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Reg. No. : .....

Name : .....

Fifth Semester B.Sc. Degree Examination, December 2017
First Degree Programme Under CBCSS
Zoology
Core Course – VI
ZO 1541 : GENETICS AND BIOTECHNOLOGY
(2015 Admission)

Time : 3 Hours Max. Marks : 80

All Saints' College Trivandrum

I. Answer the following questions (in **one** or **two** sentences. **One** mark **each**).

1) Define Intersex.
2) Mention the term mutagen.
3) What are supplementary genes ?
4) What is lyon hypothesis ?
5) Define sex piebalds.
6) What are interferons ?
7) What is gene dopping ?
8) Define genomic library.
9) What is alkaptonuria ?
10) Mention the significance of crossing over. **(10×1=10 Marks)**

II. Answer **any eight** of the following. (**Not** to exceed **one** paragraph. **Each** carries **two** marks).

11) Distinguish between induced and natural mutations.
12) What is the role of Y chromosome in the sex determination of man ?
13) Explain chromosome theory of heredity.
14) Comment on lipofection.
15) Substantiate the role of environmental factors in sex determination.

P.T.O.

16) Define linkage. Which are the types of linkage ?

17) Discuss the implications in gene mapping.

18) Explain southern blotting.

19) Comment on Arrhenotoky.

20) Define (a) Plasmid and (b) Cosmid.

21) Comment on pedigree analysis.

22) What are embryonic stem cells ? **(8×2=16 Marks)**

III. Answer **any six** of the following. (**Not** to exceed **120** words. **Each** carries **4** marks).

23) Write a note on polymerase chain reaction.

24) Describe the disorders in the biochemical pathway of phenyl alanine- tyrosine in man.

25) Write a brief note on human cloning.

26) Comment on base analogues in mutation.

27) Describe crisis cross pattern of inheritance with examples.

28) Write a note on crossing over.

29) Comment on allelic interactions of gene.

30) Explain different types of enzymes involved in rDNA technology.

31) Describe gene therapy with examples. **(6×4=24 Marks)**

IV. Answer **any two** of the following (**Each** carries **15** marks).

32) Write an essay on Mendel and his experiments on inheritance.

33) Explain the process of cytoplasmic inheritance with suitable examples.

34) Describe practical applications of biotechnology in various branches of science.

35) Explain multiple alleles with respect to ABO blood group inheritance in man.

(15×2=30 Marks)

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