alimentary canal is absent in ?

- (a) Ascaris & Fasciola (b) Chlamydomonas and Amoeba
- (c) Body surface (d) Spongin fibres

Answer: (a) Ascaris & Fasciola

73. Platyhelminthes are commonly called ?

- (a) Neophron (b) Maggot
- (c) Longitudinal, Circular (d) Flatworms

Answer: (d) Flatworms

74. Some members of platyhelminthes absorb nutrients from the host directly through is ?

- (a) Aurelia (b) Mammary glands
- (c) Proteinaceous pellicle (d) Body surface

Answer: (d) Body surface

75. Examples of platyhelminthes includes is ?

- (a) Grasshoppers and Earthworm (b) Prawn, Scorpion, Locusta
- (c) Fasciola and Taenia Aschelminthes (d) Osmoregulation and excretion

Answer: (c) Fasciola and Taenia Aschelminthes

Botany

76. The meristem occur at the tip of roots and shoots is ?

- (a) Apical meristem (b) Simple permanent tissues
- (c) No tapering ends (d) Phloem parenchyma

Answer: (a) Apical meristem

77. Sclereids are made up of which tissue ?

- (a) Primary growth (b) Grasses
- (c) Sclerenchyma (d) Collenchyma

Answer: (c) Sclerenchyma

78. Collenchyma is a ?

- (a) Capacity of division (b) Epidermal tissue system
- (c) Living mechanical tissue (d) Secondary meristem

Answer: (c) Living mechanical tissue

79. The thickening in collenchyma is due the deposition of ?

- (a) Pectin (b) Axillary bud

(c) Collenchyma (d) Sclerenchyma

Answer: (a) Pectin

80. Albuminous cells occurs in ?

(a) Axillary bud (b) Apical meristem

(c) Phloem (d) Collenchyma

Answer: (c) Phloem

81. Grass regenerate and elongate by the activity of is ?

(a) Intercalary meristems (b) Sclerenchyma

(c) Companion cells (d) Lateral meristem

Answer: (a) Intercalary meristems

82. Permanent tissues develop from is ?

(a) Primary and secondary meristem both (b) Both sieve tubes and companion cells

(c) Used in long distance transportation (d) Immature cells with power to divide

Answer: (a) Primary and secondary meristem both

83. Provides mechanical support to the growing parts of plants such as young stem and petiole of a leaf is ?

(a) Unicellular (b) Apical meristem

(c) Sclerenchymatous (d) Collenchyma

Answer: (d) Collenchyma

84. Sclereids are found ?

(a) Is a meristematic tissue (b) No tapering ends

(c) Translocation of organic solutes (d) Solid endosperm of coconut

Answer: (d) Solid endosperm of coconut

85. Initial increase in length of stem or root is because of ?

(a) Apical, Intercalary meristem (b) Secondary meristem

(c) Flaccidity of bulliform cells (d) Intercellular spaces

Answer: (a) Apical, Intercalary meristem

86. Simple tissue, provide mechanical support to the petiole of a leaf is ?

(a) Collenchyma (b) Apical meristem

(c) Exarch (d) Endarch

Answer: (a) Collenchyma

87. When protoxylem faces pericycle, it is called ?

(a) Cambium (b) Endarch

(c) Protoxylem (d) Exarch

Answer: (d) Exarch

88. In sclerenchyma, walls are ?

(a) Collenchyma (b) Epidermis

(c) Maturation (d) Lignified

Answer: (d) Lignified

89. The major function of sieve tubes in plants is ?

(a) Epidermal tissue system (b) Translocation of organic solutes

(c) Simple permanent tissues (d) Possessing thick cell wall

Answer: (b) Translocation of organic solutes

90. Out of the four components of xylem - tracheids, vessels, xylem fibers and xylem parenchyma, how many are dead ?

- (a) Three (b) Protoxylem
- (c) Roots (d) Endarch

Answer: (a) Three

91. On the basis of features, identify the xylem element is ?

- (a) Cellulose, Hemicellulose, Pectin (b) Living mechanical tissue
- (c) No tapering ends (d) Simple permanent tissues

Answer: (c) No tapering ends

92. Elements of xylem lack lignified cell wall is ?

- (a) Xylem parenchyma (b) Collenchyma
- (c) Apical, Intercalary meristem (d) Axillary bud

Answer: (a) Xylem parenchyma

93. Tissue provide mechanical strength against bending & swaying is ?

- (a) Collenchyma (b) Phloem parenchyma
- (c) Grasses (d) Xylem, Phloem

Answer: (a) Collenchyma

94. Parenchyma, collenchyma and sclerenchyma in plants are ?

- (a) Epidermal tissue system (b) Single layer
- (c) Simple tissues (d) Secondary meristem

Answer: (c) Simple tissues

95. _____ is a living mechanical tissue ?

- (a) Apical meristem (b) Xylem parenchyma
- (c) Endarch (d) Collenchyma

Answer: (d) Collenchyma

96. Dermal tissues, Ground tissues and Vascular tissues produces is ?

- (a) Guard cell (b) Xylem, Phloem
- (c) Primary growth (d) Apical meristem 5

Answer: (d) Apical meristem 5

97. _____ is absent in most of the monocotyledons ?

- (a) Living mechanical tissue (b) Secondary meristem
- (c) Phloem parenchyma (d) Sclereids

Answer: (c) Phloem parenchyma

98. The parenchymatous cells are ?

- (a) Thin-walled (b) Radial
- (c) Sclereid (d) Epidermis

Answer: (a) Thin-walled

99. Collenchyma differs from parenchyma in is ?

- (a) Apical, Intercalary meristem (b) Apical meristem 5
- (c) Cellulose, Hemicellulose, Pectin (d) Possessing thick cell wall

Answer: (d) Possessing thick cell wall

100. Absent in the collenchyma ?

- (a) Intercellular spaces (b) No tapering ends

(c) Cuticle covering (d) Companion cells

Answer: (a) Intercellular spaces

