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SEAT No. _____

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SC

SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR
B. Sc. FOURTH SEMESTER EXAMINATION
2019
WEDNESDAY 10th APRIL
10:00 am to 01:00 pm
US04 CBIO 02 BIOLOGY
GENETICS AND MOLECULAR BIOLOGY

TOTAL MARKS 70

- Note:** 1. Answers of all the questions (including multiple choice questions) should be written in the provided answer sheet
2. Draw neat and labeled diagram wherever necessary

Q1 Answer the following multiple choice questions (10)

1. Females are heterogametic in _____
(a) Birds (b) Drosophila (c) Vallisneria (d) Humans
2. _____ chromosome has little genetic information; therefore they are sometimes referred to as genetically inert or inactive
(a) X (b) Y (c) Z (d) W
3. In cytoplasmic inheritance, more cytoplasm is contributed to zygote by _____
(a) Primary spermatocyte (b) Male gamete
(c) Female gamete (d) All of these
4. Dextral coiling in snail is from _____ side
(a) Upper (b) Lower (c) Left (d) Right
5. Darkening of cartilaginous regions is observed in patients suffering from which disease?
(a) Alkaptonuria (b) Phenylketonuria (c) Haemophilia (d) Albinism
6. Several types of colour blindness are known but the most common is _____
(a) Yellow red (b) Red green (c) Green blue (d) Yellow green
7. Transfer of genetic material from one organism to another by direct contact is called _____
(a) Conjugation (b) Transformation (c) Transduction (d) Determination
8. Mutations occurring in sex chromosomes are known as _____ mutations
(a) Somatic (b) Gametic (c) Autosomal (d) Sex linked
9. _____ mutations result in death of cells or organisms
(a) Lethal (b) Super vital (c) Sub vital (d) Missence
10. 5 Bromouracil is the base analog of _____
(a) Adenine (b) Thymine (c) Cytosine (d) Guanine

①

(P.T.O.)

Q2. Answer the following questions. (Any ten) (20)

1. Discuss in brief any one example of environmentally controlled mechanism of sex determination
2. What are transposable genetic elements?
3. Define sex chromosomes
4. Write a note on Albinism
5. Explain in brief the plastid inheritance in 4 o'clock plant
6. What is maternal inheritance?
7. Define transduction
8. In man colour blindness is sex linked and recessive. What will be the phenotype of the children, if a normal man marries a colour blind woman
9. What are sex influenced genes?
10. Define the term mutagens and enlist their types
11. What is mutation?
12. Write about spontaneous and induced mutation

Q3. Write note on:

- (a) Hormonally controlled mechanism of sex determination (05)
- (b) Genic Balance Mechanism (05)

OR

Q3. Explain in detail the chromosomal mechanism of sex determination. (10)

Q4. Explain the extra nuclear inheritance by Kappa particle. (10)

OR

Q4. Describe the shell coiling in Snail. (10)

Q5. Give a detailed account of sex linked inheritance in man. (10)

OR

Q5. Explain the following:

- (a) Griffith's Experiment (06)
- (b) Plasmids and their applications (04)

Q6. (a) Describe any six kinds of mutations . (06)

(b) Explain the role of ionizing radiation as mutagen (04)

OR

Q6. Write note on:

- (a) Chromosomal aberrations due to change in structure of chromosome (06)
- (b) Chromosomal aberrations due to change in number of chromosome (04)