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Department of Zoology
B.Sc Part – III (Semester –VI) Summer /2020

MCQs for Theory Examination
(Part-II Biotechnology)

1. Restriction enzymes were discovered by
 - a. Smith and Nathans
 - b. Alexander Fleming
 - c. Berg
 - d. None

2. Bacteria protect themselves from viruses by fragmenting viral DNA with
 - a. Ligase
 - b. Endonuclease
 - c. Exonuclease
 - d. Gyrase

3. Klenow fragment is derived from
 - a. DNA Ligase
 - b. DNA Pol-I
 - c. DNA Pol-II
 - d. Reverse Transcriptase

4. Southern blotting is
 - a. Attachment of probes to DNA fragments
 - b. Transfer of DNA fragments from electrophoretic gel to a nitrocellulose sheet
 - c. Comparison of DNA fragments to two sources
 - d. Transfer of DNA fragments to electrophoretic gel from cellulose membrane

5. ELISA is
 - a. Using radiolabelled second antibody
 - b. Usage of RBCs
 - c. Using complement-mediated cell lysis
 - d. Addition of substrate that is converted into a coloured end product

6. The Golden Rice variety is rich in
 - a. Vitamin C
 - b. B-carotene and ferritin

- c. Biotin
- d. Lysine

7. The DNA fragments have sticky ends due to

- a. Endonuclease
- b. Unpaired bases
- c. Calcium ions
- d. Free methylation

8. Plasmids are used as cloning vectors for which of the following reasons?

- a. Can be multiplied in culture
- b. Self-replication in bacterial cells
- c. Can be multiplied in laboratories with the help of enzymes
- d. Replicate freely outside bacterial cells

9. The human genome project was launched in the year

- a. 1980
- b. 1973
- c. 1990
- d. 1989

10. The vaccines prepared through recombinant DNA technology are

- a. Third generation vaccines
- b. First-generation vaccines
- c. Second-generation vaccines
- d. None

11. Which is a genetically modified crop?

- a. Bt-cotton
- b. Bt-brinjal
- c. Golden rice
- d. All

12. PCR technique was invented by

- a. Karry Mullis
- b. Boyer
- c. Sanger
- d. Cohn

13. The first transgenic plant to be produced is

- a. Brinjal
- b. Tobacco

- c. Rice
- d. Cotton

14. RNA interference helps in

- a. Cell proliferation
- b. Micropropagation
- c. Cell defence
- d. Cell differentiation

15. Which of the following is the quality of improved transgenic basmati rice?

- a. Gives high yield but no characteristic aroma
- b. Gives high yield and is rich in vitamin A
- c. Does not require chemical fertilizers and growth hormones
- d. Resistant to insects and diseases

16. The first clinical application of gene therapy over a 4 year old girl was for

- a. Adenosine deaminase deficiency
- b. Adenosine deficiency
- c. Growth deficiency
- d. Adenine deficiency

17. Excision and insertion of a gene is called

- a. Biotechnology
- b. Genetic engineering
- c. Cytogenetics
- d. Gene therapy

18. The expression of a transgene in the target tissue is identified by a

- a. Transgene
- b. Promoter
- c. Enhancer
- d. Reporter

19. _____ is used as a vector for cloning into higher organisms

- a. Retrovirus
- b. Baculovirus
- c. *Salmonella typhimurium*
- d. *Rhizopus nigricans*

20. Which bacterium is used in the production of insulin by genetic engineering?

- a. *Saccharomyces*
- b. *Rhizobium*

- c. *Escherichia*
- d. *Mycobacterium*

21. The Taq polymerase enzyme is obtained from

- a. *Thermus aquaticus*
- b. *Thiobacillus ferrooxidans*
- c. *Bacillus subtilis*
- d. *Pseudomonas subtilis*

22. Which of the following is an endonuclease?

- a. DNase I
- b. Hind II
- c. Protease
- d. RNase restriction

23. Which of the following restriction enzymes produce blunt ends?

- a. Hind III
- b. Xho
- c. Eco RV
- d. Sal I

24. Which of the following is not a component of downstream processing?

- a. Expression
- b. Preservation
- c. Purification
- d. Separation

25. A foreign DNA and plasmid cut by the same restriction endonuclease can be joined to form a recombinant plasmid using

- a. Taq polymerase
- b. Polymerase III
- c. Ligase
- d. Eco RI

26. DNA fragments separated on an agarose gel can be visualized after staining with _____

- a. ethidium bromide
- b. bromophenol blue

- c. acetocarmine
- d. aniline blue

27. A gene whose expression helps to identify transformed cells is known as _____

- a. Plasmid
- b. Selectable marker
- c. Structural gene
- d. vector

28. A single strand of nucleic acid tagged with a radioactive molecule is called

- a. Plasmid
- b. Probe
- c. selectable marker
- d. Vector

29. There is a restriction endonuclease called Eco RI. What does 'co' part in it stand for?

- a. Coli
- b. Colon
- c. Cofactor
- d. None of the above

30. Agarose extracted from sea weeds finds use in _____

- a. Spectrophotometry
- b. Gel electrophoresis
- c. PCR
- d. tissue culture

31. Animal biotechnology involves

- a) production of valuable products in animals using rDNA technology
- b) rapid multiplication of animals of desired genotypes
- c) alteration of genes to make it more desirable
- d) all of these

32. Animal cell cultures are used widely for the production of

- a) insulin
- b) somatostatin
- c) mabs

d) thyroxine

33. The first vaccine developed from animal cell culture was

- a) Hepatitis B vaccine
- b) Influenza vaccine
- c) Small pox vaccine
- d) Polio vaccine

34. Which of the following are commonly produced in animal cell cultures

- a) Interferon
- b) mab
- c) vaccines
- d) all of these

35. The cell line used for the production of polio vaccine was

- a) Primate kidney cell line
- b) CHO cell line
- c) Dog kidney cell line
- d) mouse fibroblast cell line

36. Recombinant proteins are

- a) proteins synthesized in animals
- b) proteins synthesized by transgene in host cell by rDNA technology
- c) proteins synthesised in cells that are produced by protoplast fusion
- d) proteins synthesized in mutated cell lines

37. Interferons are

- a) anti bacterial proteins
- b) anti-viral proteins
- c) bacteriostatic proteins
- d) all of these

38. The virus commonly used to infect cell cultures for the production of interferon is

- a) Corona virus
- b) Sendai virus
- c) Polio virus
- d) Small pox virus

39. Hybrid antibodies are

- a) antibodies produced in cell cultures
- b) antibodies designed using rDNA technology produced in cell cultures
- c) antibodies produced in vivo
- d) both a and b

40. The technique used in animal biotechnology for the rapid multiplication and production of animals with a desirable genotype is

- a) protoplast fusion and embryo transfer
- b) hybrid selection and embryo transfer
- c) in vitro fertilization and embryo transfer
- d) all of these

41. The production of complete animals from somatic cells of an animal is called

- a) gene cloning
- b) animal cloning
- c) cell cloning
- d) all of these

42. The first successfully cloned animal was

- a) monkey
- b) gibbon
- c) sheep
- d) rabbit

43. In humans, the babies produced by in vitro fertilization and embryo transfer was popularly

called as

a) invitro babies

b) test tube babies

c) invitro-invivo babies

d) all of these

Answer Key

1- a	2- b	3- b	4- b	5- d	6- b	7- b	8- b	9- 3	10- a
11- d	12- a	13- b	14- c	15- b	16- a	17- b	18- d	19- a	20- c
21 -a	22- b	23- c	24 -a	25 -c	26 -a	27 -b	28- b	29 -a	30 b
31-d	32- c	33-d	34-d	35-a	36. b	37-b	38-b	39-b	40-c
41-b	42-c	43-b							
