Question Bank

B.Sc. (Part - III) Examination, June – 2022

BOTANY (Paper - XV)

Plant Biotechnology and Paleobotany

Q.1) Rewrite the following sentences by choosing correct alternative.

1. The term biotechnology was first coined by…… ……..Scientist.

i) G.M Smith ii) Carl Erkey

. iii) E.P.Odum iv) A.G.Tansley

2. …….is stored in genomic library

i) RNA ii) Template DNA

iii) Entire genome iv)Only nucleotide

3. PCR technique developed by …….

i) Lederberge ii) Meselon

iii) Kornberge iv) Kary mullis

4. …… is known as father of tissue culture.

i) Bonner ii) Laibach

iii) Haberlandt iv) Gautheret

5. …… medium is commonly used in tissue culture technique.

i) PDA ii) Czapek

iii) M.S. iv)Agar-Agar

6. Geological time scale is divided in …….era.

i) 05 ii) 07

iii) 06 iv) 08

7. *Sahanianthus pushpum* is a petrified ……..fossil.

i) Flower ii) fruit

iii) Stem iv) Leaves

8. ……..plays an important role in oil and coal exploration.

i) Seed fossil ii) Microfossil

iii) Stem fossil iv) Macrofossil

9. …… is the application of biotechnology processes in agriculture and food production.

a. White biotechnology b. Plant biotechnology

c. Drug discovery d. Red biotechnology

10. ……. is a first genetically engineered food product.

a. Bt brinjal b. Flavr savr tomato

c. Golden rice d. PRSV-resistant papaya

11. The existence of plasmids in bacterial cytoplasm was discovered by ……

a. Cohen and Boyer b. Watson and Crick

c. Lederberg d. Sir Edwin Southern

12. ……..is the hybrid of λ phages and bacterial plasmids.

a. Cosmid b. Plasmid

c. YAC d. BAC

13. …… is a cell free amplification technique for synthesizing multiple identical copies of any DNA of interest.

a. Gel electrophoresis b. Knockout technology

c. PCR d. Blotting

14 …….. is the capacity of a plant cell to give rise to a whole plant.

a. Cell division b. Mitosis

c. Meiosis d. Totipotency

15 …….. is a cell (or) plant which is produced by fusion of protoplast of one parent and cytoplast of another parent.

a. Hybrid b. Cybrid

c. Clone d. Heterokaryon

16.....is known as the Father of Indian Palaeobotany.

a. Johnson b. Birbal Sahani

c.Mendel d. Stanford

17.Capacity to regenerate in to whole plant is called as. ……

i) Totipotency ii) Callus

iii) Omnipotency iv) Potency

18. The cell without cell wall is called as……..

i) Protoplast ii) Callus

iii) Cytoplasm iv) Nucleus

19…….. growth regulators are generally used for root initiation.

i) Cytokinin ii) Ethylene

iii) Auxins iv) Vitamins

20. ……..Enzyme used in PCR.

i) Taq polymerase ii) Ligase

iii) Kinase iv) Phosphatase

21. pBR 322 is a ……. vector.

i) YAC ii) Plasmid

iii) Cosmid iv) Lambda Phage

22. Which among the following is PCR based marker ……

i) RAPD ii) RFLP

iii) SDS iv) CTAB

23. Birbal Sahni is popularly known as ……..

i) Mycologist ii) Physiologist

iii) Paleobotanist iv) Phycologist

24. Which among the following is not a type of fossils……

i) Compression ii) Suppression

iii)Petrification iv) Impression

25. The term biotechnology was coined by_____

a. Gottlieb b. W . Bateson

c. Karly Ereky d. Erich

26. Which of the following enzymes in bacteria are responsible for restricting the growth of viruses ?

a) restriction endonuclease b) topoisomerase

c) gyrase d) protease

27. The first recombinant DNA molecule was synthesized in the year _____

a) 1962 b) 1972
c) 1982 d) 1992

28. Recombinant plasmids are added to a bacterial culture that has been pretreated with _____ ions.

a) iodine b) magnesium
c) calcium d) ferric

29. What is an explant?

a) A part of plant grown under soil
b) Any part of a plant taken out and grown in a test tube
c) A specific part of a plant grown in a test tube
d) Leaves grew under test tube

30. The technique of obtaining large number of plantlets by tissue culture method is called_____

a) Organ culture b) Micropropagation
c) Macropropagation d) Plantlet culture

31. The growth of plant tissues in artificial media is called_____

a) Gene expression b) Transgenesis
c) Plant tissue culture d) Cell hybridization

32. The pollen-bearing organs of *Lyginopteris* belong to

a) Cycadeoidea b) Crosstheca
c) Calymmaatotheca d) Williamsonia

33. Jurassic period is about_____

a) 265 million years back b) 165 million years back
c) 65 million years back d) 365 million years back

34. According to Dutch Persppective biotechnology is the science of……

i) Applied chemical process. ii) Applied biological process.
iii) Applied physical process iv) None of the above

35.DNA ligase enzyme requires ……, energy source.

i) GTP ii) ATP
iii) NAD iv) ADP

36. ……is stored in genomic library

i) RNA ii) Template DNA

iii) Entire genome iv)Only nucleotide

37.. PCR technique developed by ……

i) Lederberge. ii) Meselon

Iii) Kornberge iv) Kary mullis

38.The term totipotency was first time used by ------ ----

i) tansley ii) Morghan

iii)Haberlandant iv) Skoog

39. The growth of plant tissue in artificial media is called ----------.

i) Gene expression ii) Cell hybridization

iii) Plant tissue culture iv)Transgenesis

40 Anthracite is …….type of coal.

i) Hard coal ii) Soft coal

iii) Cooking Coal iv) Non-Cooking Coal

Q.2) Long Questions

1. Explain Southern blotting technique and its applications.
2. What is Plant tissue culture? Explain stages of micro-propagation.
3. Describe the applications of Paleobotany in Oil and Coal exploration.
4. What is blotting technique? Describe southern blotting and its applications.

5. What is micropropagation? Describe in brief stages of micropropagation.

6. What is fossil? Describe in brief different types of fossils.

7. Describe in detail vectors involved in Recombinant DNA Technology.

8. What is mircopropagation? Elaborate stages of micropropagation.

9. Describe applications of palaeobotany in oil and coal exploration.

10. Explain Northern blotting technique and its application.

11.Explain DNA sequencing and concept of gene bank.

12. Explain Embryogenesis and protoplast culture.

13.Describe systematic position and external morphology of ***Enigmocarpon*.**

14. Define Biotechnology, it's scope and Importance

15. Describe Southern blotting and Northern blotting techniques

16. Define stages of Micro propagation.

17. Write a brief note on Application of paleobotany

Q.3) Short notes.

1. Scope of plant biotechnology

2. Concept of Gene bank.

3. DNA fingerprinting.

4. Embryogenesis

5. Culture media.

6. Geological time scale

7. Scope of plant biotechnology

8. RFLP.

9. Protoplast culture

10. Somaclonal variations

11. Compression

12.. PCR

13. *Enigmocarpon* fruit

14. Importance of plant biotechnology

15. Southern Blotting

16. Types of fossils

17. Callus culture

18.Impression

19.Coal balls

20.Lyginopteris