

ATKT

2015-16

Date: 03/10/15

03/10/15 BIOTECHNOLOGY-III S.Y.B.Sc. SEM III EXAM MARKS 75 2 1/2 HRS. (70)

- All questions are compulsory.
- Draw diagram wherever necessary.

Q.1(A) Fill in the blanks. (Any four) (4)

1. The \_\_\_\_\_ enzyme catalyses DNA synthesis (RNA, DNA polymerase, Amylase).
2. The DNA polymerase have \_\_\_\_\_ exonuclease activity which permits proof reading during DNA synthesis when incorrect nucleotide is inserted. (3'-5', 5'-3', 4'-5')
3. In Messelson- Stahl experiment, a solution of \_\_\_\_\_ form a density gradient. (CsCl, FeCl<sub>3</sub>, NaOH)
4. \_\_\_\_\_ proteins bind to the single strand DNA for stabilizing a preventing it from reannealing (SSB, Glycoprotein, Lipoprotein).
5. The RNA primers are lengthened by \_\_\_\_\_ to synthesis new DNA strand during DNA replication. ( DNA polymerase I, DNA polymerase II, DNA polymerase III)
6. The new strand that is made in the direction opposite that of the movement of the replication fork is called the \_\_\_\_\_ strand. (Lagging, leading, template)
7. \_\_\_\_\_ enzyme is a form of topoisomerase which relaxes the tension produced in the DNA a head of the replication fork. (Gyrase, Helicase, Amylase)
8. DNA polymerase I removes RNA primer with its \_\_\_\_\_ activity. (5'-3' exonuclease, 5'-3' polymerase, 3'-5' polymerase)

Q.1(B) Explain the following terms. (any two). (4)

1. Conservative DNA Replication.
2. Semiconservative DNA Replication
3. Semi discontinuous DNA Replication.
4. Unidirectional DNA Replication.

Q.1(C) Answer any two of the following. (12)

1. Explain Messelson- Stahl experiment.
2. Explain the process of Initiation of DNA replication in E. coli.
3. Explain Rolling circle mode of DNA replication.
4. Explain the process of primer removing and fragment joining during DNA replication

Q.2. (I) State whether the following statements are true or false. (any two). (2)

1. Deamination is the process of removal of an amino group from a base.
2. In E. coli, alkylation damage can be repaired by an enzyme called O<sup>6</sup>- methylguanine methyltransferase which removes methyl group.
3. A common base analogy mutagen is 5-bromouracil.
4. In depurination, a pyrimidine either adenine or guanine is removed from the DNA.

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