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SEAT No. _____

No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY

B.Sc. (Genetics) – Fourth Semester Examination (CBCS)

Monday, 9th April 2018 Time : 10:00 a.m. to 1:00 p.m. Total Marks: 70

US04CGEN02: Principles of Genetics II

Q.1 Choose the most appropriate answer from the four alternatives given 10M

- 1 Drosophila male shows ----- linkage for wing length and body colour
A) Complete B) Incomplete C) Both A and B D) None of above
- 2 ----- acts as initiator codon
A) AUG B) UGA C) UAA D) UAG
- 3 Lac operon of E. coli shows ----- control of regulation
A) Repressible B) Inducible C) Both a and b D) None of above
- 4 Differences in results of reciprocal crosses are found in _____ inheritance
A) Mendelian B) Nuclear C) Cytoplasmic D) All of above
- 5 _____ coined term mutation
A) Hugo De Vries B) Morgan C) Mendel D) None of above
- 6 In substitution mutation replacement of purine with pyrimidine is _____
A) Transition B) Transversion C) Tautomerization D) All of above
- 7 Presence of only parental combinations in progeny shows
A) Complete linkage B) Incomplete linkage C) Both D) None of above
- 8 Wobble hypothesis was proposed by _____
A) F. Wobble B) F. Crick C) W. Bateson D) J. Watson
- 9 Unit for distance between two genes is
A) bp B) cM C) Both A and B D) None of above
- 10 Plastids were discovered by _____
A) Morghan B) Mendel C) Hardy and Weinberg D) Correns and Baur

Q.2 Answer any TEN from the following

20M

- 1 Define aneuploidy and euploidy
- 2 What are different types of mutations?
- 3 Write stages at which mutation occurs.
- 4 Write about Wobble hypothesis.

①

[P.T.O.]

- 5 What is Position effect of gene in drosophila
- 6 Define Cistron and recon
- 7 Represent with cross lojap inheritance in maize
- 8 What are Petite mutant in yeast ?
- 9 Write about kappa particles in paramecium
- 10 Write about mitotic and meiotic crossing over
- 11 What are theories of crossing over?
- 12 What are chromosome maps?
- Q.3 a. Discuss in detail stern's experiment 5M
- b. What are kinds of linkage? Explain with example incomplete linkage 5M
- OR**
- Q.3 a. Explain the Holliday model to explain mechanism of crossing over 6M
- b. Write a note on significance of linkage and crossing over 4M
- Q.4 a. Write a note on coiling of shell in snail 6M
- b. Discuss male sterility in plants and its significance in hybridization 4M
- OR**
- Q.4 a. Discuss plastid inheritance in Mirabilis jalapa 5M
- b. Write a brief note on evolution of mitochondria and chloroplast 5M
- Q.5 a. Discuss in detail complementation and recombination test 5M
- b. Write a note on genetic code with its discovery and properties 5M
- OR**
- Q.5 Discuss regulation of gene expression with Lac and Trp Operon concept 10M
- Q.6 Give detailed account of chromosomal aberrations 10M
- OR**
- Q.6 a. What are mutagens ? Write an elaborative note on mutagens 7M
- b. What are practical applications of mutation? 3M