

SSR DEGREE & PG COLLEGE (5029)

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?