

Subject : Environment Biotechnology

Day : Saturday

Date : 01/04/2017

**34735**

Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Drawn neat diagrams **WHEREVER** necessary.
- 4) Answer to both the sections should be written in the **SAME** answer book.

SECTION-I

- Q.1 A)** Attempt **ANY ONE** of the following: (06)
- i) Name the significant of biotic and abiotic factors of forest ecosystem.
 - ii) Give the concept of biodiversity and discuss need for its conservation.
- B)** Attempt **ANY TWO** of the following: (10)
- i) What is biogeochemical cycle? Explain any one of the cycle.
 - ii) Discuss the problems related to climate change.
 - iii) Enlist various methods of wildlife management.
- Q.2** Attempt **ANY FOUR** of the following: (16)
- a) What is the significance of sustainable development?
 - b) Mention the composition of lithosphere.
 - c) Discuss the reasons of depletion of natural resources.
 - d) What is the ecological significance of biodiversity.
 - e) Name various water resources with the characteristic features.

SECTION-II

- Q.3 A)** Attempt **ANY ONE** of the following: (06)
- i) Give significance of COD
 - ii) What is pollution? Give the classification of pollutants.
- B)** Attempt **ANY TWO** of the following: (10)
- i) Define air pollution. Briefly describe the effects on human health.
 - ii) Discuss the impact of water pollution on human health.
 - iii) Give sources of soil pollution and its effects.
- Q.4 A)** Attempt **ANY ONE** of the following: (06)
- i) Define bioremediation. Explain with the examples of oil-spill removal.
 - ii) Mention the sources of solid waste generation and its management.
- B)** Attempt **ANY TWO** of the following: (10)
- i) What are biosensors? Mention their environmental applications.
 - ii) State advantages of composting methods of solid waste disposal.
 - iii) Discuss the effects of noise pollution on human health.
- Q.5** Attempt **ANY FOUR** of the following: (16)
- a) Biomedical waste disposal
 - b) Eutrophication process
 - c) Toxic site reclamation
 - d) Protection from radiation
 - e) Disposal of radioactive waste
 - f) Biomass

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Subject : Microbiology - II

Day : Thursday

Date : 06/04/2017



34736

Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 1

N.B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Draw diagram **WHEREVER** necessary.

SECTION-I

- Q.1 A) Attempt **ANY ONE** of the following : (06)
- a) Describe lytic cycle of reproduction in bacteriophages.
 - b) Explain Bernard Davis U tube experiment for bacterial conjugation.
- B) Attempt **ANY TWO** of the following : (10)
- a) Discuss cultivation of viruses using embryonated eggs.
 - b) Describe the process of transformation in bacteria.
 - c) Explain Baltimore classification of viruses.
- Q.2 Write short notes on **ANY FOUR** of the following : (16)
- a) Icosahedral capsid in viruses
 - b) Hfr conjugation
 - c) Fertility factor
 - d) Generalized transduction
 - e) Detection of viral growth in cell culture

SECTION-II

- Q.3 A) Attempt **ANY ONE** of the following : (06)
- a) Explain morphological and antigenic characteristics of *Salmonella typhi*.
 - b) Explain microbe-animal interaction with respect to rumen.
- B) Answer **ANY TWO** of the following : (10)
- a) Describe pathogenesis and laboratory diagnosis of Cholera.
 - b) Explain various stages in development of AIDS.
 - c) Define extremophiles? Give its applications.
- Q.4 Attempt **ANY FOUR** of the following : (16)
- a) Give an account on bacterial pneumonia.
 - b) What are probiotics? Mention its significance in human health.
 - c) Describe structure of influenza virus.
 - d) Describe PCR polymerases.
 - e) Explain treatment of tuberculosis.
- Q.5 Write short notes on **ANY FOUR** of the following : (16)
- a) Widal test
 - b) Urinary tract infection
 - c) HBs Ag
 - d) Mycorrhizae
 - e) Structure of Human Immuno deficiency Virus

Subject : Biochemistry - II

Day : Saturday

Date : 08/04/2017



Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat structures and diagrams **WHEREVER** necessary.

SECTION-I

- Q.1 A)** Attempt **ANY ONE** of the following: (06)
- i) Draw the structure of ATP and explain the various factors involved in its dissociation stabilization.
 - ii) What are regulatory enzymes? Describe the various mechanisms for the regulation of enzyme activity.
- B)** Attempt **ANY TWO** of the following: (10)
- i) Describe the reactions of the TCA cycle along with its energetics.
 - ii) What are reversible and irreversible inhibitors? Explain the various types of reversible inhibitors.
 - iii) Explain the dark reactions of photosynthesis.
- Q.2** Write short notes on **ANY FOUR** of the following: (16)
- i) Factors affecting enzyme activity.
 - ii) NAD and FAD as biological redox agents.
 - iii) Lipoproteins and their clinical significance.
 - iv) Cyclic photophosphorylation.
 - v) High energy compounds.

SECTION-II

- Q.3 A)** Attempt **ANY ONE** of the following: (06)
- i) Explain the formation of ketone bodies and its clinical significance.
 - ii) Describe the hormonal regulation of carbohydrate metabolism.
- B)** Attempt **ANY TWO** of the following: (10)
- i) Describe the chemiosmotic hypothesis.
 - ii) Explain the various steps of the Urea cycle.
 - iii) Discuss the β -oxidation of saturated fatty acids containing odd number of carbon atoms with suitable example.
- Q.4** Write short notes on **ANY FOUR** of the following: (16)
- i) Kreb's bicycle.
 - ii) Carnitine shuttle.
 - iii) Structure of ATP synthase.
 - iv) Role of transaminases and deaminases in amino acid metabolism.
 - v) Uncouplers of ETC.
- Q.5** Answer **ANY EIGHT** in one or two sentences: (16)
- i) List four ways of electron transfer in biological systems.
 - ii) Differentiate between photophosphorylation and oxidative phosphorylation.
 - iii) What are CAM plants? Give two examples.
 - iv) What is active site of an enzyme?
 - v) Differentiate between endergonic and endothermic reactions.
 - vi) What is the difference between coenzymes and prosthetic groups?
 - vii) List two ketogenic amino acids with their structures.
 - viii) Name the enzymes of glycogenesis.
 - ix) What are essential and non-essential amino acids? Give two examples.

Subject : Molecular Biology - II

Day : Tuesday

Date : 04/04/2017



34739

Time : 10.00 AM TO 01.00 PM

Max Marks : 80 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams wherever necessary.
- 4) Attempt section-I and section-II in separate answers sheet.

SECTION-I

- Q.1** Attempt **ANY TWO** of the following (16)
- i) Explain enzymology of DNA replication in prokaryotes.
 - ii) Differentiate between prokaryotic and eukaryotic DNA replication.
 - iii) Describe various features of DNA replication.
 - iv) What are the reasons of DNA damage? Write the role of following in DNA repair
 - i) UVr A,B,C,D,
 - ii) Mut H,S,L, and Y,
- Q.2** Write short notes on **ANY FOUR** of the following (16)
- a) Replisome
 - b) Okazaki Fragments
 - c) Nucleosome replication
 - d) Priming Reactions
 - e) Base Excision Repair
 - f) Photoreactivation

SECTION-II

- Q.3** A) Attempt **ANY ONE** of the following (6)
- a) Differentiate between prokaryotic and eukaryotic translation.
 - b) Explain Holoenzyme.
 - c) Explain tryptophan operon
- B) Attempt **ANY TWO** of the following (10)
- a) Explain post transcriptional modification t RNA.
 - b) Explain preinitiation complex.
 - c) Write down the role of sigma factor in prokaryotic transcription.
- Q.4** Answer **ANY FOUR** of the following (16)
- a) Differentiate between prokaryotic and eukaryotic ribosome.
 - b) Why tRNA is called as adaptor molecules.
 - c) Draw transcription bubble.
 - d) Differentiate between prokaryotic and eukaryotic transcriptional factors.
- Q.5** Write short notes on **ANY FOUR** of the following (16)
- a) Cis Acting Elements
 - b) Prokaryotic Promoter
 - c) Elongation Factors
 - d) mRNA Splicing
 - e) Aminoacyl t RNA Synthetase
 - f) Shine Dalgarno Sequences
 - g) Translocation
 - h) ρ - dependent Termination