Subject : **Botany**
Paper : **Microbiology, Cytology, Genetics, Evolution**
Paper no: **BOT/IV/ CC/07**
Semester : **IV**

A . Multiple choice questions

UNIT 1.

1. The first person to observe and describe microorganism is
a) Robert Hooke ( )
b) Antonie van Leeuwenhoek ( )
c) Robert Brown ( )
d) Louise Pasteur ( )

2. Name the type of bacteria which uses Co2 as a sole source of carbon for growth
a) Organotrophs ( )
b) Heterotrophs ( )
c) Autotrophs ( )
d) Lithotrophs ( )

3. The Cocci which form a bunch or irregular group is called _____
a) Monococcus ( )
b) Diplococcus ( )
c) Streptococcus ( )
d) Staphylococcus ( )

4. The transfer of genes from one bacterial cell to another by Bacteriophage is known as____
a) Recombination ( )
b) Transformation ( )
c) Conjugation ( )
d) Transduction ( )

5. The genome of Bacteriophages can be
a) DNA only ( )
b) Both DNA and RNA ( )
c) Either DNA or RNA ( )
d) RNA only ( )

UNIT 2

6. Which of the Nitrogen fixer is involved in symbiotic association with leguminous plant forming root nodules?
a) *Azotobacter* ( )
b) *Azomonas* ( )

c) *Rhizobium* ( )
d) *Clostridium* ( )

7. Wine fermentation is produced by
a) *Lactobacillus* ( )
b) *Saccharomyces* ( )
c) *Aspergillus* ( )
d) *Clostridium* ( )

8. In dairy product, the fermentation process brings about the production of
a) Lactic acid ( )
b) Ethanol ( )
c) Ethylene ( )
d) Co_2 ( )

9. Tetracyclines are derived from
a) *Penicillium sps* ( )
b) *Streptomyces sps* ( )
c) *Bacillus sps* ( )
d) *Cephalosporium* ( )

10. Biofertizers include
a) Nitrogen fixing bacteria ( )
b) Nitrogen fixing cyanobacteria ( )
c) Both bacteria and cyanobacteria ( )
d) Bacteria, cyanobacteria and Mycorrhizal fungi. ( )

UNIT : III

11. A cross between red and white flower pea plant produces pink flower. This is a case of
a) incomplete dominance ( )
b) Codominance ( ).
c) lethality ( )
d) over dominance ( ).

12. The number of longitudinal strands of proto filaments in microtubule are
a) 10 ( )
b) 13 ( ).
c) 4 ( )
d) 8 ( ).

13. The gene interaction occurring between the two alleles of a single locus is known as
a) Intra-genic ( )
b) Inter-genic ( ).
c) complementary ( )

d) epistasic ( ).

14. The Mendelian dihybrid plants produce the test cross ratio of 1:1:1:1 because of
a) crossing over ( )
b) Independent assortment ( ).
c) incomplete linkage ( )
d) linkage ( ).

15. The genetically active type of chromatin is
a) chromomeres ( )
b) heterochromatin ( ).
c) euchromatin ( )
d) centrosome ( ).

UNIT: IV

16. Crossing over takes place in
a) leptotene ( )
b) zygotene ( ).
c) pachytene ( )
d) dilotene ( ).

17. The Chromosome theory of Linkage was proposed by
a) T.H.Morgan ( )
b) Morgan and Castle ( ).
c) Mendel ( )
d) Correns ( ).

18. The strength of linkage between the two genes is determined by
a) the number of chromosomes in a cell ( )
b) the distance between them ( ).
c) the position of centromere ( )
d) the frequency of crossing over ( ).

19. The chromosomes which determine the somatic character of an individual are known as
a) Allosomes ( )
b) Dictyosomes ( ).
c) Centrosomes ( )
d) Autosomes ( ).

20. The system of sex determination in fish is
a) XX-XY type ( )
b) ZW- ZZ type ( ).
c) ZO-ZZ type ( )
d) XX- XO type ( ).

UNIT: V

21. Theory of ‘ inheritance acquired characters’ was proposed by
    a) Hugo de Vries ( )
    b) Darwin ( ).
    c) Malthus ( )
    d) Lamarck ( ).

22. According to Darwin, there is struggle for existence due to
    a) Variations in an individual ( )
    b) Similarities in an individual ( ).
    c) Over population ( )
    d) Mutation ( ).

23. *Philosophie Zoologique* was published by
    a) Darwin ( )
    b) Malthus ( ).
    c) Lamarck ( )
    d) Hugo de Vries ( ).

24. Theory of Natural Selection was proposed by
    a) Charles Robert Darwin ( )
    b) G.L Stebbins ( ).
    c) Hugo de Vries ( )
    d) Jean Baptiste Lamarck ( ).

25. Evolution takes place by sudden process and not by gradual process is based on
    a) Natural selection ( )
    b) Mutation theory ( ).
    c) Theory of acquired characters ( )
    d) None of the above ( ).

Fill in the blanks:

UNIT: I

1. A _____ bacterium is covered with flagella
2. The capsid of Bacteriophage is made up of _____
3. The viral genome integrated into bacterial genomeis called _____

UNIT: II

4. Sake is prepared from _____

5. An enzyme _____ is used for dissolving blood clots in patients recovering from heart attacks.
6. The primary producers are found growing in _____layers of water

UNIT: III

7. The ratio 12:3:1 is obtained due to _____ gene interaction.
8. Microfilaments are made up of a protein called_____.
9. Ribosomes are manufactured in the _____ inside the cell.

UNIT: IV

10. Chiasma formation occurs during _____ stage of Prophase I of Meiosis.
11. The representation of a distance between genes in a chromosome is called_____.
12. The term Linkage was coined by_____.

UNIT :V

13. Hugo de Vries conducted an experiment on a plant called _____
14. The book '*On the Origin of Species by means of Natural Selection'* was published by_____
15. A French biologist, who explained evolution through acquired characters was _____

Key Answer

A . Multiple choice questions

UNIT-I

1. b)
2. c)
3. d)
4. d)
5. c)

UNIT-II

6. c)
7. b)

8. a)
9. b)
10. d)

UNIT-III

11. (a)- incomplete dominance
12. (b)- 13
13. (a)- intra-genic
14, (b)-independent assortment
15. (c)- euchromatin

UNIT-IV

16. (c)-pachytene
17. (b)- Morgan and Castle
18. (b)- the distance between them
15. (d)- autosomes
20. (b)- ZW-ZZ type

UNIT-V

21. (d)- Lamarck
22. (c)- over population
23. (c) - Lamarck
24. (a)- Charles Robert Darwin
25. (b)- Mutation Theory

Fill in the blanks:

UNIT-I

1. Peritrichous
2. Protein
3. Prophage

UNIT-II

4. Rice
5. Streptokinase
6. upper layer

UNIT-III

7. Epistatic gene
8. Actin
9. Nucleolus

UNIT-IV

10. diplotene
11. genetic map/ linkage map
12. T.H.Morgan

UNIT-V

13. *Oenothera lamarckiana*
14. Darwin
15, Lamarck