Total No. of Questions :6] **SEAT No. :**

P688 **[Total No. of Pages :2**

[5217] - 101
S.Y.B.Sc.
BIOTECHNOLOGY
Bb-211: Genetics & Immunology
(2013 Pattern) (Semester - I)

Time : 3 Hours] ***[Max. Marks :80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat and labelled diagrams wherever necessary.***

Q1) Answer the following: **[10×2=20]**

a) State the law of complete dominance. Give an example.

b) What is chromosomal interference?

c) What is penetrance?

d) State the cause and symptoms of Down's syndrome.

e) State the mode of action of UV as a mutagenic agent.

f) Enlist the salient features of plasmids.

g) Give the genes of arabinose operon and its products.

h) State the difference between F^+ and Hfr strain.

i) What are insertion sequences?

j) What is pleiotropy?

Q2) Answer the following: **[5×2=10]**

a) Name any two scientists with their contribution in the field of immunology.

b) What are haptens?

c) Define the terms isotype, allotype and idiotype.

d) State the principle of precipitation reaction.

e) Define natural passive immunity. Give an example.

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Q3) Attempt any Three of the following. **[3×5=15]**

a) What are duplicate genes? Explain with an example.

b) Define chromosomal abberation. Explain chromosomal translocation in detail.

c) Compare and contrast lytic and lysogenic cycle is phages.

d) Describe in detail the Hardy Weinberg principle.

Q4) Attempt Any Three of the following: **[3×5=15]**

a) Discuss attenuation regulation in tryptophan operon.

b) Draw and explain ten symbols used in pedigree analysis.

c) Describe the transposons in yeast and human systems.

d) Define mutations. Explain different types of mutations.

Q5) Answer any one of the following: **[10]**

a) What is meant by linkage? Explain complete and incomplete linkage with examples.

b) Discuss in details the process of transformation in Haemophilus. Add a note on competence.

Q6) Attempt Any Two of the following: **[2×5=10]**

a) With a neat labelled diagram explain in details the structure and function of thymus.

b) Elaborate on the different factors which affect antigeneity of a molecule.

c) What are APC.s? Discuss the process of antigen presentation.

d) Enlist different types of vaccines. Compare between attenuated and killed vaccines.