

Part-I Bio-Botany (MARKS: 18)

I. Choose the correct answer:

6x1=6

1. Match the following:

Gene interaction

F₂ phenotype ratio

A) Complementary genes

(i) 1:2:1

B) Supplementary genes

(ii) 9:7

C) Co-dominance

(iii) 15:1

D) Duplicate genes

(iv) 9:3:4

a) A-(iv), B-(iii), C-(i), D-(ii)

b) A-(ii), B-(iv), C-(i), D-(iii)

c) A-(iii), B-(iv), C-(ii), D-(i)

d) A-(iii), B-(i), C-(iv), D-(i)

2. Changing the codon AGC to AGA represents _____.

a) Mis-sense mutation

b) Non-sense mutation

c) Frame-shift mutation

d) Deletion mutation

3. Restriction enzymes are _____.

a) Not always required in genetic engineering

b) Essential tools in genetic engineering

c) Nucleases that cleave DNA at specific sites

d) Both b and c

4. Totipotency refers to _____.

a) capacity to generate genetically identical plants

b) capacity to generate a whole plant from any plant cell/explant

c) capacity to generate hybrid protoplasts

d) recovery to healthy plants from diseased plants

5. In soil water available for plants is _____.

a) gravitational water

b) chemically bound water

c) capillary water

d) hygroscopic water

6. Which one is in descending order of a food chain?

a) Producers → Secondary consumers → Primary consumers

→ Tertiary consumers

b) Tertiary consumers → Primary consumers → Secondary

consumers → Producers

c) Tertiary consumers → Secondary consumers → Primary

consumers → Producers

d) Tertiary consumers → Producers → Primary consumers

→ Secondary consumers

II. Answer any two of the following questions:

2x2=4

7. Write a short note on pollen kitt.

8. What is back cross?

9. Productivity of profundal zone will be low, why?

III . Answer any one of the following questions:

1x3=3

10. Give the names of the scientists who rediscovered mendel's work.

11. Write a short note on Chipko Movement.

IV. Answer the following questions:

1x5=5

12. a) Name the tissue that nourishes the embryo in angiospermic seeds. Explain its types. [OR]

b) Expand NBT and explain how it is involved in developing new traits in plant breeding.

Part-I Bio-Zoology (MARKS: 17)

I. Choose the correct answer:

5x1=5

1. Assertion (A): Organisms show three phases in their life cycle.

Reason (R): Juvenile phase is a degenerative phase.

(a) A is correct, R is incorrect (b) Both A and R are incorrect

(c) R is the correct explanation for A

(d) A is not correct but R is correct

2. Identify the correct statements from the following.

(a) Chlamydia is a viral disease

(b) Gonorrhoea is caused by a spirochaete bacterium,

Treponema palladium

(c) The incubation period for syphilis is 2 to 14 days in males

and 7 to 21 days in males

(d) Both syphilis and gonorrhoea are easily cured with

antibiotics

3. Klinefelter's syndrome is characterized by a karyotype of _____.

a) XYY

b) XO

c) XXX

d) XXY

4. The golden age of reptiles was _____.

a) Mesozoic era

b) Cenozoic era

c) Paleozoic era

d) Proterozoic era

5. The relationship between sucker fish and shark is _____.

a) Competition

b) Commensalism

c) Predation

d) Parasitism

II. Answer any two of the following questions:

2x2=4

6. Mention the importance of the position of the testes in humans

7. What is diapause?

8. How many hotspots are there in India? Name them.

III . Answer any one of the following questions:

1x3=3

9. Define surrogacy.

10. Expand (i) CFC (iii) AQI (iii) PAN

IV. Answer the following questions:

1x5=5

11. a) Explain in detail the asexual reproductive life cycle of Plasmodium parasite.

[OR]

b) Explain about the experiment which support Watson and Crick's semi conservative method of DNA Replication.