



BIOLOGY

BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

SAMPLE PAPER - 12 (UNSOLVED)

Bio Botany Part I

1. Identify the correctly matched pair

A. a) Tuber - *Allium cepa*

B. b) Sucker - *Pistia*

C. c) Rhizome - *Musa*

D. d) Stolon - *Zingiber*

Answer: C



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2. In order to find out the different types of gametes produced by a pea plant having the genotype $AaBb$, it should be crossed to a plant with the genotype

A. $aaBB$

B. $AaBB$

C. $AABB$

D. $aabb$

Answer: D



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3. Due to incomplete linkage in maize, the ratio of parental and recombinants are

- A. 50: 50
- B. 7: 1: 1: 7
- C. 96.4: 3: 6
- D. 1: 7: 7: 1

Answer: B



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4. An analysis of chromosomal DNA using the southern hybridisation technique does not use

- A. Electrophoresis
- B. Blotting

C. Autoradiography

D. Polymerase Chain Reaction

Answer: A



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5. The time duration for sterilization process by using autoclave is _____ minutes and the temperature is _____

A. 10 to 30 minutes and $125^{\circ}C$

B. 15 to 30 minutes and $121^{\circ}C$

C. 15 to 20 minutes and $125^{\circ}C$

D. 10 to 20 minutes and $121^{\circ}C$

Answer: B



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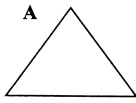
6. A free living nitrogen fixing cyanobacterium which can also form symbiotic association with the water fern Azolla

- A. Nostoc
- B. Anabaena
- C. Chlorella
- D. Rhizobium

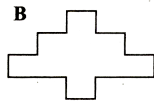
Answer: B

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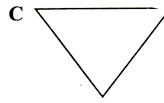
7. Observe the figures and select the correct option indicating the correct type of pyramid of numbers.



A



B



C

- (a) **Grassland ecosystem**
- (b) Grassland ecosystem
- (c) Forest ecosystem
- (d) Pond ecosystem

- Forest ecosystem**
- Pond ecosystem
- Grassland ecosystem
- Forest ecosystem

- Parasite ecosystem**
- Forest ecosystem
- Parasite ecosystem
- Grassland ecosystem

A.

A	B	C
Grass land ecosystem	Forest ecosystem	Parasite ecosystem

B.

A	B	C
Grassland ecosystem	Pond ecosystem	Forest ecosystem

C.

A	B	C
Forest ecosystem	Grassland ecosystem	Parasite ecosystem

D.

A	B	C
Pond ecosystem	Forest ecosystem	Grassland ecosystem

Answer: A

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8. How many numbers of sacred grooves were documented in Tamil Nadu?

A. 484

B. 844

C. 488

D. 448

Answer: D

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Bio Botany Part II

1. Define Pseudoheterosis.

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2. Write the economic importance of rice.



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3. Distinguish tenuinucellate and crassinucellate ovule.



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4. What is meant by true breeding or purebreeding lines / strain ?



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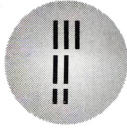
5. Identify the type of aneuploidy from the following diagram by comparing with normal chromosomal condition and mention their

respective chromosomal condition.

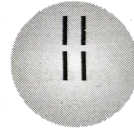
Normal
(Diploid Condition)



Aneuploid
(a) II



Aneuploid
(b) III



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6. State the role of alkaline phosphatase in r - DNA technology.

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Bio Botany Part Iii

1. Highlight the protocol for production of virus free meristem tip culture.

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2. What is thermal stratification? Mention their types.

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3. (i) Which type of bio - geochemical cycle is carried out by phosphorus?

(ii) Mention the sources of phosphorus in an organisms.

(iii) Explain the mechanism of phosphorus cycle.

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4. How Rhizobium acts as a efficient bio - fertilizer?

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5. Who is Jadav "Molai" Payeng? Why he was awarded one of the highest civilian award 'Padma Shri'? What role he played in the society? Explain.

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Bio Botany Part Iv

1. Draw the tabular column mentioning the binomials, family name, useful part and the medicinal values of any five local medicinal plants.

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2. Give a comparative account on the wall layers of Anther.

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3. Write down the steps involved in a metallurgical process.



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4. (b) What are the significance of plant succession?



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Bio Zoology Part I

1. Match the following.

Types of Asexual reproduction

A. Endogenous budding

B. Parthenogenesis

C. Fragmentation

D. Regeneration

Organsims

i. Star fish

ii. Tapeworm

iii. Noctiluca

iv. Honey bees

A. a) (A,B,C,D),(ii,iv,iii,i):}

B. b)
$$\begin{array}{cccc} A & B & C & D \\ iii & iv & ii & i \end{array}$$

C.
$$\begin{array}{cccc} A & B & C & D \\ iii & ii & iv & i \end{array}$$

D.
$$\begin{array}{cccc} A & B & C & D \\ ii & I & iv & iii \end{array}$$

Answer: B



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2. Identify the type of cell which secretes the hormone - Inhibin.

A. a) Sertoli cells

B. b) Hepatic cells

C. c) Peyer's patch

D. d) Leyding cells

Answer: A



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3. Assertion (A) : IUD's are inserted inside the ovary.

Reason (R) : IUD's increases phagocytosis of sperms

- A. a) A is correct, R is incorrect
- B. b) A is incorrect, R is correct
- C. c) Both A and R are correct
- D. d) Both A and R are incorrect

Answer: B



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4. Who is the founder of Modern Eugenics movement?

- A. Mendel
- B. Karl Pearson
- C. Kery Muller
- D. Francis Galton

Answer: D



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5. When lactose is present in the culture medium:

- A. Transcription of lac y, lac z, lac a genes occurs
- B. Repressor is unable to bind to the operator
- C. Repressor is able to bind to the operator

D. Both (a) and (b) are incorrect

Answer: D

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6. Fossils are generally found in

A. igneous rocks

B. metamorphic rocks

C. Gametocytes

D. volcanic rocks

Answer: C

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7. The sporozoites of *Plasmodium vivax* are formed from ____

- A. Gametocytes
- B. Sporoblasts
- C. Oocysts
- D. Spores

Answer: C



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8. Which of the following is not involved in nitrogen fixation ?

- A. *Pseudomonas*
- B. *Anabaena*
- C. *Nostoc*

D. Azotobacter

Answer: A

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Bio Zoology Part Ii

1. What is gene augmentation therapy ?

A. What is ecological niche.

B.

C.

D.

Answer:

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2. What is ecological niche.

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3. "Amazon forest is considered to be the lungs of the planet" -
Justify this statement.

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4. Mention the causes of enhanced UV radiation on human beings.

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5. Meiosis is a type of cell division where the chromosomal number is reduced to half the number in daughter cells. Which type of cell

division occurs in the drones to produces sperm?

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6. Draw and label the structure of a human ovum.

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Bio Zoology Part Iii

1. What is lactational amenorrhoea?

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2. Distinguish between heterogametic and homogametic sex determination systems?



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3. Enumerate the main differences between DNA and RNA.

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4. How did Darwin explain fitness of organisms ?

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5. Secondary immune response is a booster response - Explain.

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1. Explain the process of spermatogenesis with diagram.



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2. Explain the waste water treatment process.



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3. How is sex determined in human beings?



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4. Describe the role of PCR in clinical field.



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