

UNIVERSITY OF LUCKNOW

D.Pharm Entrance Examination

Biology Group — Model Test Paper Set 7

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

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SECTION A — Chemistry & Physics [50]

Chemistry

1. The metal obtained from the auto reduction of its oxide with sulfide is : Gme Oeeleg :

- (a) Fe (b) Zn
(c) Al (d) Cu

Answer: (d) Cu

2. Takai reaction of aldehydes gives which of the following products?

- (a) Alkene (b) Alkane
(c) Alkyne (d) Epoxide

Answer: (a) Alkene

3. Which of the following is an example of dialdehyde?

- (a) Furfural (b) Buteraldehyde
(c) Vanicin (d) Glyoxal

Answer: (d) Glyoxal

4. The process by which ketones are formed by the hydrolysis of salts of secondary nitro compounds is known :

- (a) Fukuyama coupling (b) Nef Reaction
(c) Dakin-West reaction (d) Friedel craft's

Answer: (b) Nef Reaction

5. Ketones from _____

- (a) ketal (b) imine
(c) amine (d) enamine

Answer: (b) imine

6. Amines act as : Deceervme efke :

- (a) Good electrophiles (b) Good nucleophiles
(c) Both good nucleophiles & lewis bases (d) Lewis bases

Answer: (c) Both good nucleophiles & lewis bases

7. Primary and Secondary amines form _____

- (a) imines and enamines; aldehydes and ketones (b) enamines and imines; aldehydes and ketones
(c) enamines and enamines; aldehydes and ketones (d) imines and enamines; ketones and aldehydes

Answer: (a) imines and enamines; aldehydes and ketones

8. The product formed in Bischler-Napieralski reaction :

- (a) Aldehyde (b) Amine
(c) Cyclic imine (d) Nitrile

Answer: (c) Cyclic imine

9. Carbylamine test is used for the detection :

- (a) Tertiary amines (b) Secondary amines

(c) All amines (d) Primary amines

Answer: (d) Primary amines

10. Which of the following act (s) as thermosetting resins ?

(a) Polyamides (b) Poly styrene

(c) Polyesters (d) Polyethylene

Answer: (c) Polyesters

11. Which of the following is a polymeric product?

(a) Wood (b) Meat

(c) Cotton (d) Rubber

Answer: (d) Rubber

12. Poly oxy methylene is formed from monomers unit :

(a) Caprolactum (b) Tetrahydro furan

(c) Trioxane (d) Ethylene oxide

Answer: (c) Trioxane

13. The type of bonding predominant in polymers is :

(a) Ionic (b) Metallic

(c) Covalent (d) Dipole forces

Answer: (c) Covalent

14. Which of the following polymers is non-polar?

(a) Both Acrylonitrile & PVC (b) PVC

(c) Acrylonitrile (d) Polypropylene

Answer: (d) Polypropylene

15. Which of the following is not a basic amino acid?

(a) Asparagine (b) Glutamine

(c) Arginine (d) Serine

Answer: (d) Serine

16. Ruff degradation takes place in the presence :

(a) Mn^{2+} (b) Mg^{2+}

(c) Fe^{2+} (d) Fe^{3+}

Answer: (d) Fe^{3+}

17. Rickets is caused by the deficiency of :

(a) Vitamin-B (b) Vitamin-A

(c) Vitamin-D (d) Vitamin-C

Answer: (c) Vitamin-D

18. Hormone that is not synthesised by the process :

(a) Somatostatin (b) Insulin

(c) Glucagon (d) Melatonin

Answer: (d) Melatonin

19. PS I and PS II consists of _____

(a) Fe^{2+} (b) Mn^{2+}

(c) Fe^{3+} (d) Ca^{2+}

Answer: (b) Mn^{2+}

20. Glucose and galactose are :

- (a) Anomers (b) Disacharides
(c) Non-sugars (d) Epimers

Answer: (d) Epimers

21. Which of the following is not responsible for water pollution?

- (a) Pesticides (b) Sewage waste
(c) Bio-degradable waste (d) Radio-active waste

Answer: (c) Bio-degradable waste

22. Acid rains are caused due to :

- (a) Both SO & NO (b) NO₂
(c) CO₂ (d) SO

Answer: (a) Both SO & NO

23. Itai disease is caused :

- (a) Cadmium pollution (b) Sodium pollution
(c) Mercury pollution (d) Lead pollution

Answer: (a) Cadmium pollution

24. Which of the following is not an antibiotic?

- (a) Ranitidine (b) Ofloxins
(c) Cefixime (d) Tetracyclins

Answer: (a) Ranitidine

25. Valinomycin consists of :

- (a) Mg²⁺ (b) Ca²⁺
(c) Na⁺ (d) K⁺

Answer: (d) K⁺

Physics

26. Velocity of sound will be highest in ?

- (a) Vacuum (b) Steel
(c) Air (d) Water

Answer: (b) Steel

27. The frequency of transverse vibrations of a string is 100 cycles/sec. If the tension of the string is increased to its four times, the frequency will be :

- (a) 25 cycles/sec (b) 50 cycles/sec
(c) 200 cycles/sec (d) 100 cycles/sec

Answer: (c) 200 cycles/sec

28. Which of the following is not a thermo dynamical variable ?

- (a) Heat (b) Internal Energy
(c) Temperature (d) Enthalpy

Answer: (a) Heat

29. If one molecule of a monoatomic gas ($\gamma = 5/3$) is mixed with one molecule of a diatomic gas ($\gamma = 7/5$), what will be the value of γ for the mixture :

- (a) 3.5 (b) 2
(c) 1.5 (d) 2.5

Answer: (c) 1.5

30. The ratio of earth's magnetic intensities at its pole and at equator is ?

(a) 1.0 (b) 2.5

(c) 1.5 (d) 2.0

Answer: (d) 2.0

31. In Wheatstone bridge method of finding unknown resistance or inductance, the instrument used as null detector is ?

(a) Galvanometer (b) All of these

(c) Voltmeter (d) Ammeter

Answer: (a) Galvanometer

32. The resistances in a post office box are made of ?

(a) Iron (b) Manganin

(c) Brass (d) Copper

Answer: (b) Manganin

33. What is the fundamental basis of a laser?

(a) Stimulated emission (b) Spontaneous emission

(c) Scattering 1012Watt (d) Absorption

Answer: (a) Stimulated emission

34. A zone plate is to be constructed with focal length of 50cm for $\lambda = 5.0 \times 10^{-5}$ cm. Its first radius will be:

(a) 0.50 mm (b) 0.60 mm

(c) 0.75 mm (d) 0.40 mm

Answer: (a) 0.50 mm

35. What should be the minimum number of lines in grating to resolve sodium doublet (5890 Å and 5896 Å) in third spectral order?

(a) 656 (b) 984

(c) 1312 (d) 328

Answer: (d) 328

36. Red light is used as a danger signal because it :

(a) None of the above (b) is comfortable for eyes

(c) is scattered least (d) produces least photo-chemical effect

Answer: (c) is scattered least

37. A parallel beam of light of wavelength 5460 Å is incident at an angle of 30° on a plane transmission grating which has 6000 lines/cm. the highest order spectrum that can be seen is ?

(a) 3 (b) 5

(c) 4 (d) 2

Answer: (d) 2

38. If the earth stops rotating, the value of 'g' at the equator will ?

(a) None of the above (b) Increase

(c) Remain same (d) Decrease

Answer: (b) Increase

39. For a particle moving under a central force, it's motion will be- ?

(a) None of the above (b) in space

(c) in a plane (d) along the helix

Answer: (c) in a plane

40. The value of λ for which vectors $\hat{j} + 4\hat{k}$ and $\hat{i} - \lambda$ are perpendicular is ?

(a) 14 (b) 10

(c) 3 (d) 7

Answer: (a) 14

41. Physical quantities which have same units are :

(a) Pressure and volume (b) Pressure and stress

(c) Force and work (d) Pressure and strain

Answer: (b) Pressure and stress

42. The free electron density in a super conductor is ?

(a) Zero at absolute zero (b) Finite at absolute zero

(c) None of these (d) Infinite at absolute zero

Answer: (b) Finite at absolute zero

43. A 5.5 metre long string has a mass of 0.035 kg. If the tension in the string is 77 N, the speed of a wave on the string is ?

(a) 110 m/sec (b) 102 m/sec

(c) 165 m/sec (d) 77 m/sec

Answer: (a) 110 m/sec

44. Gibbs paradox in Statistical Mechanics is related to the additive property of ?

(a) Entropy (b) Momentum

(c) Energy (d) Temperature

Answer: (a) Entropy

45. In an isothermal reversible expansion of a perfect gas at temperature T, heat Q enters the system. The statement which is true is:

(a) Part of heat Q is converted to work (b) Part of Q increases the internal energy

(c) No part of heat Q is converted to work (d) All the heat Q is converted to work

Answer: (d) All the heat Q is converted to work

46. When applied to solar radiation, Planck's law reduces to Wien's law in following region:

(a) visible (b) ultraviolet

(c) infrared (d) microwave

Answer: (b) ultraviolet

47. According to Wien's law, a star which appears blue will be :

(a) hotter than the sun (b) very cold

(c) as hot as sun (d) colder than the sun

Answer: (a) hotter than the sun

48. When a copper ball is heated, the largest percentage increase will occur in its - ?

(a) Area (b) Diameter

(c) Density (d) Volume

Answer: (d) Volume

49. The correct value of 00C on Kelvin scale is :

(a) 273.15 K (b) 273 K

(c) 273.16 K (d) 273.2 K

Answer: (a) 273.15 K

50. The temperature of a mole of diatomic gas is raised at constant volume by 10 °K. The amount of heat added to the gas is :

- (a) 5 R (b) 15 R
(c) 25 R (d) 10 R
Answer: (c) 25 R

SECTION B — Biology [50]

Zoology

51. characteristics is not shared by birds and mammals ?

- (a) Viviparity (b) Molluscs
(c) Ornithorhynchus (d) Echinodermata

Answer: (a) Viviparity

52. The vertebrate group of animals characterised by crop and gizzard in its digestive system is ?

- (a) Viviparity (b) Aves
(c) Molluscs (d) Hemichordata

Answer: (b) Aves

53. Birds and mammals share one of the characteristics as a common feature is ?

- (a) Hemichordata (b) Warm blooded
(c) Chordates (d) Testudo

Answer: (b) Warm blooded

54. one of the sets of animals belong to a single taxonomic group ?

- (a) Reptiles, birds and insects (b) Great white Shark
(c) Monkey, Chimpanzee, Man (d) Cnidoblasts 8

Answer: (c) Monkey, Chimpanzee, Man

55. Poisonous snake is not a ?

- (a) Ichthyophis (b) Limulus
(c) Aplysia (d) Python

Answer: (d) Python

56. can differentiate to perform different functions in some animals is ?

- (a) Epithelium tissue (b) Petromyzon
(c) Protochordates (d) Interstitial cells

Answer: (d) Interstitial cells

57. The sets of animals share a four chambered heart is ?

- (a) Reptiles, birds and insects (b) Vaso Constrictors (Serotonin)
(c) Mesoderm on both sides (d) Crocodiles, Birds and Mammals

Answer: (d) Crocodiles, Birds and Mammals

58. Crocodile and penguin are similar to whale and dogfish in which one of the features ?

- (a) Beak is absent in them (b) Have gill slits at some stage
(c) Kangaroo, Dolphin, lorises and hedgehog (d) A mantle & unsegmented body

Answer: (b) Have gill slits at some stage

59. Groups of animals are coelomates are ?

- (a) Kangaroo, Dolphin, lorises and hedgehog (b) Crocodiles, Birds and Mammals
(c) Exclusively marine Hemichordata (d) Reptiles, birds and insects

Answer: (d) Reptiles, birds and insects

60. The flightless bird is ?

- (a) Echinodermata (b) Struthio
(c) Bony fishes (d) Scoliodon

Answer: (b) Struthio

61. The characters does not fit for Class Aves is ?

- (a) Dorsal tubular nerve cord (b) Crocodiles, Birds and Mammals
(c) Ascidia, Salpa and Doliolum (d) Beak is absent in them

Answer: (d) Beak is absent in them

62. Homeotherm is not a ?

- (a) Petromyzon (b) Cnidoblasts 8
(c) Mantle cavity (d) Testudo

Answer: (d) Testudo

63. Examples of subphylum Urochordata is ?

- (a) Presence of feathers (b) Great white Shark
(c) Ascidia, Salpa and Doliolum (d) Hairy skin and mammary glands

Answer: (c) Ascidia, Salpa and Doliolum

64. In class Amphibia, respiration occurs through ?

- (a) Notochord is absent (b) Squamous epithelium
(c) Reptiles, birds and insects (d) Gills, Lungs, Skin

Answer: (d) Gills, Lungs, Skin

65. After spawning, within a few days, they die is ?

- (a) Chordates (b) Hemichordata
(c) Petromyzon (d) Balaenoptera, Delphinus

Answer: (c) Petromyzon

66. Poison sting belongs to class chondrichthyes ?

- (a) Struthio (b) Asterias
(c) Trygon (d) Scoliodon

Answer: (c) Trygon

67. Insects is living fossil ?

- (a) Trygon (b) Ornithorhynchus
(c) Limulus (d) Cyclostomata

Answer: (c) Limulus

68. Air bladder is present in ?

- (a) Limulus (b) Chordata
(c) Areolar tissue (d) Bony fishes

Answer: (d) Bony fishes

69. Tympanum is not present in ?

- (a) Chordates (b) Columnar
(c) Snakes (d) Squamous

Answer: (c) Snakes

70. Set of animals does all the four give birth to young ones is ?

- (a) Hairy skin and mammary glands (b) Crocodiles, Birds and Mammals
(c) Have gill slits at some stage (d) Kangaroo, Dolphin, lorises and hedgehog

Answer: (d) Kangaroo, Dolphin, lorises and hedgehog

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71. Structure present in all adult vertebrates ?

- (a) Inner wall of blood vessels (b) Proximal convoluted tubule of nephron
- (c) Dorsal tubular nerve cord (d) Reptiles, birds and insects

Answer: (c) Dorsal tubular nerve cord

72. Cold blooded animal is ?

- (a) Dorsal tubular nerve cord (b) Non-nucleated, biconcave and circular
- (c) Great white Shark (d) Proboscis gland

Answer: (c) Great white Shark

73. Placoid scales are found in ?

- (a) Viviparity (b) Muscles
- (c) Scoliodon (d) Chondrocytes

Answer: (c) Scoliodon

74. One of the primary characters of chordates is ?

- (a) Dorsal tubular nerve cord (b) Integument with muscles
- (c) Proximal convoluted tubule of nephron (d) Ascidia, Salpa and Doliolum

Answer: (a) Dorsal tubular nerve cord

75. The heart is 3 or 4 chambered in the vertebrate group ?

- (a) Columnar (b) Interstitial cells
- (c) Reptilia (d) Chordates

Answer: (c) Reptilia

Botany

76. In old trees, central or innermost layers of the stem is dark brown and comprises dead elements with highly lignified walls is called ?

- (a) Being imperforate (b) Monocot root
- (c) Heart wood (d) Suberin Secondary Growth

Answer: (c) Heart wood

77. Secondary medullary rays are ?

- (a) Narrow band of parenchyma (b) Xylem is towards adaxial epidermis
- (c) Having dead and non-conducting elements (d) Suberised, impermeable to water

Answer: (a) Narrow band of parenchyma

78. Stems of Zea mays and sunflower are similar to each other in having ?

- (a) Endarch primary xylem (b) Monocot root
- (c) Phellem, Phelloderm, Secondary cortex (d) Haustorial roots

Answer: (a) Endarch primary xylem

79. The tissue participates in the secondary growth is ?

- (a) Lateral meristem (b) Endodermis
- (c) Endarch primary xylem (d) Dicot Root

Answer: (a) Lateral meristem

80. The size of vascular bundles in a dorsiventral leaf is dependent on ?

- (a) Adaxial and abaxial (b) Size of veins
- (c) Dicot leaf (d) Region of maturation

Answer: (b) Size of veins

81. Growth in plants is largely restricted to specialised regions of active cell division called ?

- (a) Cambium (b) Meristems
(c) Vascular cambium (d) Sclerenchymatous

Answer: (b) Meristems

82. Plants having little or no secondary growth are ?

- (a) Vascular cambium (b) Grasses
(c) Phellem (d) Monocot stem

Answer: (b) Grasses

83. is made up of dead cells ?

- (a) Fibrous (b) Phellem
(c) Cambium (d) Stilt roots

Answer: (b) Phellem

84. In conifers, fibres are likely to be absent in ?

- (a) Stilt roots (b) Casparian strip
(c) Secondary xylem (d) Region of elongation

Answer: (c) Secondary xylem

85. When we peel the skin of a potato tuber, we remove is ?

- (a) Periderm (b) Vascular cambium
(c) Phellogen (d) Bulliform cells

Answer: (a) Periderm

86. A vessel less piece of stem possessing prominent sieve tubes would belong to ?

- (a) Phellem (b) Periderm
(c) Endodermis (d) Trochodendron

Answer: (d) Trochodendron

87. Phellogen and phellem respectively denote is ?

- (a) Conjoint, open and endarch 7 (b) Cork cambium and cork 8
(c) Radial and tangential walls of endodermis (d) Early wood + late wood

Answer: (b) Cork cambium and cork 8

88. Cork tissue arises from is ?

- (a) Adventitious root (b) Phellogen
(c) Pneumatophores (d) Phellem

Answer: (b) Phellogen

89. After two or three years of secondary growth the cortex in dicot roots is ?

- (a) Is largely lost (b) Marked variations in seasons
(c) Casparian strip (d) Monocot stem

Answer: (a) Is largely lost

90. Cork cambium gives rise to is ?

- (a) Having dead and non-conducting elements (b) Narrow band of parenchyma
(c) Suberised, impermeable to water (d) Phellem, Phelloderm, Secondary cortex

Answer: (d) Phellem, Phelloderm, Secondary cortex

91. Secondary growth do not occur in ?

- (a) Vascular cambium (b) Tap roots
(c) Stilt roots (d) Monocot stem

Answer: (d) Monocot stem

92. Physiologically functional part of wood is ?

- (a) Haustorial roots (b) Sap wood only
- (c) Bulliform cells (d) Adventitious root

Answer: (b) Sap wood only

93. Heart wood differs from sapwood in is ?

- (a) Having dead and non-conducting elements (b) Early wood + late wood
- (c) Conjoint, open and endarch (d) Region of cell elongation

Answer: (a) Having dead and non-conducting elements

94. Secondary growth is due to ?

- (a) Pneumatophores (b) Cambium
- (c) Tap roots (d) Monocot plants

Answer: (b) Cambium

95. When a tree grows older which of the following increase rapidly is ?

- (a) Phellem (b) Heart wood
- (c) Region of maturation (d) Radicle

Answer: (b) Heart wood

96. The tissue that gives rise to the secondary growth tissue is ?

- (a) Sweet potato (b) Vascular cambium
- (c) Phellogen (d) Tap roots

Answer: (b) Vascular cambium

97. Major part of wood of old dicot stem is filled with tannins, resins and gums. This part is called ?

- (a) Old woody stem (b) Heart wood
- (c) Secondary xylem (d) Stilt roots

Answer: (b) Heart wood

98. The combination of, two secondary xylem components forms an annual ring is ?

- (a) Region of cell elongation (b) Marked variations in seasons
- (c) Early wood and late wood (d) Cork cambium and cork

Answer: (c) Early wood and late wood

99. During secondary growth in dicot stem, cambial ring is formed by intrafascicular cambium and ?

- (a) Pneumatophores (b) Providing support
- (c) Sweet potato (d) Interfascicular cambium

Answer: (d) Interfascicular cambium

100. During secondary growth in dicot stem, cork cambium has cut off closely arranged parenchymatous cells.

These cell have been cut off towards ?

- (a) Region of maturation (b) Outer side
- (c) Sclerechymatous (d) Dicot leaf

Answer: (b) Outer side