



V.P. & R.P.T.P. SCIENCE COLLEGE
INTERNAL TEST
MICROBIOLOGY
USO5CMIC01
Fundamentals of molecular biology

DATE : 29/09/2018 (Saturday)

Time : 10:00 a.m to 12:00 p.m

Note: Figures on the right indicate marks

TOTAL MARKS : 50

Q-1: Attempt the following multiple choice questions:

(08)

- 1) Watson & Crick model of DNA is this form of DNA.

a) A-form	c) C-form
b) B-form	d) All of these
- 2) The width of DNA as proposed by Watson & Crick is :

a) 34 Å	c) 20 Å
b) 3.4 Å	d) 2 Å
- 3) Telomerase is an example of :

a) RNA dependent RNA polymerase	c) RNA dependent DNA polymerase
b) DNA dependent RNA polymerase	d) DNA dependent DNA polymerase
- 4) PCNA stands for:

a) Proliferating cell nuclear antibody	c) Polycyclic nuclear antigen
b) Polycyclic nuclear antibody	d) Proliferating cell nuclear antigen
- 5) Reverse gyrase is an example of :

a) Reverse transcriptase	c) Primase
b) Topoisomerase	d) None of these
- 6) The RNA polymerase coreenzyme from *E.coli* does not include this subunit.

a) α	c) β
b) ω	d) σ
- 7) Termination of translation in *E.coli* involves this factor.

a) EFG	c) IF1
b) TF3	d) RF1
- 8) This RNA is present on the small subunit of prokaryotic ribosome.

a) 5s rRNA	c) 5.8s rRNA
b) 16s rRNA	d) 23s rRNA

Q-2: Attempt the following questions. (Any 5)

(10)

- i) Draw the structure of ATP.
- ii) What do you mean by nucleosome and chromatosome.
- iii) Write the key sequences of strong promoters in *E.coli*.
- iv) Name two organisms having RNA replicase.
- v) Write two differences between DNA polymerase I & DNA polymerase III.
- vi) Write the contribution of:
 - (a) Arthur Kornberg
 - (b) De Lucia & Cairns
- vii) Write the reaction involved in stage I of protein synthesis in prokaryotes.
- viii) Explain any two posttranslational modifications of protein.



Q-3: 'DNA is a genetic material'. Justify by explaining various experiments. (08)

OR

Q-3: Write a note on tRNA and mRNA. (08)

Q-4: Explain the process of initiation & elongation of DNA replication in *E.coli*. (08)

OR

Q-4: Discuss: (a) Meselson & Stahl's experiment (04)

(b) Rolling circle model of DNA replication (04)

Q-5: Describe RNA splicing in detail. (08)

OR

Q-5: Write a note on lac operon. (08)

Q-6: Discuss salient features of genetic code. (08)

OR

Q-6: Describe initiation and elongation of protein synthesis in prokaryotes. (08)