Rayat Shikshan Sanstha's

D. P. Bhosale College, Koregaon

B.Sc. Part III Semester V

Paper XI: Biotechniques and Biostatistics

Question Bank

Multiple Choice Questions

1) The organisms whose genetic material has been altered using genetic engineering is called as_____

a) genetically mutant organism b) genetically modern organism

c) genetically modified organism d) genetically transferred organism.

2) A group of genetically similar organisms obtained by asexual reproduction is called __

a) population b) clone c) assembly d) none of these

3) Production of transgenic animals require _____

a) eggs or embryos b) stem cells c) red blood cells d) all of these

4) Transgenic goats produce a variant of human tissue type plasminogen activator protein in _____

a) blood b) urine c) milk d) muscles

5) In pharmaceutical industry, mass culturing of cells can be achieved by using ___

a) bioreactor b) test tube baby c) autoclave d) electrophoresis

6) _____ of the following are the methods of transfection for making transgenic animals

a) transfer of whole nuclei b) transfer of whole individual chromosomes or fragment

c) transfer of DNA d) all of the above

7) DNA microinjection into the egg has been used to produce _____ transgenic animals

a) mice b) chicken c) pigs d) all of these

8) _____ of the following statements best described a clone

a) an artificial life form

b) an offspring where all of the genetic material in every cell is identical

c) an offspring where all of the genetic material in very cell is identical to that of one of its parents

d) a type of sheep

9) The animals whose genome is altered by introduction of transgene is called _____

a) modified animals b) hybrid animals c) cross breed animals d) transgenic animal

10) Transgenic animals are produced by incorporation of foreign gene into the_____

a) Nucleus of fertilized egg b) Nucleus of sperm c) Nucleus of unfertilized egg d) Egg cell

11) The production of pharmaceutical from livestock is called _____

a) xenotransplantation b) pharming c) probe d) neutraceuticals

12) The maximum number of existing transgenic animals is of _____

a) fish b) mice c) Cow d) Pig

13) A transgenic food crop which may help in solving the problem of night blindness in developing countries is _____

a) Golden Rice b) Flavr Savr tomatoes c) Bt. soybean d) Starlink maize

14) In ____ therapy, vectors are used to introduce desired gene into the body of patients

a) in vivo, gene therapy b) germ line therapy

c) *in vitro* gene therapy d) none of these

15) The method generally used in production of transgenic animals is _____

a) electrophoresis b) DNA microinjection c) ELISA d) none of these

16) The transfection methods for making transgenic animals are_____

a) Transfer of DNA b) transfer of whole individual chromosomes or fragment

c) transfer of whole nuclei d) all of these

17) Transgenic technology is particularly advanced in _____

a) plants b) animals c) mice d) bacteria

18) DNA is micro infected into the fertilized egg _____

a) after the fusion of male and female nuclei

b) before the fusion of male and female nuclei

c) at the time of fusion of male and female nuclei

d) any time, it can be infected

19) _____ will be a biological method for gene transfer

a) Electroporation b) Microinjection

c) Particle bombardment d) Baculoviral vector system

20) Transgenic technology is particularly advanced in _____

a) Plants b) Bacteria c) Mice d) None of these

21) Transgene introduced in the first transgenic cow was responsible for the production of __

a) albumin enriched milk b) globin enriched milk

c) casein enriched milk d) Vitamins enriched milk

22) Transplanting organs between members of different species is _____

a) xenotransplantation b) pharming c) neutraceuticals d) probe

20) _____ is the most commonly transplanted organ in the World

a) Heart b) kidney c) Liver d) lung

21) Cornea transplantation is outstandingly successful because _____

a) cornea is readily available

b) cornea is easily preservable

c) transplantation technique is very simple

d) cornea is not linked to blood vascular and immune system

22) Trade name of genetically engineered insulin is_____

a) anulin b) beta insulin c) Humulin d) Gilbert's insulin

23) ____ is recombinant protein which is used to dissolve blood clots causing acute myochordial infection

a) insulin b) interferons c) tissue plasminogen activator d) antihaemophilic factor

24) _____ is a stem cell

a) a cell that can make copies of itself & make more specialized types of cell

b) a cell that helps to fight against infections

c) a cell that is specialized

d) a cell that can produce all the cell types of the body

25) Scientists obtain stem cells from_____

a) only from an embryo b) only from tissues in the body

c) only from the brain d) from an embryo or tissues in the body

26) Embryonic stem cells can differentiate into which types of cell_____

a) only brain stem cells and specialized brain cells

b) all types of specialized cells in the body

c) only cells that can produce insulin

d) only cells that can produce artificial skin

27) In the treatment of burns, stem cells serve to replace _____

a) all parts of the patient's skin b) a hair follicles and sweat glands

c) the outermost layer of the skin d) all parts of the skin except sweat glands

28) A blastocyst is_____

a) A very early stage embryo b) A type of stem cell

c) Part of the blood system d) A type of brain cell

29) Dolly the first mammalian clone was born in the year _____

a) 1995 b) 1997 c) 1996 d) 1998

30) Who is regarded as a father of animal cell culture _____

a) Ross Harrison b) Watson c) Johnson d) Chris Harris

31) The cell line is a _____

a) multilayer culture b) transformed cells

c) multiple growth of cells d) Sub culturing of primary culture

32) The cells which are not grow under tissue culture conditions are ____

a) HeLa cells b) nerve cells c) kidney cells d) leucocytes

33) Embryonic stem cells are derived from the _____ of the blastocyst

a) trophoectoderm b) inner cell mass c) ectoderm d) mesoderm

34) _____ produces cells only of their own types

a) unipotent stem cells b) totipotent stem cells

c) multipotent stem cells d) Oligo potent stem cells

35) The part of growth medium contains, for animal cell culture is_____

a) glucose b) serum c) inorganic salts d) all of these

36) The process whereby cells or tissues are frozen is called _____

a) proliferation b) cryopreservation c) differentiation d) none of these

37) The natural culture media used in animal cell / tissue culture is _____

a) plasma clots b) amniotic fluids c) tissue extracts d) all of these

38) The primary equipment required for animal tissue culture laboratory is _____

a) glassware's b) laminar flow c) sterilizers d) none of these

39) The transfer of individuals own tissue to another part of the body is called _____

a) autograft b) xenograft c) allograft d) syngenic graft

40) Freshly prepared culture from isolated tissue is known as_____

a) organ culture b) primary culture c) cell line culture d) histotypic culture

41) The growth of animal cells *in vitro* in a suitable culture medium is called_____

a) gene expression b) transgenesis c) plant tissue culture d) animal cell culture

42) Stem cells can be obtained from _____

a) embryos b) some adult tissues c) umbilical cord blood d) all of these

43) Cells that are capable of developing into most, but not all of the body's cell type is____

a) pluripotent b) ominipotent c) totipotent d) none of these

44) _____ stem cells can be differentiated into all possible types of stem cells

a) unipotent b) totipotent c) pluripotent d) multipotent

45) In the treatment of immunodeficiency diseases ____ ___ are widely used

a) stem cells b) blood cells c) goblet cells d) None of these

46) In transgenic mice, the genes are introduced by _____

a) microinjection b) retroviruses c) transfer of whole nuclei d) all of the above

47) Production of transgenic animals require transfections of _____

a) eggs or embryos b) stem cells c) red blood cells d) all of the above

48) The correct sequence to make a transgenic animal is _____

a) Transomics – transfection – micro infection – electro portion – retroviralvectors

b) Micro injection - transfection - electroportion - retroviral vectors – transomics

c) Transfection – micro injection - transomics - electro portion - retroviral vectors

d) None of these

49) The following are methods of sterilization _____

a) Dry heat sterilization b) Autoclaving c) Sterilization by filters d) all of these

50) The primary equipment required for animal tissue culture laboratory is _____

a) Glassware's b) Laminar flow c) Sterilizers d) all of these

51) Freshly prepared culture from isolated tissue is known as_____

a) Organ culture b) Primary culture c) Cell line d) Histotypic culture

52) The advantage of animal tissue culture is _____

a) cost-effective

b) no skilled personnel is required

c) tissue cultures can be stored for a long time

d) maintenance of environmental conditions is easy

53) The first vaccine developed from animal cell culture was for _____

a) Hepatitis B b) Somatostatin c) small Pox d) Polio

54) Embryonic stem cells are derived from the _____ of the blastocyst

a) inner cell mass b) ectoderm c) endoderm d) mesoderm

55) The source of adult stem cells is _____

a) spleen b) thyroid c) Bone Marrow d) all of these

BIOSTATISTICS

1) Who is regarded as the father of biostatistics _____

a) Fischerb) Karl Pearson c) Francis Galton d) Walter Weldon

2) In classification, the data are arranged according to their _____

a) similarities b) differences c) percentages d) ratios

3) Classification based on certain attributes which can't be measured but can be well defined is called _____.

a) chronological b) quantitative c) qualitative d) geographical

4) The arrangement of data in rows and columns is called_____

a) classification b) tabulation c) frequency distribution d) ogive

5) A good statistical table generally consists of _____

a) Two parts b) three parts c) eight parts d) five parts

6) The headings of the columns of a table are _____

a) stubs b) captions c) footnotes d) source notes

7) The number of tally sheet count for each value or a group is called_____

a) class limit b) class width c) class boundary d) frequency

8) The largest and the smallest values of any given class of a frequency distribution are called_____

a) class Intervals b) class marks c) class boundaries d) Class limit

9) _____is the mode of the series 2, 6, 3, 5, 9, 5, 8, 1, 5, 4, 7, 5

a) 3 b) 5 c) 9 d) 7

10) The median of a series of numerical values is _____

a) a value for which half of the values are higher and half of the values are lower

b) the most commonly encountered values among the series

c) a measure of the eccentricity of the series

d) None of these

11) Classification based on certain attributes which can't be measured but can be well defined is called _____

a) Chronologicalb) Quantitative c) Qualitative d) Geographical

12) The classification of statistical data on the basis of time scale is called as _____

a) Chronological b) Quantitative c) Qualitative d) Geographical

13) Graphical representation of data in the form of adjacent rectangles is called _____

a) Polygon b) Line diagram c) Histogram d) Ogive

14) Median value of the data was calculated by _____

a) Frequency table b) Median c) Histogram d) Correlation

15) The arrangement of statistical data in rows and columns is called as _____

a) Frequency curve b) tabulation c) classification d) frequency polygon

16) The value of the variable which occurs most frequently in a distribution is called _____

a) Mean b) Mode c) median d) mead deviation

17) A survey by using complete enumeration method is known as _____

a) Pilot survey b) census survey c) sample survey d) regional survey

18) In a table the headings of a column are known as _____

a) stub b) caption c) titles d) source note

19) From grouped frequency distribution table we can prepare _____

a) Histogram b) Frequency polygon c) Frequency curve d) all the above

20) Which one of the following is not a measure of central tendency _____

a) mean b) median c) mode d) mean deviation

21) Data obtained in a biological experiment in its original form is known as _____

a) arrayed data b) frequency c) raw data d) overlapping data

22) Tabulation is arranging data in _____.

a) rows and graphs b) rows and columns c) rows and diagrams d) diagrams and graphs

23) Histogram represents _____ series

a) individual series b) discrete series c) continuous series d) none of these

24) Arithmetic mean of the series 19, 21, 17, 16, 19, 21, 23 and 23 is _____

a) 19 b) 21 c) 19.8 d) 16.5

25) When successive mid-points in a histogram are connected by straight lines, the graph is called a_____

a) Histogram b) ogive c) frequency curve d) frequency polygon

26) The graph of the cumulative frequency distribution is _____

a) histogram b) frequency polygon c) pictogram d) ogive

27) Application of statistical methods in biology is called _____

a) Statistics in biology b) statistics in vivo c) biostatistics d) all of these

28) The characteristics that may vary from one individual to another is called _____

a) static group b) variable c) dynamic group d) none of these

29) The classification of statistical data on the basis of location is called as _____

a) Chronological b) Quantitative c) Qualitative d) Geographical

30) The arrangement of statistical data in rows and columns is called as _____

a) Frequency curve b) tabulation c) classification d) frequency polygon

31) Graphical representation of data in the form of adjacent rectangles is called _____

a) polygon b) line diagram c) histogram d) ogive

32) If a series of values consists of 21 numbers then for finding the median when ordered the series ascending and we use_____

a) the 11th value in the ordered series b) the mean between the 10th and 11th values

c) the mean between the 11th and 12th values d) the 10th value in the ordered series

Long Questions

1. Describe method of production of transgenic animal. Add a note on application of Transgenic animal.
2. What is transgenic animal? Describe method of production of transgenic animal.
3. Describe in details animal cell culture.
4. Describe in details stem cell culture with applications.
5. What is data? Describe in details Primary data
6. What is data? Describe in details secondary data
7. Describe in details method of collection of primary data.
8. Describe in details methods of collection of secondary data.
9. What is tabulation? Describe parts of tabulation.
10. What is classification of data? Describe types of classification of data.
11. What is classification of data? Describe qualitative and geographical classification.
12. What is classification of data? Describe quantitative and chronological classification.
13. What is tabulation? Describe in details types of tables.
14. What is correlation? Describe in details types of correlation.

Write Short Notes on following

1. Nuclear Transplantation
2. Retroviral Method
3. DNA microinjection
4. Applications of transgenic animals
5. Stem cells
6. Animal cell culture
7. Transgenic animal
8. Application of stem cells
9. Application of animal cell culture
10. Primary data
11. Secondary data

12. Methods of collection of primary data
13. Methods of collection of secondary data
14. Chronological classification
15. Qualitative classification
16. Quantitative classification
17. Geographical classification
18. Histogram
19. Ogive curve
20. Frequency polygon
21. Mean