UNIVERSITY OF LUCKNOW

D.Pharm Entrance Examination

Biology Group — Model Test Paper Set 9

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

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SECTION A — Chemistry & Physics [50]

Chemistry

1. The boiling point does not depend upon :

(a) Polarity of molecules (b) Hydrogen bonding

(c) Solubility of compound in water (d) Size of molecule

Answer: (c) Solubility of compound in water

2. Which method is suitable for separation of organic compounds from aqueous solutions?

(a) Distillation (b) Steam distillation

(c) Solvent extraction (d) Fractional distillation

Answer: (c) Solvent extraction

3. On reaction with water, calcium carbide gives : heeveer mes DeefYeef :

(a) Acetylene (b) Methane

(c) Carbine (d) Acetaldehyde

Answer: (a) Acetylene

4. Cyclobutadiene is : meeFke :

(a) Homoaromatic (b) Nonaromatic

(c) Antiaromatic (d) Aromatic

Answer: (c) Antiaromatic

5. Which compound has magnetic susceptibility?

(a) Azulene (b) Naphthalene

(c) Benzene (d) Anthracene

Answer: (d) Anthracene

6. Chlorination of alkanes is an example of : Sukes :

(a) Elimination (b) Addition

(c) Substitution (d) Free radical

Answer: (d) Free radical

7. Which of the following compounds reacts with conjugated diene to form cyclohexene?

(a) Dienophile (b) 1,3,5-hextriene

(c) Bromo benzene (d) Hexane

Answer: (a) Dienophile

8. Allene must have which type of hybridization?

(a) Sp (b) Sp3d

(c) Sp2 (d) Sp3

Answer: (a) Sp

9. Chemical reactions that proceed from reactants to products through one or more intermediate stage(s) are called: pees jemee :

(a) Opposing reactions (b) Parallel reactions

(c) Simple reactions (d) Consecutive reactions

Answer: (d) Consecutive reactions

10. Temperature Jump Relaxation method is used to study: leeheceeve :

(a) Moderate reactions (b) Substitution reactions

(c) Slow reactions (d) Fast reactions

Answer: (d) Fast reactions

11. For solutes showing association, the value of van't Hoff factor (i) is: mecye :

(a) = (b) <

(c) =1 (d) >

Answer: (b) <

12. Which of the following is independent of temperature ?

(a) Normality (b) Formality

(c) Molality (d) Molarity

Answer: (c) Molality

13. The equilibrium constant or a reaction is not affected by the presence of: DeefYeef :

(a) pH =4 (b) Pressure

(c) Temperature (d) Catalyst

Answer: (d) Catalyst

14. The pH of 0.1M aqueous solution of CH COONa at 25 :

(a) 8.38 (b) 8.88 1 Ans.(*): pH = (pk + pk + log c) a w 2 pk =

(c) 8.68 (d) 8.58

Answer: (b) 8.88 1 Ans.(*): pH = (pk + pk + log c) a w 2 pk =

15. A buffer solution contains 0.20 mole of NH OH 4 and 0.25 mole of NH Cl per litre, then the pH 4 value of the solution is given that dissociation constant of NH OH at room temperature is 4 1.81 :

(a) 8.72 (b) 10.3

(c) 9.16 (d) 11.89

Answer: (c) 9.16

16. The transition for which the first derivative of the chemical potential with respect to temperature is continuous but its second derivative of the chemical potential with respect to temperature is discontinuous is classified as: :

(a) First-order phase transition (b) Second-order phase transition

(c) Zero-order phase transition (d) Lambda transition

Answer: (b) Second-order phase transition

17. Cake is an example :

(a) Liquid in solid (b) Solid in solid

(c) Solid in liquid (d) Gas in solid

Answer: (d) Gas in solid

18. The catalytic action of an enzyme is: SbpeeFce :

(a) Does not depend on the nature of substrate (b) Heterogeneous

(c) Non specific (d) Highly specific

Answer: (d) Highly specific

19. The coagulating power of an effective ion carrying the charge opposite to the sol particles has been illustrated :

(a) Brownian movement (b) Tyndall effect

(c) Hardy-schulze rule (d) Gold number

Answer: (c) Hardy-schulze rule

20. Arsenic (III) sulphide forms a sol with a negative charge. Which of the following ionic substances should be most effective in the coagulating sol?

(a) KCl (b) Al (SO)

(c) MgCl (d) Na PO 2 4 3 3

Answer: (b) Al (SO)

21. There is desorption of physical adsorption when: Yeewefleke :

(a) Temperature increases (b) Temperature decreases

(c) Concentration increases (d) Pressure increases

Answer: (a) Temperature increases

22. Micelles from the ionic surfactants can be formed only above a certain temperature called as: Dee :

(a) Boyle's temperature (b) Transition temperature

(c) Inversion temperature (d) Kraft temperature

Answer: (d) Kraft temperature

23. The revised metric system was proposed by: mebMeesefOele ceeref :

(a) International Organization for Standardlization (b) National Institute of Standards and Technology

(c) U.S. Metric Association (d) General Conference on Weights and Measures

Answer: (d) General Conference on Weights and Measures

24. The SI unit for the amount of substance :

(a) Mole (b) Kilogram

(c) Candela (d) Gram

Answer: (a) Mole

25. "A given compound always contains exactly the same proportion of elements by weight" is stated under which law?

(a) Law of definite proportions (b) Law of multiple proportions

(c) Law of conservation of mass (d) Avogadro's law

Answer: (a) Law of definite proportions

Physics

26. What is the percentage change in time period of a simple pendulum, if the length of simple pendulum increase by 3%?

(a) 1.5% (b) 3%

(c) 3.5% (d) 6%

Answer: (a) 1.5%

27. In Joule Thomson expansion, the inversion temperature is the temperature below which gas :

(a) none of the above (b) obeys Boyle's law

(c) shows heating (d) shows cooling

Answer: (d) shows cooling

28. The second law of thermodynamics may be written, in usual symbols, as :

(a) dS = TdQ (b) dQ = TdS

(c) dQ = dU + dW (d) dU = dQ + PdV

Answer: (b) dQ = TdS

29. The colour of a star predicts:

(a) its size (b) its distance

(c) its temperature (d) its weight

Answer: (c) its temperature

30. An ideal gas is taken through a series of changes represented in the figure below: The net work done by the gas at the end of the cycle is equal to ?

(a) 3 PV (b) 5 PV

(c) zero (d) 2PV

Answer: (a) 3 PV

31. A storage battery of e.m.f 8.0V and internal resistance 0.5Ω is charge by 120V d.c. supply using a series resistor 15.5Ω. The terminal voltage of the battery will be ?

(a) 13V (b) 12.5V

(c) 10.2V 1016 (d) 11.5V

Answer: (d) 11.5V

32. Which of the following will form a virtual and erect image for all positions of the object ?

(a) None of the above (b) Convex mirror

(c) Conscave mirror (d) Convex lens

Answer: (b) Convex mirror

33. Helium - Neon laser is ?

(a) Three level laser (b) Two level laser

(c) Five level laser (d) Four level laser

Answer: (d) Four level laser

34. In double slit experiment the shape of the fringes is :

(a) Circular (b) Hyperbolic

(c) Straight lines (d) None of these

Answer: (b) Hyperbolic

35. Length of the wire is increased by 1 mm on hanging a weight of 1 kg increase in length on hanging a weight of 2 kg will be :

(a) 4 mm (b) 1 mm

(c) 2 mm (d) 0

Answer: (c) 2 mm

36. Two satellites A and B are revolving around the earth in the same orbit. Mass of B is thrice to that of A. Then the correct statement is ?

(a) speeds of A and B are equal (b) speeds of A and B are greater

(c) None of the above (d) P.E.s of A and B are equal

Answer: (a) speeds of A and B are equal

37. If we throw a body upwards with velocity of 4 m/s, at what height its kinetic energy reduces to m/s² half of the initial value? Take g = ?

(a) 4 m (b) 1 m

(c) 2 m (d) 0.4 m

Answer: (d) 0.4 m

38. A force F=4i+5j+6k is applied on a body and it is displaced by x=3i+7j+8k. How much work is done?

(a) 120 (b) 95

(c) 48 (d) 60

Answer: (b) 95

39. If A and B are tensors of rank 2 , then what ij ij will be the rank of tensor A +B . ij ij ?

(a) 3 (b) 0

(c) 4 (d) 2

Answer: (d) 2

40. A paramagnetic material is placed in a magnetic field. The magnetic field is increased till magnetization becomes constant. Now temperature is decreased, the magnetization will:

(a) None of these (b) Decrease

(c) Remain constant (d) Increase

Answer: (c) Remain constant

41. Efficiency of Carnot engine is 50% and its temperature of sink if 17°C. For 60% efficiency, the temperature of the sink will be ?

(a) 750 K (b) None of these

(c) 650 K (d) 800 K

Answer: (b) None of these

42. First law of thermodynamics represents conservation of– ?

(a) heat (b) Energy

(c) Momentum (d) Work

Answer: (b) Energy

43. Newton's law of cooling is also applicable on one to the following :

(a) Natural convection losses (b) Forced convicting losses

(c) Convection losses (d) None of the above

Answer: (a) Natural convection losses

44. If a point charge is placed at the origin, then the 30V equipotential surface will have radius ?

(a) 450m (b) 135m

(c) 900m (d) 270m

Answer: (a) 450m

45. A bullet of mass 2 gm is having a charge of 2μC. Through what potential difference must it be accelerated, starting from rest, to acquire a speed of 10 m/s ?

(a) 50 V (b) 5 V

(c) 5 kV (d) 50 kV

Answer: (d) 50 kV

46. Three equal resistances each of value R are connected so as to form a triangle. The equivalent resistance across any two corners of triangle is ?

(a) R 3 (b) 3R

(c) R (d) R 2 1

Answer: (a) R 3

47. The dimensions of the quantity o are ε o equivalent to those of :

(a) Force (b) Momentum

(c) Current (d) Resistance

Answer: (d) Resistance

48. The most important characteristic of a laser is:

(a) polarization (b) high intensity

(c) coherence (d) directionality

Answer: (c) coherence

49. The coherence time of laser beam of 10-5 wavelength 7400 Å is 4 × second . The coherence length will be :

(a) 5 km (b) 12 km

(c) 11.2 km (d) 10 km

Answer: (b) 12 km

50. The sun appears red at sunrise or sunset. This can be explained on the basis of:

(a) Compton effect (b) Phonon scattering

(c) Rayleigh scattering (d) Raman effect

Answer: (c) Rayleigh scattering

SECTION B — Biology [50]

Zoology

51. Connective tissue is not a ?

(a) Muscles (b) Squamous, ciliated

(c) Nerve cells (d) Areolar tissue

Answer: (a) Muscles

52. Lining of intestine of man is ?

(a) Hormones (b) Mammals

(c) Brush-bordered (d) Cardiac muscle

Answer: (c) Brush-bordered

53. Squamous epithelium is found in ?

(a) A centrally located nucleus (b) Inner wall of blood vessels

(c) Kangaroo, Dolphin, lorises and hedgehog (d) Non-nucleated, biconcave and circular

Answer: (b) Inner wall of blood vessels

54. The cell junctions namely tight, adhering and gap junctions are found in ?

(a) Proximal convoluted tubule (b) Vaso Constrictors (Serotonin)

(c) Epithelial tissues (d) Petromyzon

Answer: (c) Epithelial tissues

55. Secretion of exocrine is not a ?

(a) Squamous (b) Hormone

(c) Tight junction (d) Bronchioles

Answer: (b) Hormone

56. Areolar connective tissue joins is ?

(a) Proximal convoluted tubule (b) Gap junctions

(c) Exocrine glands (d) Integument with muscles

Answer: (d) Integument with muscles

57. The largest quantity of extracellular material is ?

(a) Areolar tissue (b) Proximal convoluted tubule

(c) Great white Shark (d) Glandular epithelium

Answer: (a) Areolar tissue

58. Bone is connected to muscles with the help of ?

(a) Squamous (b) Tendon

(c) Ichthyophis (d) Cartilage

Answer: (b) Tendon

59. Cartilage is formed by ?

(a) Ciliated epithelium (b) Hormone

(c) Chondrocytes (d) Epithelial tissues

Answer: (c) Chondrocytes

60. Specialised connective tissue is a ?

(a) Blood (b) Cartilage

(c) Chordates (d) Reptilia

Answer: (b) Cartilage

61. Specialized connective tissue that provides structural frame to the body is ?

(a) Loose connective tissue (b) bone 33 tural Organization

(c) Lining of oesophagus (d) Dorsal tubular nerve cord

Answer: (b) bone 33 tural Organization

62. Cardiac muscle cells differ from striated muscle cells in having is ?

(a) Cell body and Dendrites (b) Integument with muscles

(c) Lumen of alimentary canal (d) A centrally located nucleus

Answer: (d) A centrally located nucleus

63. Cardiac muscles are different from skeletal muscles as they are ?

(a) Involuntary (b) Connective

(c) Muscles (d) Epithelium tissue

Answer: (a) Involuntary

64. The cells do not form layer and remain structurally separate is ?

(a) Extracellular matrix (b) Nerve cells

(c) Reduce body weight (d) Cardiac muscle

Answer: (b) Nerve cells

65. Parts of nerve cells receives impulses is ?

(a) Multicellular (b) Cardiac muscles

(c) Dendrite (d) Cartilage

Answer: (c) Dendrite

66. Goblet cells are ?

(a) Unicellular (b) Gap junctions

(c) Nerve cells (d) Cyclostomata

Answer: (a) Unicellular

67. Salivary glands are ?

(a) Cuboidal (b) Multicellular

(c) Exocrine glands (d) Gap junctions

Answer: (b) Multicellular

68. Epithelium present in ducts of glands and tubular parts of nephrons is ?

(a) Glandular epithelium (b) Ciliated epithelium

(c) Cuboidal (d) Involuntary

Answer: (c) Cuboidal

69. Epithelium founds in the lining of stomach and intestine is ?

(a) Glandular epithelium (b) Fibroblasts

(c) Columnar (d) Connective

Answer: (c) Columnar

70. In columnar epithelium, nucleus present at which of these position in each cell of epithelium ?

(a) At the base (b) Lumen of alimentary canal

(c) Cardiac muscle (d) Squamous, ciliated

Answer: (a) At the base

71. Function of adipose tissue is ?

(a) Squamous epthelium (b) Glandular epithelium

(c) Energy reservoir (d) Fibroblasts

Answer: (c) Energy reservoir

72. The type of cell junction, facilitates cell to cell communication is ?

(a) Cuboidal (b) At the base

(c) Brush-bordered (d) Gap junctions

Answer: (d) Gap junctions

73. Some of the columnar or cuboidal cells get specialised for secretion are called ?

(a) Smooth muscles (b) Integument with muscles

(c) Glandular epithelium (d) Nervous tissue

Answer: (c) Glandular epithelium

74. One of the preparations, you are likely to come across cell junction most frequently ?

(a) Ciliated epithelium (b) Involuntary, fusiform, non-striated

(c) Lining of oesophagus (d) Areolar tissue

Answer: (a) Ciliated epithelium

75. Connective tissue often serves as a support framework for epithelium is ?

(a) Areolar tissue (b) Proximal convoluted tubule

(c) Amphibians (d) Ciliated epithelium

Answer: (a) Areolar tissue

Botany

76. The group of plants that possess stilt roots is ?

(a) Zea mays, Sugarcane (b) Outer side

(c) China rose (d) Old woody stem

Answer: (a) Zea mays, Sugarcane

77. The roots hanging from the branches of banyan tree are ?

(a) Region of maturation (b) Providing support

(c) Stilt roots (d) Prop roots

Answer: (d) Prop roots

78. Root formed from prolongation of radicle is ?

(a) Primary root (b) Pistia

(c) Distal (d) Citrus, Bougainvillea

Answer: (a) Primary root

79. Primary root is short lived in ?

(a) Vascular cambium (b) Wheat plant

(c) Old woody stem (d) Garlic

Answer: (b) Wheat plant

80. The reason is involved in absorption water and minerals from the soil ?

(a) Bulliform cells (b) Region of maturation

(c) Heart wood (d) Ginger, Cucumber

Answer: (b) Region of maturation

81. Bear leaves and branches, stores food and transport of minerals and water is function of ?

(a) Epigynous (b) Tap roots

(c) Sweet potato (d) Stem

Answer: (d) Stem

82. Stem tendrils are found in ?

(a) Cucumber, Pumpkins, Grapevines (b) Region of maturation

(c) Vascular cambium (d) Turnip, Carrot, Asparagus

Answer: (a) Cucumber, Pumpkins, Grapevines

83. Modified stem for the protection of plants from browsing animals is ?

(a) Thorns (b) Leaf bases

(c) Sweet potato (d) Fibrous

Answer: (a) Thorns

84. Underground parts of some plants spread to new niches and when older parts die new plants are formed. This condition in seen in ?

(a) Primary root (b) Stilt roots

(c) Grass and strawberry (d) China rose

Answer: (c) Grass and strawberry

85. Stem can be observed fleshy, cylindrical and photosynthetic in is ?

(a) Radicle (b) Euphorbia

(c) Flower (d) Axillary bud

Answer: (b) Euphorbia

86. Potato is the modification of ?

(a) Sweet potato (b) Stem

(c) Wheat root (d) Venation

Answer: (b) Stem

87. Woody and pointed thorns may develop form axillary buds of stem in is ?

(a) Turnip, Carrot, Asparagus (b) Citrus, Bougainvillea

(c) Adventitious roots (d) Stilt roots

Answer: (b) Citrus, Bougainvillea

88. Stem can be observed is flattened and photosynthetic, that is ?

(a) Stilt roots (b) Brassica

(c) Opuntia (d) Garlic

Answer: (c) Opuntia

89. In grass, when older parts die, new may develop form underground stem, same phenomenon can be observed in is ?

(a) Ginger, Cucumber (b) Hypogynous
(c) Strawberry (d) Pistia
Answer: (c) Strawberry

90. Lateral branch originated from stem may arch and touch the ground to give rise to new plants. This is observed in case of ?
(a) Old woody stem (b) Opposite, Calotropis 2
(c) Fleshy scale leaves (d) Mint and jasmine
Answer: (d) Mint and jasmine

91. Lateral branches with short internodes giving rise to roots below and leaves above at nodes are observed in ?
(a) Eichhornia, Pistia (b) Region of elongation
(c) Wheat plant (d) Leaf bases
Answer: (a) Eichhornia, Pistia

92. In one plant, underground stems are modified to store food and in another plant, the stem tendrils develop from axillary buds to help plant climb. They are ?
(a) Leaf bases (b) Fabaceae
(c) Ginger, Cucumber (d) China rose
Answer: (c) Ginger, Cucumber

93. The stem tendrils are modified axillary buds in ?
(a) Calyx, corolla, androecium and gynoecium (b) Region of elongation
(c) Region of cell elongation (d) Cucurbita, Opuntia The Leaf
Answer: (d) Cucurbita, Opuntia The Leaf

94. A simple leaf can be differentiated from the pinnae of a compound leaf on the basis of presence or absence of is ?
(a) Axillary bud (b) Venation
(c) Hypogynous (d) Strawberry
Answer: (a) Axillary bud

95. In alternate phyllotaxy, the number of leaves at each node is ?
(a) Leaf (b) Tap roots
(c) Distal (d) One
Answer: (d) One

96. In ..... phyllotaxy, a pair of leaves arise at each node and lie opposite to each other as in ..... plant is ?
(a) Opposite, Calotropis 2 (b) Axillary bud
(c) Basipetal order Aestivation (d) Sweet potato
Answer: (a) Opposite, Calotropis 2

97. The group of plants possessing leaf tendrils and spines respectively is ?
(a) Zea mays, Sugarcane (b) Sweet potato
(c) Stilt roots (d) Pea, Cacti
Answer: (d) Pea, Cacti

98. Leaf tendrils are present in ?
(a) Hypogynous (b) Distal
(c) Pisum (d) Opuntia

Answer: (c) Pisum

99. Spines present on the areoles of Opuntia represent ?

(a) Sweet potato (b) Pisum

(c) Leaves (d) Flower

Answer: (c) Leaves

100. Represents the edible swollen portion of Allium cepa is ?

(a) Pistia (b) Leaf bases

(c) Adventitious root (d) Region of elongation

Answer: (b) Leaf bases