

2017

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 from the following : 4×2

(a) What do you mean by nuclear imaging?

(b) Explain ion-exchange chromatography.

(Turn Over)

- (c) Write the significance of contrasting agent used during MRI.
- (d) What are different electrodes used for ECG?
- (e) What do you mean by Nested PCR?
- (f) Name two colour dyes used in fluorescence microscopy to stain nucleus.

Group—B

2. Answer any *four* questions from the following : 4×4
- (a) Briefly describe how mass spectrophotometry is used in the analysis and identification of protein. 4
 - (b) What is stringency and how is it related to the melting temperature of DNA? 2+2
 - (c) Write down the application of tracer technology in biological science. 4
 - (d) What are the advantages of AFLP over RFLP. 4
 - (e) How do you determine the concentration and purity of DNA and RNA sample spectrophotometrically? 2+2

- (f) What do you mean by near field and far field of ultrasound beam. 4

Group—C

3. Answer any *two* questions of the following : 2×8
- (a) (i) Design an experiment to show nuclear translocation NF-KB.
- (ii) Briefly explain TLC method. 4+4
- (b) (i) Describe the steps of RNA isolation and CDNA perparation.
- (ii) Discuss the pulse echo operation on the basis of pulse repetition frequency (PRF) during USG. 4+4
- (c) (i) Write down the application of tracer technology in biological science.
- (ii) What is gamma decay? What is the unit of effective dose?
- (iii) Mention some applications of flow cytometry. 3+(1+1)+3