

*Sem-I*  
Subject : Cell Biology

Day : Monday

Date : 12/10/2015



Time : 10.00 AM TO 01.00 PM

Max Marks : 60 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat diagrams **WHEREVER** necessary.

**SECTION-I**

**Q.1** Attempt any **FIVE** of the following: (10)

- a) Name the organelles other than nucleus where genetic material is present.
- b) Name two second messengers.
- c) What is role of oil immersion in microscope?
- d) Differentiate between desmosomes and hemidesmosomes.
- e) Enlist the cytoskeletal elements with diameters.
- f) Explain in brief cell theory.

**Q.2** Answer any **TWO** of the following: (10)

- a) Describe the structure and functions of Mitochondria.
- b) Describe the principle and working of Phase contrast microscope.
- c) Describe ultrastructure and functions of chloroplast.

**Q.3** Answer any **TWO** of the following: (10)

- a) Give a brief account of fluidity of membrane.
- b) Differentiate between passive and active transport.
- c) Explain in brief ion channels and their role in membrane transport.

**SECTION-II**

**Q.4** Attempt any **FIVE** of the following: (10)

- a) Enlist different stages of prophase-I in meiosis.
- b) What is mean by voltage gated channel?
- c) What is mean by caspases?
- d) Explain role of electron transport particles in mitochondria.
- e) Sketch and label of anaphase of Mitosis.
- f) Explain in brief about 'S' phase of cell cycle.

**Q.5** Answer any **TWO** of the following: (10)

- a) Explain in brief role of cdk and P53 in cell cycle regulation.
- b) Differentiate between Mitosis and Meiosis.
- c) Describe in brief process of spermatogenesis.

**Q.6** Answer any **TWO** of the following: (10)

- a) Explain the role of protein tyrosine Kinases in cell signaling.
- b) Explain the morphological changes occurring apoptic cell.
- c) Describe STAT pathway used for signaling by cytokinesis.

**Subject : Microbiology Basic and Applied**

Day : Wednesday

Date : 14/10/2015



Time : 10.00 AM TO 01.00 PM

Max Marks : 60 Total Pages : 1

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat diagrams **WHEREVER** necessary.

**SECTION-I****Q.1** Attempt any **FIVE** of the following: (10)

- a) Describe the structure of Gram positive cell wall.
- b) Write a short note on Archaea.
- c) Write different methods of cultivation of anaerobic bacteria.
- d) What are siderophore?
- e) Explain the mechanism of conjugation in bacteria.
- f) What is Ames Test? Explain its importance.

**Q.2** Answer any **TWO** of the following: (10)

- a) Explain nutritional classification of bacteria.
- b) What is passive transport of intake of nutrients? Explain different types of passive transport.
- c) Explain different steps involved in bacterial cell division.

**Q.3** Answer any **TWO** of the following: (10)

- a) What is sterilization in microbiology? Draw the structure of an autoclave and explain different types of sterilization techniques used in microbiology.
- b) Explain the principle and working of phase contrast microscope.
- c) Explain in detail DNA replication in bacteria.

**SECTION-II****Q.4** Attempt any **FIVE** of the following: (10)

- a) What is meant by co-immune bacteriophages?
- b) What are serotypes? Name different serotypes of adenoviruses.
- c) Explain the structure of TMV.
- d) What is submerged fermentation?
- e) Write industrial application of amylase.
- f) What are biofertilizers? Name different types.

**Q.5** Answer any **TWO** of the following: (10)

- a) Explain antigenic shift and drift in influenza virus.
- b) Explain in detail Baltimore system of classification of viruses.
- c) Explain lysogenic life cycle of  $\lambda$ -bacteriophages.

**Q.6** Answer any **TWO** of the following: (10)

- a) What is SSF? Explain different types of solid state fermenters.
- b) What are biopesticides? Explain in detail different types and its advantages.
- c) What are secondary metabolites? Explain its industrial application.

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