TKN/KS/16–5898

Fifth Semester B. Sc. (Part – III) Examination

BIOCHEMISTRY

Paper – II

(Molecular Biology)

Time : Three Hours] [Max. Marks : 50

N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw diagrams wherever necessary.

1. (a) Describe the experiment which proved that replication is semi-conservative in nature. 5

(b) Describe the termination process of DNA replication. 5

OR

(c) Write a detailed note on rolling circle model of replication. 5

(d) Describe the process of Elongation in DNA replication. 5

2. In detail describe DNA polymerase. 10

OR

(a) Write a brief note on Ames test and its significance. 5

(b) Write a small essay on Nucleotide excision repair. 5

3. (a) Write a note on E-coli promoter. 5

(b) Write a note on rho-independent termination. 5

OR

(c) Write a note on sigma sub-units. 5

(d) Write a note on rho-dependent termination. 5

4. Give a detailed account of the 'lac' operon. 10

OR

(a) Write a note on the inhibitors transcription. 5

(b) Write a short note on reverse transcription. 5

5. Answer any **ten** of the following :—

(i) Which is the first protein that recognizes and binds to ori C during replication?

(ii) The lagging strand synthesis is not continuous but in discrete fragments. Which scientist gave the most conclusive proof for this ?

(iii) Name any two models of replication of DNA.

(iv) What is the significance or role of the $3' \longrightarrow 5'$ exonuclease activity ?

(v) What is meant by 'C' and 'D' values ?

(vi) Which base is methylated by Dam methyl transferase in a GATC sequence?

(vii) State the subunit compositon of RNA polymerase holoenzyme.

(viii) Which subunit recognizes the promoter ?

(ix) What change in the composition of RNA polymerase takes place just after promoter escape ?

(x) What type of primer is used in reverse transcription ?

(xi) In which operons do you find the mechanism of attenuation ?

(xii) Name the identity of the co-repressor in trp. Operon.

$1 \times 10 = 10$