

**Yashwantrao Chavan College of Science, Karad.**

**B.Sc. Part III Semester-V**

**Paper- XI**

**(Bio-techniques and Biostatistics)**

**Question Bank**

**Multiple choice questions**

1. The introduction of the nucleus from a cell into an enucleated egg cell is called as \_\_\_\_\_
  - a. Nuclear transfer
  - b. Gene transfer
  - c. Cell transfer
  - d. Genome transfer
2. A type of virus that inserts a copy of its RNA genome into the DNA of a host cell that change genome that cell is called as \_\_\_\_\_
  - a. Virus
  - b. Retrovirus
  - c. Lentivirus
  - d. All of these
3. Which of the following is not an RNA virus?
  - a. Retrovirus
  - b. Enterovirus
  - c. Rhabdovirus
  - d. Adenovirus
4. Which of the following statement is INCORRECT for gene knockout?
  - a. Nonfunctional gene is introduced
  - b. Make gene inoperative
  - c. Introduction of functional gene in an organism
  - d. It can be used to study the effect of loss of gene
5. The father of animal cell culture was-----
  - a. Ross Harrison
  - b. Watson
  - c. Johnson
  - d. Chris Harris
6. The first vaccine developed from animal cell culture was for-----
  - a. Hepatitis B
  - b. Somatostatin
  - c. Small pox
  - d. Poli

7. Embryonic stem cells can differentiate into which types of cells?
  - a. Only brain stem cells and specialized brain cells A
  - b. All types of specialized cells in the body
  - c. Only cells that can produce insulin
  - d. Only cells that can produce artificial skin
8. The process whereby cells or tissue are frozen is called...
  - a. Cryopreservation b. Proliferation
  - c. Differentiation d. Blastocyst
9. \_\_\_\_\_ are the most well-known type of pluripotent stem cell.
  - a. Red Blood cells b. Adherent cells c. Embryonic Stem cells d. Carcinoma cells
10. \_\_\_\_\_ are also known as somatic stem cells.
  - a. Adult stem cells b. Cancer cells c. Endometrial cells d. Epithelial cells
11. \_\_\_\_\_ are the most well-known type of pluripotent stem cell.
  - a. Red Blood cells b. Adherent cells c. Embryonic Stem cells d. Carcinoma cells
12. What is the application of transgenic animal's \_\_\_\_\_
  - a. Study disease b. Biological products
  - c. Pharmaceutical Product d. All of these
13. What are the roles of stem cells in our bodies?
  - a. We are not sure what roles stem cells play in the body
  - b. They produce new specialized cells to replace cells that die or are used up
  - c. They fight against infections
  - d. They perform specialized roles in the body
14. \_\_\_\_\_ are a unique kind of primitive, immature cells that have a remarkable capacity to develop into different kinds of cells.
  - a. Stem cells b. Epithelial cells c. Mesenchymal cells d. Ectodermal cells
15. The process of \_\_\_\_\_ involves the introduction of gene in to a cell where it exchange places with its counterpart in the host cell.
  - a. rDNA
  - b. Gene Targeting
  - c. Knockout technology d. Transgenic technology

16. 13. DNA microinjection in to the egg has been used to produce which of the following transgenic animals\_\_\_\_\_

- a. Mice
- b. Chicken
- c. Pig
- d. all of these

17. 12. What is special about “knockout” mice?

- a. They are very attractive
- b. their DNA has been modified
- c. they are easy to knock out
- d. they are unusually aggressive

18. Who discovered Microinjection of DNA?

- a. M.A. Barber
- b. Darwin
- b. Mendel
- d. Aristotle
- c. Genome modified organism
- d. All of these

19. The concept of nuclear transfer was first conceived by \_\_\_\_\_

- a. Hans Spemann
- b. Darwin
- c. Mendel
- d. Sewall wright

20. In developing embryo, the stem cells can be differentiated into---

- a. Ectoderm
- b. Endoderm
- c. Mesoderm
- d. All of above

21. What is a stem cell?

- a. A cell only found in the stem of plants.
- b. An unspecialised cell with the ability to create specialised cells
- c. A specialised cell who can only generate cells of the same type
- d. zygote

22. \_\_\_\_\_ refers to the varying ability of stem cells to differentiate into specialized cell types.
- Cell potency
  - Cell viability
  - Cell-therapy
  - Cell-regeneration
23. Embryonic stem cells are derived from the \_\_\_\_\_ of the blastocyst.
- Inner cell mass
  - Ectoderm
  - Blastocoel
  - Mesoderm
24. Data are classified on the basis of geographical areas is called .....
- Geographical classification
  - Chronological classification
  - Qualitative Classification
  - Quantitative Classification
25. Arrangement of data in rows and columns is called .....
- Classification
  - Tabulation
  - Distribution
  - Interpretation
26. Source note should be at.....position in table
- Top of table
  - In body
  - Heading of stub
  - Base of table
27. Name the type of culture which is prepared by inoculating directly from the tissues of an organism to culture media?
- Primary cell culture
  - Secondary cell culture
  - Cell lines
  - Transformed cell culture
28. Father of Biostatistics is .....
- Francis Galton
  - Ronald Fisher
  - John Tukey
  - Raphael Weldon
29. Primary data means.....
- Original data
  - Results of survey
  - Results of enquiry
  - All of above
30. In tables, the headings of columns are known as .....
- Stubs
  - Captions
  - Titles
  - Source note
31. In methods of studying correlation coefficient, the calculation based on order or rank is known as .....
- Scattered diagram
  - Karl Pearson's correlation coefficient
  - Spearman's rank correlation coefficient
  - All of above

32. The person who collects the statistical information is known as .....
- Collector
  - Invigilator
  - Investigation
  - Distributer
33. .... introduced the concept of standard deviation in 1893.
- Karl Pearson
  - Prof Bodding
  - Charles Darwin
  - Robert Koch
34. Which of the following is not measure of central tendency.....?
- Mean
  - Mode
  - Median
  - Range
35. Which of the following are methods under measures of dispersion.....?
- Standard deviation
  - Mean deviation
  - Range
  - All of the above
36. While calculating the standard deviation, the deviations are only taken from \_\_\_\_\_.
- The mode value of a series
  - The median value of a series
  - The quartile value of a series
  - The mean value of a series
37. In a histogram, the frequency is represented by .....
- Heights of rectangle
  - Area of rectangle
  - Width of the rectangle
  - None of above
38. When data is classified according to the region like nation, States districts cities and villages is called.....
- Quantitative classification
  - Qualitative classification
  - Chronological classification
  - Geographical classification.
39. .... is an average which divides the data into two equal halves.
- Mode
  - Mean
  - Median
  - Variable
40. The chronological classification is based on.....
- Time of its occurrence
  - Quantity
  - Location
  - Well defined attributes
41. Karl Pearson's coefficient of correlation is designated by letter .....
- $\beta$
  - $\gamma$
  - $\delta$
  - r

42. When „R“ = 0.90, then it is ..... Correlation.
- a. High degree of +ve
  - b. High degree of -ve
  - c. Low degree of +ve
  - d. Low degree of +ve

## Long Questions

1. Define classification and explain the various methods of data collection
2. What is Tabulation? and add note on parts of table.
3. What is measure of central Tendency? Describe the mean with merits and demerits.
4. Describe the sources of stem cells?
5. Define correlation and explain the scatter diagram
6. What is dispersion? Explain the types of dispersion with their merits and demerits
7. Explain in detail retroviral method with suitable example
8. Define Knockout mice? Explain in detail process of knockout mice
9. Describe the nuclear transplantation with suitable example
10. Explain in detail techniques in microinjection and it's advantage
11. Explain animal cell culture principle and application in brief.
12. Define stem cells and explain the pleurepotency in brief.
13. Define stem cells and add a note on embryonic stem cells.
14. Explain in brief animal cell culture.
15. Describe somatic cell nucleus method with suitable example

## Short Questions

1. Application of Nuclear transplantation
2. Application of Knockout Mice
3. Xenotransplantation
4. Retrovirus mediated gene transfer
5. Write process of DNA microinjection

6. Ti plasmid
7. Difference between DNA microinjection and Retrovirus
8. Application of microinjection techniques
9. Application of transgenic animals
10. Embryonic stem cell
11. Cell line
12. Embryonic stem cells.

SM - 32

Total No. of Pages : 3

Seat No. 291689

B.Sc. (Part - III) (Semester - V) (CBCS)

Examination, October - 2023

ZOOLOGY

Biotechniques and Biostatistics (Paper - XI)

Sub. Code : 79695

Day and Date : Friday, 27 - 10 - 2023

Total Marks : 40

Time : 10.30 a.m. to 12.30 p.m.

- Instructions :
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Draw neat labelled diagrams wherever necessary.

Q1) Select the correct alternative from the following and rewrite the complete sentence. [8]

- a) DNA is microinjected into the fertilized egg \_\_\_\_\_.
- i) after the fusion of male and female nuclei -
  - ii) before the fusion of male and female nuclei
  - iii) at the time of fusion of male and female nuclei
  - iv) any time, it can be injected

- b) Stem cells that can give rise to one type of cells in an organism are called \_\_\_\_\_.
- i) Totipotent
  - ii) Pluripotent
  - iii) Multipotent
  - iv) Unipotent

- c) The growth of animal cells *in vitro* in a suitable culture medium is called \_\_\_\_\_.
- i) Transgenesis
  - ii) Transformation
  - iii) Animal cell culture
  - iv) knockout

P.T.O.



- d) The stem cells are preserved in \_\_\_\_\_.
- i) Refrigerator                       ii) Liquid nitrogen
- iii) Formalin                              iv) 70% Alcohol
- e) The arrangement of data in the form of rows and columns, then it is called as \_\_\_\_\_.
- i) Classification                       ii) Tabulation
- iii) Graphical Presentation              iv) Frequency distribution
- f) The mean of a data is defined as \_\_\_\_\_.
- i) The sum of the values is multiplied by the number of the values
- ii) The sum of the values divided by the numbers of the values
- iii) Divide every value by a constant number.
- iv) The square of values is divided by the number of the value.
- g) Which of the following methods is not a form of graphical presentation of data?
- i) Line diagram                       ii) Frequency distribution
- iii) Histogram                              iv) Bar diagram
- h) \_\_\_\_\_ is known as Father of Biostatistics.
- i) Sir Francis Galton                      ii) Aristotle
- iii) Sir Ronald Fisher                      iv) Mendel

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