

(i) Printed Pages : 5

Roll No.

(ii) Questions : 9

Sub. Code :

1	1	8	0	8
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Exam. Code :

5	0	1	3
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Bachelor of Science (FYUP) 3rd Semester

(2125)

BOTANY

Paper—Cytogenetics

Time Allowed : Three Hours]

[Maximum Marks : 67

Note :— (1) Attempt **FIVE** questions in all, selecting **ONE** question each from Units I, II, III, and IV.

(2) Question No. 1 is compulsory.

(3) Draw diagrams wherever necessary.

1. (A) Multiple Choice Questions. Choose the correct choice:

i. Which organelle controls the movement of materials between adjacent cells through plasmodesmata?

(a) Golgi bodies

(b) Vesicles

(c) Endoplasmic Reticulum

(d) None of these

- ii. Hydrolytic enzymes for cellular digestion occur in:
- (a) Cisternae
 - (b) Lysosomes
 - (c) Tubules
 - (d) Plastids
- iii. The middle lamella is made up of:
- (a) Iron and magnesium pectates
 - (b) Cellulose
 - (c) Calcium and magnesium pectates
 - (d) Iron and calcium pectates
- iv. Full form SAT in SAT-chromosome is:
- (a) Small and Thymo Nucleus
 - (b) Sine Acid Thymonucleinico
 - (c) Semi Amine Thymonucleinico
 - (d) None of the above
- v. Primary constriction in the chromosome is also called as:
- (a) Nucleolar organiser
 - (b) Telomere
 - (c) Satellite
 - (d) Centromere
- vi. A double metaphase plate is formed during:
- (a) Metaphase I
 - (b) Metaphase II
 - (c) Diplotene
 - (d) Anaphase II

vii. The cross between a hybrid and a recessive parent is:

- (a) Back cross (b) Test cross
(c) Dihybrid cross (d) Monohybrid cross

viii. In DNA structure, Nitrogen bases are attached to the carbon of deoxyribose by which bond?

- (a) Hydrogen bond (b) Phosphate bond
(c) Glycoside bond (d) Ester bond

8×1=8

(B) Fill in the blanks:

ix. During DNA replication the primer is synthesized at _____ end of DNA.

x. _____ and _____ amino acids are specified by a single codon.

xi. _____ is a linearly arranged group of linked genes which are inherited together.

xii. _____ are known as protein factories.

xiii. Oxysomes in inner membrane of mitochondria function as _____.

xiv. Synaptonemal complex is formed in _____ stage of prophase I.

xv. _____ is the condensed part of chromatin, which shows late replication and little gene activity. 7×1=7

UNIT—I

2. Discuss in detail the structure and significance of:
- a. Mitochondria 7
 - b. Ribosome 6
3. (a) Draw and explain the fluid-mosaic model. 7
- (b) Write the functions of the Golgi apparatus and the Endoplasmic Reticulum. 6

UNIT—II

4. (a) Discuss in detail the Polytene chromosome. 7
- (b) Write short notes on:
- (i) Telomeres 2
 - (ii) Satellite 2
 - (iii) Nucleolar organisers (NOR). 2
5. (a) Write a detailed note on Lampbrush chromosomes. 6
- (b) With the help of illustrations, describe various stages of Meiosis. 7

UNIT—III

6. (a) Discuss various laws given by Mendel in detail. 7
- (b) Explain types of linkage with suitable examples. 6

7. Define the following terms with a detailed explanation:
- a. Dihybrid cross and its significance 4
 - b. Monohybrid cross and its significance 4
 - c. Linkage maps. 5

UNIT—IV

8. (a) What is the genetic code? Give its characteristics. 7
- (b) Discuss the Wobble hypothesis. 6
9. (a) Explain the process of translation in detail. 10
- (b) Discuss various types of RNAs. 3