M.Sc. 1st Semester Examination, 2015

BOTANY

PAPER—BOT-104

Full Marks : 40

Time : 2 hours

Answer Q. No. 1 and any two from the rest

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

1. Answer any ten questions from the following : 2×10

(a) What is the function of oil when used with the oil immersion objective?

(b) Where are teichoic acids present in the cell wall of bacteria? Mention its function.

(c) Differentiate antiseptic and disinfectant.

(Turn Over)
(d) Name the Immunoglobulin (Ig) found in mother's breast milk. What kind of immunity are developed by baby after receiving breast milk?

(e) Why 16s rDNA sequence is useful in bacterial taxonomy?

(f) Define plasmid and episome.

(g) What is animalcules? Who first reported it?

(h) What is synthetic media? How does it differ from complex media?

(i) What is triple vaccine? Give example.

(j) Write down the full form of:
   BCG, LPS, ATCC, APC

(k) What is 'Sufu'? Which raw materials and which microorganisms are required for its production?

(l) Explain why obligate anaerobic microorganisms cannot tolerate molecular oxygen.
(m) Mention the name of a non-leguminous symbiotic nitrogen fixer and its host.

(n) Distinguish between T₄ and E.Coli DNA ligase.

(o) Write down contributions of
   (i) Sergei Winogradsky
   (ii) Edward Jenner.

2. (a) How would you develop a synchronous culture of bacteria?

   (b) Briefly describe the natural transformation mechanism of Gram(+) bacteria and state how it differ from that of Gram(−) bacteria.

   (c) Mention functions of bacterial capsule.

3. Write short notes on (any four):

   (i) ED pathway
   (ii) Blood grouping
(iii) Semisynthetic antibiotic
(iv) Red wine
(v) ELISA
(vi) Archaea.

4. (a) Compare:

(i) Agglutination and precipitation.
(ii) Mode of action of UV ray and X-ray.

(b) Write down primary characteristics of an immune system.

(c) How plant viruses are cultivated?

\[(2 + 2) + 3 + 3\]

5. (a) State the differences between sterilization and pasteurization.

(b) How does gene mapping can be made by interrupted matting of bacteria?

(c) Distinguish between viroids and prions.

(d) Write down five properties of pBR322.

\[2 + 3 + 2 + 3\]