Name :	Collega
Roll No. :	A Dearty Canada and Californi
Invigilator's Signature :	

CS/B.SC(H)MICRO.BIO/BT/GENT/MOL.BIO/SEM-5/RDT-502/2012-13

2012 RECOMBINANT DNA TECHNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

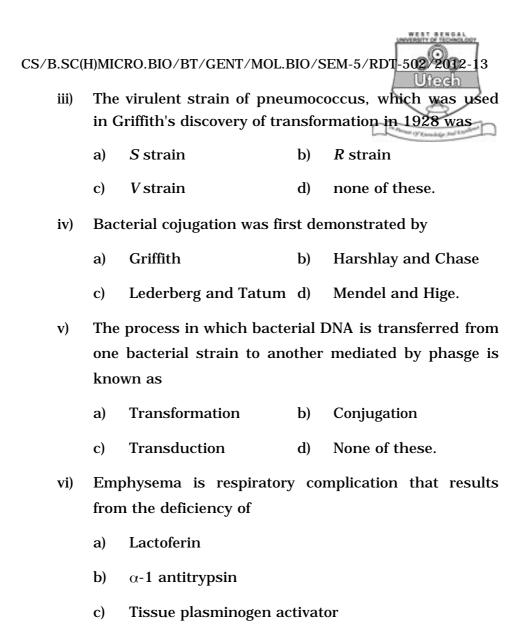
GROUP – A

(Multiple Choice Type Questions)

- 1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$
 - Which of the following is a yeast plasmid that has a section of eukaryotic centromere ?
 - a) YEp b) YRp
 - c) YCp d) pUC.
 - ii) Spheroplast lacks which of the following cellular components ?
 - a) ER b) Ribosome
 - c) Intact cell wall d) Cytoskeleton.

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- d) none of these.
- vii) Human lactoferin is involved in the absorption of the following metal in the intestine.
 - a) Zinc b) Iron
 - c) Copper d) Calcium.

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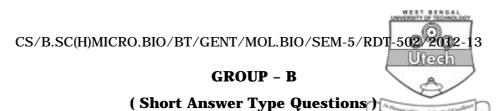


- viii) T-DNA complex includes
 - a) T-DNA, Vir D2 and Vir E2
 - b) T-DNA and VirG
 - c) T-DNA, Vir B and Vir E
 - d) T-DNA and Vir B.
- ix) Opine produced by plants are result of
 - a) a result of wound
 - b) normal seasonal activity
 - c) agroinfection
 - d) none of these.
- x) Octopine and Nopaline type of plasmids differ in their
 - a) organization of the vir region
 - b) organization of the T-DNA and Vir region
 - c) organization of the T-DNA
 - d) all of these.
- xi) The efficiency of PEG enhances in the presence of
 - a) Magnesium b) Calcium
 - c) Iron d) Phosphorus.
- xii) Polymerase chain reaction was developed so that scientists could
 - a) compare the DNA fingerprints of different people
 - b) create corn plants that produce Bt toxin
 - c) replicate a gene without using bacteria
 - d) choose organisms with desired characteristics for breeding.

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Answer any *three* of the following. $3 \times 5 = 15$

- 2. Explain the process by which *B. subtilis* bind and take up free DNA.
- 3. Define competency. Name two gram-positive and gramnegative bacteria which encode the capacity or natural transformation.
- 4. Write short note on co-integrate vector mediate in gene transfer.
- 5. Briefly discuss the method of DNA microinjection in oocytes.
- 6. Discuss how embryonic stem cells are processed for gene transfer.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

- How are plant viruses used as vectors ? What are the major applications of these gene transfers ?
 12 + 3
- 8. Explain the PCR based site directed mutagenesis. Write briefly the gapped duplex method. Write the applications of site directed mutagenesis. 6 + 5 + 4
- 9. Write short notes on any *three* : 3×5
 - i) Dolly, the cloned sheep
 - ii) Transgenic mice
 - iii) Therapeutic proteins
 - iv) Binary vector.
- 10. Discuss how transgenic animals can be used for improvement of dairy, wool and fiber industries. Discuss two biopharmaceutical applications of transgenic goat. 12 + 3
- 11. What is gene targeting ? Discuss in detail the methods used for gene targeting.3 + 12