M.Sc. 4th Semester Examination, 2011

MICROBIOLOGY

PAPER—XX

Full Marks : 40

Time : 2 hours

Answer any **two** questions from each Group

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

GROUP – A

[*Marks* : 20]

Answer any *two* questions

1. (*a*) What do you mean by the secondary metabolites from microbial origin? Why these are so industrially important?

(*b*) Classify antibiotics according to their chemical nature.

(*c*) Describe briefly on the production of tetracycline mentioning the fermentation conditions.

(*d*) Write the specific action of nystatin. $(1 + 2) + 2 + 4 + 1$

2. (*a*) Write the characteristics of a probiotic organism.

(*b*) Why they are so useful as health protective aids ?

(*c*) Write the down-stream processing of beer.

(*d*) State the applications of PHA and PHB. $2 + 2 + 3 + 3$

3. Write the short questions (any *five*) : 2×5

(*a*) Pharmaceutical uses of dextran 40 and 70.

(*b*) Why prototrophic microbes are uses for Vitamin production ?

(*c*) Match the following therapeutic important enzymes with their mode of action.

I. Streptokinase	*i.* Sterility testing
II. Streptodornase	*ii.* Cancer the chemotherapy
III. Asperginase	*iii.* Liquefying blood clots
IV. β-lactamase	*iv.* Liquefying pus

(*d*) Mention the steps of steroid biotransformations.

(*e*) Cite four examples of therapeutic engineered proteins produced by *E. coli*.

(*f*) Why microbial single cell proteins are so nutricious?

(*g*) Distinguish between pluripotent and totipotent stem cells.

(*h*) Distinguish between bacteriocin and antibiotic.

GROUP – B

[*Marks* : 20]

Answer any *two* questions

4. (*a*) Mention various practices used for food preservation.

(*b*) In the Dairy industry, some bacteria are extremely trouble some. Give an idea about them.

(*c*) Mention three most important types of microbiological spoilage of commercially canned food.

(*d*) State the advantages of LAB. 3 + 2 + 3 + 2

5. Write short notes on : 10

(*i*) Nisin

(*ii*) Application of nanobiology

(*iii*) Production of vinegar

(*iv*) Microbes associated with spoilage of foods.

6. (*a*) Name two oriental fermented food and state their production through flow diagram.

(*b*) Briefly describe the various steps of cheese production and point out the role of biotechnology in such preparation. 5 + 5