

P.G. ENTRANCE EXAMINATION, APRIL 2022

BIOTECHNOLOGY

Time : One Hour and a Half

Maximum : 200 Marks

*Each question carries 4 marks.**1 mark will be deducted for each wrong answer.*

- Name the reagent used in Gatterman-Koch reaction :
 - DIBAL-H.
 - Anhydrous AlCl_3 .
 - Palladium.
 - Jones Reagent.
- Which of the following has the strongest basicity :
 - $\text{C}_6\text{H}_5\text{NH}_2$.
 - $\text{C}_2\text{H}_5\text{NH}_2$.
 - $(\text{C}_2\text{H}_5)_2\text{NH}$.
 - NH_3 .
- $\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{C}_6\text{H}_{12}\text{O}_6$. Name the type of this reaction :
 - First order reaction.
 - Zero order reaction.
 - Pseudo First order reaction.
 - Second order reaction.
- A square planar structure is formed by which type of hybridization :
 - sp^3 .
 - dsp^2 .
 - sp^3d .
 - sp^3d^2 .
- Which of the following does not react with oxygen directly :
 - Zn.
 - Ti.
 - Pt.
 - Fe.
- The unit of electric dipole moment :
 - Newton.
 - Coulomb.
 - Farad.
 - Debye.
- In which of the following circuit the maximum power dissipation is observed ?
 - Pure capacitor circuit.
 - Pure inductive circuit.
 - Pure resistive circuit.
 - None of these.

Turn over

17. Which one is a reporter gene ?
- a) Green fluorescent protein.
 - b) Neomycin phosphotransferase.
 - c) Dihydrofolate reductase.
 - d) Ampicillin resistance.
18. The main active ingredient of bleaching powder is
- a) Chloride ion.
 - b) Hypochlorite ion.
 - c) Chlorine gas.
 - d) Hcl.
19. Water quality analysis of MPN test is :
- a) Confirmed test.
 - b) Completed test.
 - c) Partial test.
 - d) Presumptive test.
20. Which of the following is an indicator organism :
- a) E. coli.
 - b) Bacillus thuringiensis.
 - c) Bacillus subtilis.
 - d) Yeast.
21. The chemical used for diploidization of haploid :
- a) 5-Bromouracil.
 - b) Formalin.
 - c) Colchicine.
 - d) Ethylene.
22. The embryo found in callus culture :
- a) Somatic embryo.
 - b) Zygotic embryo.
 - c) Androgenic embryo.
 - d) Parthenogenic embryo.
23. Immunoglobulins are :
- a) Proteins.
 - b) Lipids.
 - c) Glycoproteins.
 - d) Carbohydrates.
24. T cells are :
- a) Neutrophils.
 - b) Basophils.
 - c) Eosinophils.
 - d) Lymphocytes.
25. The prokaryotic Ribosome is :
- a) 80 s.
 - b) 70s.
 - c) 50s.
 - d) 60s.

26. Which among is a cyanobacteria having heterocyst :
- a) Anabaena.
 - b) Oscillatoria.
 - c) Plectonema.
 - d) Spirulina.
27. Which type mutation is a deletion :
- a) Missense mutation.
 - b) Frame shift mutation.
 - c) Point mutation.
 - d) Nonsense mutation.
28. Who put forward 3 domain classification :
- a) Whittaker.
 - b) Haeckel.
 - c) Linnaeus.
 - d) Woese.
29. Which one is sulfur oxidizing bacteria :
- a) Thiobacillus.
 - b) Sphaerotilus.
 - c) Methanogens.
 - d) Halophiles.
30. Which is a penicillin resistant organism :
- a) Staphylococcus.
 - b) Mycoplasma.
 - c) Mycobacterium.
 - d) E Coli.
31. The enzyme used for the separation of animal cell :
- a) Pectin.
 - b) Macerozyme.
 - c) Cellulase.
 - d) Trypsin.
32. Which is a Breast Cancer cell line :
- a) HE2K.
 - b) Caco.
 - c) MCF-7.
 - d) HeLa.
33. An approximate generation time of E coli :
- a) 20 minutes.
 - b) 10 minutes.
 - c) 30 minutes.
 - d) 5 minutes.
34. Serum can be sterilized by :
- a) Using chemicals.
 - b) Filtration.
 - c) Autoclaving.
 - d) Tyndalization.

35. Which one is primary lymphoid organ :
- a) Spleen.
 - b) Lymph nodes.
 - c) Peyer's patches.
 - d) Thymus.
36. Restriction enzyme having blunt end :
- a) *Bam HI*.
 - b) *EcoRI*.
 - c) *EcoRV*.
 - d) *Hind III*.
37. Free living nitrogenous biofertilizer :
- a) Azotobacter.
 - b) Rhizobium.
 - c) Pseudomonas fluorescens.
 - d) Bacillus polymyxa.
38. Automation of PCR was possible by the discovery of :
- a) Peltier technology.
 - b) Thermostable polymerases.
 - c) Thermostable nucleotides.
 - d) Dideoxy nucleotides.
39. CRISPR technology is used for :
- a) Targeted editing of genome.
 - b) Editing is performed by the host recombination system.
 - c) Cas 9 directed cutting of the genome.
 - d) All of the above.
40. Alpha complementation is the principle behind :
- a) Blue white colony selection.
 - b) GFP marker.
 - c) GUS assay.
 - d) Plaque lift assay.
41. BOD used for the measurement of :
- a) Atmospheric pollution.
 - b) Nuclear pollution.
 - c) Sewage pollution.
 - d) Thermal pollution.
42. 1st vaccine developed through animal cell culture :
- a) Hepatitis Vaccine.
 - b) Influenza Vaccine.
 - c) Small pox Vaccine.
 - d) Polio Vaccine.

43. The following groups of elements represent the most common elements in biological systems ?
- a) Carbon, nitrogen, sodium, and hydrogen.
 - b) Carbon, sodium, potassium, and nitrogen.
 - c) Carbon, sodium, hydrogen, and oxygen.
 - d) Carbon, nitrogen, oxygen, and hydrogen
44. The energy available to do useful work is known as :
- a) Enthalpy.
 - b) Free energy.
 - c) Entropy.
 - d) Kinetic energy.
45. Which of the following is a sequence alignment tool ?
- a) BLAST.
 - b) PRINT.
 - c) PROSITE.
 - d) PIR.
46. In an irreversible process, there is a :
- a) No loss of heat.
 - b) No gain of heat.
 - c) Gain of heat.
 - d) Loss of heat.
47. The most of the ultraviolet absorption of proteins above 240 nm is due to their content of :
- a) Tryptophan.
 - b) Glutamate.
 - c) Alanine.
 - d) Aspartate.
48. What is the dihybrid test cross ratio :
- a) 9 : 3 : 3 : 1.
 - b) 3 : 1.
 - c) 1 : 1.
 - d) 1 : 1 : 1 : 1.
49. Pleiotropic genes are :
- a) One gene controlling one trait.
 - b) One gene controlling many traits.
 - c) Many genes controlling one trait.
 - d) Many genes controlling many traits.
50. E. coli RNA pol. holoenzyme is :
- a) $\sigma\alpha 2\beta\beta'$.
 - b) $\sigma 2\alpha\beta\beta'$.
 - c) $\alpha 2\beta\beta'$.
 - d) $\sigma 2\beta\beta$.