

**MODEL TEST PAPER**  
**GLA University, Mathura**  
**M.Sc. Bioinformatics**

**1. The structural and functional unit of kidney is**

- A. Neuron
- B. Nephron
- C. Dendron
- D. Blood

**2. The universal recipient blood group is**

- A. A
- B. AB
- C. O
- D. B

**3. Total number of genes in a population is called as**

- A. Gene mutation
- B. Genetic drift
- C. Genome
- D. Gene pool

**4. A population is**

- A. Number of organisms of same genus occupying the same place
- B. The of organisms of same species at a certain time in place
- C. Both (A) and (B)
- D. None of the above

**5. Two organisms cannot occupy the same niche. This was found out by**

- A. Darwin
- B. Lemarck
- C. Elton
- D. None of these

**6. Food for developing foetus in mammals is supplied by**

- A. Placenta
- B. Ovary
- C. Yolk sac
- D. Uterus

**7. Some animals and plants invaginate and take fluid in to the cell. It is called**

- A. Phagocytosis
- B. Diffusion
- C. Pinocytosis
- D. Cyclosis

**8. Bowman's capsule is a part of the**

- A. Nephron
- B. Neuron
- C. Cerebrum
- D. Spinal cord

**9. Principally man is**

- A. Uricotelic
- B. Ureotelic
- C. Ammonotelic
- D. Mixedon

**10. The axon of a nerve helps in**

- A. Transformation of impulse
- B. Conduction of impulse
- C. Generation of impulse
- D. Stimulation of centron

**11. The floating organisms are called as**

- A. Plankton
- B. Neketon
- C. Benton
- D. None of these

**12. During maturation division**

- A. The chromosome number is doubled
- B. The chromosome number is halved
- C. The chromosome number is remains unchanged
- D. None of the above

**13. Lateral ventricles are present in**

- A. Cerebrum
- B. Cerebellum
- C. Medulla
- D. Spinal cord

**14. Blood is a / an**

- A. Organ system
- B. Organ
- C. Tissue
- D. Cell

**15. The bag containing a liquid in which the foetus is enclosed is**

- A. Amnion
- B. Chorion
- C. Pouch
- D. Capsule

**16. Which of the compounds does not react with benzene in the presence of anhydrous  $AlCl_3$ ?**

- A)  $C_6H_5Cl$
- B)  $C_6H_5CH_2Cl$
- C)  $CHCl_3$
- D)  $C_6H_5CH_2CH_2CH_2Cl$

**17. Vinyl chloride has great importance in**

- A) Synthetics
- B) Chemicals
- C) Plastics
- D) Antiseptics

**18. Acetylene is stored in**

- A) Compressed form
- B) Acetone
- C) Aluminium carbide
- D) Calcium carbide

**19.  $RX + B Na + R'X \rightarrow B NaX + RR'$ . The reaction is an example of**

- A) Friedel-Crafts reaction
- B) Wurtz reaction
- C) Wurtz-Fittig reaction
- D) Cannizzaro's reaction

**20. The mixture of ethanol and water cannot be separated by distillation because**

- A) They form a constant boiling mixture
- B) Alcohol molecules are solvated
- C) Their boiling points are very near
- D) Alcohol remains dissolved in water

**21. Ethyl alcohol is denatured by adding**

- A) Methanol and pyridine
- B) Glycerol
- C) Aniline
- D) Ether and methanol

**22. Ether is formed when ethyl alcohol is heated with conc. H<sub>2</sub>SO<sub>4</sub>. The conditions are**

- A) Excess of H<sub>2</sub>SO<sub>4</sub> and 170°C
- B) Excess of ethyl alcohol and 140°C
- C) Excess of ethyl alcohol and 180°C
- D) Excess of conc. H<sub>2</sub>SO<sub>4</sub> and 100°C

**23. Methyl alcohol can be distinguished from ethyl alcohol using**

- A) Fehling's solution
- B) Schiff's reagent
- C) Sodium hydroxide and iodine
- D) Phthalein fusion test

**24. Phenol is recovered from**

- A) Coal tar
- B) Middle oil
- C) Naphthalene
- D) Benzene

**25. Phenol can be distinguished from its colour reaction with**

- A) neutral FeCl<sub>3</sub> solution
- B) FeSO<sub>4</sub> solution
- C) BaCl<sub>2</sub> solution
- D) iodoform reaction

**26. In Kolbe's reaction the reacting substances are**

- A) Phenol and CCl<sub>4</sub>
- B) Sodium phenate and CO<sub>2</sub>
- C) Sodium phenate and CCl<sub>4</sub>
- D) Phenol and CHCl<sub>3</sub>

**27. Salicylic acid when heated with soda lime gives**

- A) benzene
- B) benzyl alcohol
- C) phenol
- D) salol

**28. Coal tar mainly contains the acidic compound**

- A) Pyridine
- B) Phenol
- C) Cresol
- D) Acetic acid

**29. At room temperature a p-type semiconductor has**

- A) Equal number of free electrons and holes
- B) A large number of free electrons and a few holes
- C) A small number of free electrons and a large number of holes
- D) Neither electrons nor holes

**30. In the case of a convex lens made of flint glass the focal length**

- A) Is shorter for green colour than for yellow
- B) Is longer for blue than for red
- C) Is the same for all colours
- D) Depends on the colour only when it is used with another lens

**31. The direction of the magnetic field above a power line with current flowing north is (neglect the earth's field)**

- A) South
- B) North
- C) East
- D) West

**32. Faraday's law of electromagnetic induction states that the induced e.m.f. in a circuit is**

- A) Proportional to density of lines of force
- B) Inversely proportional to the rate of change of lines of force
- C) Proportional to the total magnetic field produced
- D) Directly proportional to the rate of change of lines of force

**33. In a nuclear reactor steel coated with boron, boron arc is used because it**

- A) Absorbs neutrons easily
- B) Cools the reactor
- C) Adds strength to the structure of the reactor
- D) Acts as a catalysts

**34. Thermo-nuclear reaction are responsible for energy production**

- A) At the center of the earth
- B) Inside stars
- C) In volcanoes
- D) In the modern spaceships

**35. Tracer techniques make use of**

- A) Neutron scattering
- B) Electron beams
- C) Lasers
- D) Radioactive isotopes

**36. The resistance of a wire at 0°C and 800°C has the values 5 ohms and 8 ohms respectively. The temperature coefficient of the materials of the wire has the numeric value**

- A) 0.0C
- B) 0.0075
- C) 0.05
- D) 0.00A

**37. Two resistances of C and 5 ohms are connected in parallel and similarly two other resistances of 6 and 9 ohms are connected in parallel. If these two combinations are now connected in series, the effective resistance of the system is (in ohms)**

- A) 5.BBA
- B) BC.0
- C) D.75
- D) 5.D8

**38. The galvanometer has a resistance of C7 ohms and can measure a current upto 8 milliampere. In order to convert it into a voltmeter that can read upto D0 volts, it has to be connected in series with a resistance (in ohms) of**

- A) 500D0
- B) D96C
- C) B0A0
- D) D050

**39. Two resistances are connected in the two gaps of a meter bridge. The balance point is B0 cm. from the zero end. A resistance of A5 ohms is connected in series with the smaller of the two resistances when the null point shifts to D0 cm. The smaller of the two resistances has the value (in ohms)**

- A) 8
- B) 9
- C) A0
- D) AB

**40. When radiation is incident on a photoelectric emitter the stopping potential is determined to be 9 volts. Assuming the charge to mass ratio (e/m) for electron to be A.8 x A0AA coulomb per kg., the maximum velocity of the ejected electron is found to be (in m./sec)**

- A) 6 x A05
- B) 8 x A05
- C) A0 x A05
- D) A.8 x A06

**41. Two lenses of powers -B.5 D and +D.0 D are kept in contact. The focal length of the combination is**

- A) B5 cm
- B) CC.C cm
- C) 66.7 cm
- D) 50 cm

**42. The refractive index of a particular material is 1.67 for blue light, 1.65 for yellow light and 1.60 for red light. The dispersive power of the material is**

- A) 0.0625
- B) 0.062
- C) 0.0625
- D) 1.60

**43. The critical angle for a ray of light experiencing total internal reflection will be least for light passing from**

- A) Water to air
- B) Glass to water
- C) Glass to air
- D) Water to glass

**44. In an electromagnetic wave, the direction of propagation of wave is inclined to the magnetic and electric fields by**

- A) 45° and 45°
- B) 45° and 90°
- C) 90° and 90°
- D) 90° and 45°

**45. When an electron is placed in a magnetic field then the velocity of electron**

- A) Increases
- B) Depends on strength of field
- C) Decreases
- D) Is independent of field strength

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