

DEPARTMENT OF ZOOLOGY

MODEL QUESTION PAPER

1. Serum is sterilized by -----
 - a. autoclaving
 - b. membrane filtration
 - c. gamma irradiation
 - d. adding disinfectants

2. CO₂ incubator differs from conventional laboratory incubator, where it helps to maintain-----

 - a. the pH
 - b. the temperature
 - c. the humidity
 - d. the salinity

3. While preparing the conditioning culture medium ----- have to be considered.
 - a. concentration of divalent cations
 - b. concentration of glucose
 - c. concentration of macromolecules/low molecular weight metabolic intermediates
 - d. concentration of bicarbonate ions

4. Media used for suspension culture carry -----
 - a. higher concentration of glucose and amino acids
 - b. lower content of serum
 - c. low levels of calcium to minimize attachment of cells
 - d. higher concentration of mitogens

5. During passaging, after trypsinization; the cells from the flask are separated by -----
 - a. membrane elution
 - b. centrifugation
 - c. sonication

- d. fluorescence assisted cell sorting
6. The bulk ions such as Na^+ , K^+ , Ca^{++} , Zn^{++} , Cl^- and PO_4^{---} are required in the culture medium to ----
- maintain membrane potential, osmotic pressure and to assist enzyme catalyzed reaction.
 - maintain pH, salinity, to assist enzyme catalyzed reaction.
 - maintain intracellular transport, secretory activity of the cells.
 - maintain rate of metabolic reactions in accelerated conditions.
7. Transformed cell line contains -----
- dedifferentiated cells
 - differentiated cells
 - induced pluripotent stem cells
 - cells derived from primary culture
8. Cell malignancy can be studied by -----
- study of cytological characters
 - karyotyping
 - ability to form a tumor at the site of inoculation in an immunocompromised animal.
 - ability to form multiple tumors away from the site of inoculation in an immunocompromised animal.
9. ----- is not a chemical method of synchronization of cells in culture.
- mitotic detachment
 - double thymidine block
 - treatment of hydroxyurea and calcium deprivation
 - treatment of hydroxyurea
10. Cell synchronization in ----- is easy to achieve.
- G_0 - G_1 boundary
 - G_1 -S boundary
 - S- G_2 boundary
 - G_2 -M boundary

11. ----- used to fulfill the conditioning of the culture media for growth of differentiated cells.

- a. feeder layer
- b. Serum
- c. Hormones
- d. Transformed cells

12. As cells reach to stationary phase, the culture medium shows -----

- a. depletion of nutrients
- b. optimum concentration of nutrients with increased concentration of metabolic waste
- c. depletion of nutrients and accumulation of nitrogenous waste
- d. depletion of nutrients and accumulation of CO₂

13. ----- is not a cell surgery.

- a. conventional IVF
- b. Assisted Zona Hatching
- c. Intra Cytoplasmic Sperm Injection
- d. Cytoplasmic transfer

14. ----- are used to study the process of cell differentiation.

- a. Fibroblasts
- b. Hepatocytes
- c. Stem cells
- d. Neurons

15. For the long-term storage of cell lines, ----- is used.

- a. laboratory refrigerator
- b. -20° C deep freezer
- c. liquid nitrogen
- d. -80° C deep freezer

16. The most common target organ of toxicity is the -----

- a. heart
- b. lung
- c. CNS (brain and spinal cord)
- d. skin

17. The LD50 is calculated from -----

- a. A quantal dose-response curve
- b. A hormesis dose –response curve
- c. A graded dose-response curve
- d. A log-log dose-response curve

18. Which of the following scientist prepared the DDT?

- a. Muller
- b. Zeidler
- c. Orifila
- d. Discorides

19. Which is the most important enzyme in xenobiotic biotransformation?

- a. Epoxide hydrolase
- b. Carboxylesterases
- c. Flavin Monooxygenases
- d. Cytochrome P450

20. Which of the following is not the food additive?

- a. Preservatives
- b. Sweeteners
- c. Flavour enhancers
- d. Aflatoxin

21. The disease itai-itai' is caused by toxicity of ----- metal.

- a. arsenic
- b. cadmium
- c. mercury
- d. lead

22. Which of the following tools are used in risk analysis?

- a. toxicology
- b. epidemiology
- c. clinical trials
- d. all of the above

23. ----- are the immunologically active regions on antigen, the regions that actually bind to B-cell or T-cell receptors

- a. Epitopes
- b. Antigens
- c. Antibodies
- d. All of the above

24. The sebaceous glands are associated with the hair follicles, produce oily secretion called sebum and it consists of lactic acid and fatty acids which maintain the pH of the skin between ---
-----.

- a. 2-4
- b. 3-5
- c. 4-6
- d. 5-7

25. Which of the following antibody induce mast-cell degranulation with release of histamine and other biologically active molecules

- a. IgE
- b. IgA
- c. IgM
- d. IgD

26. Which of the following common allergens are associated with type I hypersensitivity?

- a. Vaccines
- b. Seafoods
- c. Ragweed
- d. All of the above

27. Molecular formula of immunoglobulin E (IgE) is -----

- (a) $\gamma_2\kappa_1$
- (b) $\delta_2\kappa_2$
- (c) $\epsilon_2\kappa_2$
- (d) $\delta_1\kappa_1$

28. ----- disease of the newborn develops when maternal IgG antibodies specific for fetal blood-group antigens cross the placenta and destroy fetal red blood cells.

- a. Psoriatic arthritis
- b. Hemolytic
- c. Graves'
- d. Rheumatoid arthritis

29. Which of the following animal purified toxins used by Portier and Richet to study the hypersensitivity reactions on dogs?

- a. Jellyfish
- b. Silver fish
- c. Eel fish
- d. all of the above

30. The hinge region, is rich in ----- residues

- a. leucine
- b. alanine
- c. glycine
- d. proline