

TELANAGANA UNIVERSITY
M.Sc BIOTECHNOLOGY
INTERNAL ASSESSMENT -I
QUESTION BANK
SEM – IV
PAPER : ANIMAL BIOTECHNOLOGY

I) CHOOSE THE CORRECT ANSWERS:

1. Which of the following is the most important condition for cell culture?

A) High temperature

B) Sterility

C) Low oxygen

D) Darkness

Answer: B) Sterility

2. The process of transferring cells from one culture vessel to another is called:

A) Differentiation

B) Subculturing

C) Fixation

D) Staining

Answer: B) Subculturing

3. Organ culture maintains:

- A) Single cell type
- B) Tissue fragments only
- C) Entire organ structure
- D) Only nucleus

Answer: C) Entire organ structure

4. Natural media includes:

- A) MEM
- B) Serum
- C) BSS
- D) Agar

Answer: B) Serum

5. BSS (Balanced Salt Solution) mainly provides:

- A) Growth factors
- B) Hormones
- C) Osmotic balance
- D) Proteins

Answer: C) Osmotic balance

6. MEM stands for:

- A) Minimum Essential Medium
- B) Maximum Energy Medium

C) Modified Enzyme Medium

D) Minimal Electrolyte Mixture

Answer: A) Minimum Essential Medium

7. Serum-free media is preferred because it:

A) Is cheaper

B) Reduces contamination risk

C) Has more proteins

D) Is colorful

Answer: B) Reduces contamination risk

8. Which sterilization method is used for heat-sensitive media?

A) Autoclaving

B) Filtration

C) Incineration

D) Dry heat

Answer: B) Filtration

9. Trypan blue test is used to measure:

A) DNA synthesis

B) Cell viability

C) Protein content

D) Enzyme activity

Answer: B) Cell viability

10. Dead cells appear _____ in trypan blue staining.

A) Colorless

B) Blue

C) Red

D) Green

Answer: B) Blue

11. MTT assay is used to measure:

A) Cell size

B) Cell viability and cytotoxicity

C) Cell shape

D) DNA mutation

Answer: B) Cell viability and cytotoxicity

12. The lag phase is characterized by:

A) Rapid division

B) No cell division

C) Cell death

D) Maximum growth

Answer: B) No cell division

13. Maximum growth rate occurs in:

- A) Lag phase
- B) Log phase
- C) Stationary phase
- D) Death phase

Answer: B) Log phase

14. Continuous cell lines are:

- A) Short-lived
- B) Long-lived and immortal
- C) Non-dividing
- D) Dead cells

Answer: B) Long-lived and immortal

15. Primary cell cultures are directly obtained from:

- A) Media
- B) Cell lines
- C) Tissue/organs
- D) Chemicals

Answer: C) Tissue/organs

16. The most common contamination in cell culture is:

- A) Virus
- B) Fungi
- C) Bacteria
- D) Protozoa

Answer: C) Bacteria

17. Mycoplasma contamination is dangerous because it:

- A) Is visible easily
- B) Alters cell metabolism silently
- C) Kills cells instantly
- D) Changes color of media

Answer: B) Alters cell metabolism silently

18. Cryopreservation is done using:

- A) High temperature
- B) Liquid nitrogen
- C) Sunlight
- D) Ice cubes

Answer: B) Liquid nitrogen

19. Common cryoprotectant used is:

- A) Glucose
- B) DMSO
- C) NaCl
- D) Agar

Answer: B) DMSO

20. Biosafety mainly ensures:

- A) Faster growth
- B) Safety of lab workers and environment
- C) Better color of media
- D) Cheaper experiments

Answer: B) Safety of lab workers and environment

II) FILL IN THE BLANKS

1) Cell hybridization is the process of fusion of two _____ cells.

Answer: different

2) The chemical commonly used to induce cell fusion is _____.

Answer: Polyethylene glycol (PEG)

3) Hybridoma technology was developed by _____ and _____.

Answer: Köhler and Milstein

4)Hybridoma cells are formed by fusion of B-lymphocytes with _____ cells.

Answer: myeloma

5)Hybridoma cells have the ability to produce _____ antibodies continuously.

Answer: monoclonal

6)HAT medium is used for _____ of hybrid cells.

Answer: selection

7)Monoclonal antibodies are specific to a single _____.

Answer: antigen

8)Stem cells have the ability of self-renewal and _____.

Answer: differentiation

9)Embryonic stem cells are derived from the _____ stage embryo.

Answer: blastocyst

10)Adult stem cells are also known as _____ stem cells.

Answer: somatic

11)Induced pluripotent stem cells are generated by reprogramming _____ cells.

Answer: somatic

12) Stem cells are commonly isolated from bone marrow using _____ technique.

Answer: centrifugation

13) Cell sorting is often carried out using _____ (FACS).

Answer: Fluorescence Activated Cell Sorting

14) Stem cells are used in the treatment of _____ disorders like leukemia.

Answer: blood

15) Regenerative medicine uses stem cells to repair _____ tissues.

Answer: damaged

16) Apoptosis is also known as _____ cell death.

Answer: programmed

17) During apoptosis, DNA is fragmented by enzymes called _____.

Answer: endonucleases

18) Mitochondria release _____ which activates caspases during apoptosis.

Answer: cytochrome c

19) Parkinson's disease is associated with degeneration of _____ neurons.

Answer: dopaminergic

20)Stroke leads to neuronal death due to lack of _____ supply.

Answer: oxygen

III) ANSWER THE FOLLOWING QUESTIONS

1)Write the components of BSS Media?

2)Define cell lines?

3)What are Monoclonal antibodies?

4)Write the steps involved in Cell culture?

5)Define cryopreservation and give 2 examples of cryoprotectants?