

Subject : Biological chemistry

Day : Saturday
Date : 01/04/2017



Time : 02.00 PM TO 05.00 PM
Max Marks : 60 Total Pages : 2

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to right indicate **FULL** marks.
- 3) Answer to the two sections should be written in **SEPARATE** answer books.

SECTION - I

Q.1 Answer the following: (06)

- i) Discuss the classification of enzymes briefly.

OR

- i) What is enzyme inhibition? Describe the various types of inhibition.
- ii) Describe the structure and function of starch in biological system. (04)

Q.2 Write a short note (**ANY FOUR**) (12)

- i) Water soluble vitamins and their importance in health.
- ii) Omega-3-fattyacids.
- iii) Chitin and cellulose as structural polymers.
- iv) Non cyclic photophosphorylation.
- v) T3 and T4 hormones.

Q.3 Answer the following in brief (**ANY THREE**) (09)

- i) What are C4 plants?
- ii) What happens in a genetic defect of Urea Cycle?
- iii) Draw Structures of the following
a) Phenylalanine b) Lysine c) Galactose d) N-Acetyl Glucosamine
- iv) How is galactose and lactose metabolized?

SECTION - II

Q.4 Answer the following in brief (**ANY THREE**) (09)

- i) What are phospholipids? What is their importance?
- ii) Write a note on Vit B12 deficiency and its consequences.
- iii) Write a short note on peroxisomes.
- iv) What are the differences between Cellulose and Starch

(P.T.O.)

Q.5 Answer the following (06)

- i) What are waxes? Discuss their industrial applications.

OR

- ii) Explain secondary structure of protein in brief.
iii) Which are the regulatory steps of glycolysis? Explain these steps in brief. (04)

Q.6 Answer the following in one or two sentences each (10)

- i) What is unique about CAM plants?
ii) What is the result of arginosuccinase deficiency in N_2 metabolism?
iii) Which reaction links TCA with Urea Cycle?
iv) Name the mobile electron carrier in Electron Transport Chain.
v) When proteins are marked for destruction which molecule is tagged to them?
vi) Which are the donor and acceptor molecules in subtract level phosphorylation.
vii) Name the coenzymes of pyruvate dehydrogenase complex.
viii) What do you understand by rancidity of oils?
ix) Name the amino acids that are components of plant cell wall.
x) How is ATP generated in chloroplast and mitochondria?

Subject : Cell Biology

Day : Monday

Date : 03/04/2017



Time : 02.00 PM TO 05.00 PM

Max Marks : 60 Total Pages : 1

N.B.:

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

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

- a) What is plasmodesmata?
- b) Write in brief about cell theory.
- c) Define refractive index and focal length.
- d) Give characteristics of transformed cells.
- e) What is function of P53?
- f) Differentiate between desmosomes and hemidesmosomes.

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

- a) Describe the structure and functions of microtubule.
- b) Describe the principle and working of scanning electron microscope.
- c) Describe the ultra-structure of nucleus.

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

- a) Discuss the salient features of fluid mosaic model.
- b) Differentiate between active and passive transport.
- c) Explain in brief about receptor mediated endocytosis.

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

- a) What is mean by gametogenesis?
- b) What is role of 'S' phase in cell cycle?
- c) Define apoptosis and necrosis.
- d) What is mean by ligand gated channel?
- e) Sketch and label metaphase of mitosis.
- f) What is role of F_1 particle in mitochondria?
- g) What is mean by connexon?

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

- a) Differentiate between mitotic and meiotic cell division.
- b) What is cdk? Explain their role in cell cycle regulation.
- c) Describe in brief about prophase-I of meiosis.

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

- a) Discuss the phosphatidylinositol pathway employed for signal transduction.
- b) Discuss the role of protein tyrosine kinases in cell signaling.
- c) What is apoptosis? Describe the morphological changes occur in apoptic cell.

Subject : Microbiology Basic and Applied

Day : Tuesday

Date : 04/04/2017



34751

Time : 02.00 PM TO 05.00 PM

Max Marks : 60 Total Pages : 2

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.**
- 2) Attempt any **TWO** questions from Q. No. 2, 3 and 4.
- 3) Attempt any **TWO** questions from Q. No. 6, 7 and 8.
- 4) Answer to both the sections should be written in **SEPARATE** answer book.
- 5) Draw labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q. 1** Explain in detail : **(10)**
- a) Different methods used for cultivation of anaerobes.
 - b) Structure of Gram positive and Gram negative cell wall.
 - c) Griffith's experiment.
 - d) Specialized transduction.
- Q.2** Explain in detail: **(10)**
- a) Characteristic features of archaea.
 - b) Nutritional classification of bacteria.
 - c) Applications of fluorescent microscope.
 - d) Chemical methods of sterilization.
- Q.3** Elaborate on : **(10)**
- a) Different mechanisms present in microorganisms to inactive reactive oxygen species.
 - b) Different steps involved in bacterial cell division.
 - c) Principle and applications of dark field microscopy.
 - d) Mutation repair in bacteria.
- Q.4** Write short notes on : **(10)**
- a) Characteristic features of fungi
 - b) Pattern of microbial death
 - c) Conjugation
 - d) Applications of transmission electron microscopy

P. T. O.

SECTION- II

- Q.5** Explain in detail: (10)
- a) Baltimore system of classification of viruses with suitable examples.
 - b) Structure of typical fermenter. Add a note on batch and continuous fermentation.
- Q.6** Explain in brief: (10)
- a) Life cycle of an animal virus with suitable example.
 - b) Steps involved in production of biofertilizers.
 - c) Difference between primary and secondary metabolites.
 - d) Production of alcohol.
- Q.7** Answer the following: (10)
- a) Different methods used for viral cultivation.
 - b) What is solid state fermentation? Add a note on its advantages over submerged fermentation.
 - c) What is the meaning of term "serotype".
 - d) Differentiate between chemical pesticides and biopesticides. Give suitable examples.
- Q.8** Elaborate on: (10)
- a) Lysogenic and lytic life cycle of bacteriophage.
 - b) Industrial applications of thermophiles and psychrophiles.

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