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End Semester Examination of Semester–I, 2015
Subject : BOTANY (PG)
Paper : 101
Full Marks : 40
Time : 2 Hrs

The figures in the margin indicate the marks corresponding to the question.

Candidates are requested to give their answers in their own word as far as practicable.

Illustrate the answers wherever necessary.

Answer all the questions

Group–A

1. Answer **any seven** (7) of the following questions: 2x7=14

   i) State the cultural conditions that are employed for enrichment of Azotobacter sp.

   ii) Mention the full name of the following abbreviated form: ATCC, m-DAP, HEPA, PABA.

   iii) How does on Hfr cell differ from F^+ cell?

   iv) What is diauxic growth? cite one example.

   v) What is Phage typing?

   vi) Define metagenome and state its significance.

vii) Mention two reserve materials of Prokaryotic organism and their significance.

viii) What is toxoid? Give an example.

ix) What is signature sequence?

x) What is plasmid curing? Name one plasmid-curing agent.

xi) Who proposed the 5-kingdom system of classification? Name the Kingdoms.

xii) Sterilization through autoclave need less time and temperature than hot air oven – why?

Group–B

2. Answer **any two** (2) of the following questions: 5x2=10

i) Give an account of the general structure of Immunoglobin.

ii) What happens in a Chemostal if the dilution rate is increased? Calculate the generation time in the following experiment in which a medium was inoculated with 10^6 Cells/ml of E. coli Cells and following 60 minutes log greed exponentially for 9 hours 54 minutes after which the population was 10^9 cells/ml.

iii) Describe briefly the regulation of lysogeny in E. coli lambda (λ) system.

iv) Name the metabolic pathway can only to be found in aerobic and anaerobic prokaryotic organisms only but not in Eukaryotes. With Schematic flow sheet describe this pathway in brief.

Group–C

3. Answer **any two (2)** of the following questions: 8x2=16

i) State the functions of flagella and pili. Draw and describe the ultrastructure of a flagellum of a Gram negative bacterium.

ii) Explain how interrupted mating experiments are used for determining the location of genes on bacterial chromosome.

iii) Differentiate resolving power and magnification of Microscope. Mention the working principal of phase contrast microscope. Write differences between TEM & SEM.

iv) Describe the steps in the development of root nodules on a leguminous plant and also mention the role of nod gene.