C/18/M Phil/1st Sem/LSC-114

2018

M. Phil.
1st Semester Examination
LIFE SCIENCE

PAPER—LSC-114

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group-A

1. Answer any *four* questions : 4×2

(a) Write down two applications of IR Spectroscopy.

(b) Mention Bragg's law of x-ray scattering.

(c) What is drop ?

(d) What is R_f value ?

(e) State the role of SDS in SDS-PAGE.

(f) What is voxel ?

(g) What is meant by 'Laser interrogation' ?

(h) What do you mean by transducer *Q*-factor ?

Group-B

2. Answer any *four* questions : 4×4

(a) Classify chromatography according to force of separation.

(b) Explain different uses of Mo 99 in nuclear medicine.

(c) Write down steps for preparation of biological sample for SEM.

(d) Write the common differences between MRI and CT scan. Write one clinical application of MRI scan. 3+1

(e) Mention different applications of flowcytometry.

(f) Briefly describe the major principle of 2D-gel electrophoresis with diagramatic representation.

Group-C

3. Answer any *two* questions : 2×8

(a) Mention the principle of NMR. Schematically draw the structure of an NMR instrument. What are different solvents used in NMR ? 3+4+1

(b) (i) State the principle of pyrosequencing and mention its advantages over dideoxy sequencing.

(ii) What is VNTR ?

(iii) State the functional difference between Taq, Vent and Pfu polymerase used in PCR. 4+1+3

(c) (i) Discuss the basic principle of Flow cell cytometer with special reference to FSC and SSC mechanism.

(ii) How does the cells are sorting in a FACS ? 6+2

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