Sr. No. of Question Paper: 6816 D

Unique Paper Code: 217575

Name of the Paper : Paper 18-Genetics Biotechnology and Developmental Biology (Plants)

Name of the Course: B.Sc. Applied Life Science/Agro-Chemical and Pest Management

Semester : V

Duration: : 3 Hrs. Max. Marks: 75

Attempt five questions in all including Question No. 1 which is compulsory.

1. (a) Fill in the blanks: 5

i. Karyotype of Turner's Syndrome is .....

ii. ABO blood groups in humans is an example of .....

iii. SCP stands for .....

iv. Polyembryony is found in .....

v. Pollination facilitated by bats is known as .....

(b) Match the following: 2½

	Column A	Column B
i.	T. H. Morgan	(a) Flavr Savr tomato
ii.	Complementary genes	(b) linkage
iii.	Antisense technology	(c) Phellogen
iv.	Pollen	(d) 9:7 dihybrid ratio
v.	Cork cambium	(e) Male gametophyte

(c) Give one important contribution of any **five** of the following: 2½

i. Gregor J Mendel

ii. Sutton and Boveri

iii. Carl Correns

iv. Watson

v. S.G. Nawaschin

vi. P. Maheshwari

(d) Define any **five** of the following: 5

i. Aneuploidy

ii. Karyotype

iii. Vector

iv. Meristem

vi. Embryo sac

vii. Pollination

2. Differentiate between any **five** of the following: 3 x 5 = 15

i. Open and closed vascular bundle

ii. Geitonogamy and xenogamy

iii. Aril and caruncle

iv. Spontaneous and induced mutations

v. Euploidy and aneuploidy

vi. Lampbrush and polytene chromosome

3. Write short notes on any **five** of the following: 3 x 5 = 15

i. Intellectual Property Rights

ii. Gene therapy

iii. Extra nuclear inheritance

iv. Polygenic inheritance

v. Double fertilisation

vi. Wound periderm

vii. Apomixis

4. (a) Describe the Watson – Crick's Model of DNA with the help of diagram. 10

(b) Genes a, b and c assort independently and are recessive to their respective alleles A, B and C. Two triply heterozygous (AaBbCc) individuals are crossed. 5

i. What is the probability that a given offspring will be phenotypically ABC- that is will exhibit all three dominant traits?

ii. What is the probability that a given offspring will be homozygous for all three dominant alleles?

Or

Explain sex-linked inheritance with suitable examples.

5. (a) What are GM plants? What are the advantages of GM plants? Give any two examples. 10

(b) Discuss Recombinant DNA Technology. 5

6. (a) What is endosperm? Mention different types of endosperm. Briefly discuss the functions of the endosperm. 7

(b) Draw well-labeled diagram of any **two** of the following: 2 x 4 = 8

i. T.S. mature anther

ii. L.S. anatropous ovule

iii. V.S. root apical meristem