

**M.S. IN BIOTECHNOLOGY (Applied
Biotechnology) (MSBOT)**

Term-End Examination

December, 2014

00224

MBOI-001 : MOLECULAR AND CELL BIOLOGY

Time : 3 hours

Maximum Marks : 100

Note :

- (i) *Section I is compulsory.*
- (ii) *In Section II, solve any five questions.*
- (iii) *Assume suitable data wherever required.*
- (iv) *Draw suitable sketches wherever required.*
- (v) *Italicized figures to the right indicate maximum marks.*

SECTION I

1. What is trombone model of DNA replication ?
How does it differ from semi-conservation
method of DNA replication ? 2+8
2. Describe the experiment of Hershey and Chase.
How does this experiment prove that DNA is
genetic material ? 5+5
3. Explain the molecular structure of double helix
model of DNA. 10

SECTION II

4. Describe Griffith's experiment. Give the molecular explanation of his experiment. 7+7
5. What is operon ? Describe the three types of operon. 5+9
6. Describe the role of Wnt signalling in cellular differentiation. 14
7. Describe the process of initiation, elongation and termination of protein synthesis in prokaryotes. 8+2+4
8. Identify the photosystem I and photosystem II in the Figure 1. Describe the light and dark reaction of photosynthesis. 2+12

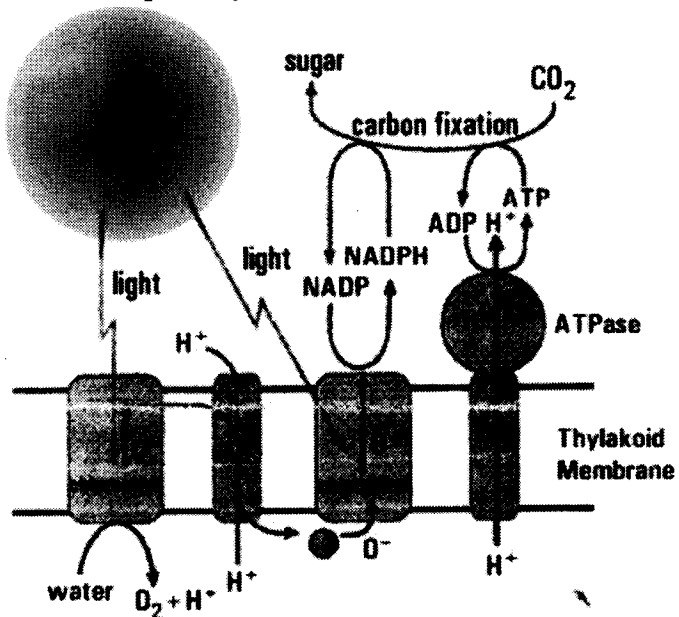


Figure 1

9. Label and describe the different phases and check-points in Figure 2. How do these check-points help in regulation of cell division? 10+4

Cell Cycle

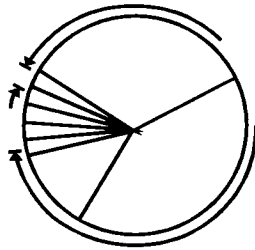


Figure 2
