

Subject : Botany

Day : Monday

Date : 03/04/2017



34729

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) Both the sections should be written in **SEPARATE** answer books.

SECTION-I

- Q.1 A) Attempt **ANY ONE** of the following: (06)
 i) Give types of modes of nutrition observed in plant kingdom.
 ii) Describe harmful activities of fungi.
- B) Attempt **ANY TWO** of the following: (10)
 i) Give biotechnological significance of algae.
 ii) Explain alternation of generation in *Riccia*.
 iii) Describe different forms of the lichen with suitable examples.
- Q.2 Attempt **ANY FOUR** of the following: (16)
 a) Give salient features of pteridophytes.
 b) Distinguish between algae and fungi.
 c) Outline of life cycle of *Aspergillus*.
 d) Internal structure of *Riccia*.
 e) Biotechnological significance of gymnosperms.

SECTION-II

- Q.3 A) Attempt **ANY ONE** of the following: (06)
 i) Define the flower? Describe the parts of a typical flower.
 ii) Explain general organization of plant body.
- B) Attempt **ANY TWO** of the following: (10)
 i) Define fruit and give major types.
 ii) Give anatomical difference between monocot and dicot plant.
 iii) Explain anatomical characters used for identification of wood.
- Q.4 Attempt **ANY FOUR** of the following: (06)
 a) What is phytochrome? Give its various physiological roles.
 b) Give systematic position of *Selaginella*.
 c) Explain a process and types of seed germination.
 d) Give application of anatomy in pharmacognosy. (10)
 e) What is double fertilization? Give its significance.
 f) Give types of plant tissue with suitable examples.
- Q.5 Attempt **ANY FOUR** of the following: (16)
 a) Seed dormancy.
 b) Cytokines.
 c) Polyembryony.
 d) Essential whorls of flowers.
 e) Significance of inflorescence.
 f) Types of vascular bundles.

Subject : Zoology

Day : Tuesday

Date : 04/04/2017



34730

Time : 02.00 PM TO 05.00 PM

Max Marks : 80 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** **A)** Attempt any **ONE** of the following: (06)
- i) Describe the life cycle of *Entamoeba histolytica*.
 - ii) Describe the life cycle of *Plasmodium vivax* in man.
- B)** Attempt any **TWO** of the following: (10)
- i) Describe the histological structure of testis in rat.
 - ii) Describe the structure of pancreas and add a note on its functions.
 - iii) Describe the role of growth hormone (GH) and add a note on feed back mechanism.
- Q.2** **A)** Attempt any **FOUR** of the following: (16)
- i) Explain female reproductive organs in earthworm.
 - ii) What is excretion? Describe the structure of septal nephridium.
 - iii) Describe in brief alimentary canal of earthworm.
 - iv) Explain in brief significance of classification.
 - v) Describe the external morphology of paramecium with neat labelled diagram.
 - vi) Explain locomotion in paramecium.

SECTION-II

- Q.3** **A)** Attempt any **ONE** of the following: (06)
- i) Describe structure of uriniferous tubule and explain in brief physiology of urine formation.
 - ii) Describe digestive system of rat and add a note on digestion in stomach.
- B)** Attempt any **TWO** of the following: (10)
- i) Describe anterior arterial system of rat.
 - ii) Describe in brief the structure of brain of rat.
 - iii) State the functions of liver of rat.
- Q.4** Attempt any **FOUR** of the following: (16)
- i) Describe in brief economic and ecological importance of vermicomposting for garden and agriculture.
 - ii) Describe economic importance of honey and wax.
 - iii) Describe the role of estrogen and progesterone.
 - iv) Describe the structure of pituitary gland.
 - v) Explain role of TSH and ACTH.
 - vi) Describe feed back mechanism in hormone secretion.
- Q.5** Attempt any **FOUR** of the following: (16)
- i) Describe in brief applications of poultry industry.
 - ii) Explain importance of fish as a food.
 - iii) Describe Tasar and Muga species of silk worm.
 - iv) Describe biological control in fish farming.
 - v) Explain in brief socio-economic relevance in livestock industry.
 - vi) Explain milk as a complete food.

Subject : Biophysical Chemistry

Day : Wednesday

Date : 05/04/2017



34731

Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 2

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 diagrams or structures **WHEREVER** necessary.

SECTION-I

Q.1 A) Attempt any **ONE** of the following: (06)

- i) What are photosystems? Explain in length their role in photosynthesis.
- ii) Describe the various forces stabilizing molecular structure with suitable examples.

B) Attempt any **TWO** of the following: (10)

- i) Write note on Lowering vapor pressure.
- ii) What are colloids? Give the classification and properties of colloids.
- iii) Describe oxidation and reduction reactions in TCA cycle.

Q.2 Write note on any **FOUR** of the following: (16)

- i) Antioxidants
- ii) Electrolysis
- iii) Gas Laws
- iv) Blood buffers
- v) Water as an universal solvent.

SECTION-II

Q.3 A) Attempt any **ONE** of the following: (06)

- i) Explain the role of kidneys and lungs in pH regulation.
- ii) Write a note on Gibbs free energy and its significance.

B) Attempt any **TWO** of the following: (10)

- i) Write a note on elevation of boiling point.
- ii) Define free radicals and discuss their role in ageing.
- iii) Explain osmosis and also state how it differs from diffusion citing suitable example for each.

Q.4 Write notes on any **FOUR** of the following: (16)

- i) Brownian motion
- ii) Carbon dating
- iii) Oswald's viscometer
- iv) Electrolytic conductance
- v) Criteria of a good buffer

P.T.O.

Q.5 Attempt any **EIGHT** of the following:

(16)

- i) Differentiate between ideal gas and real gas.
- ii) Explain hypertonic and isotonic solution.
- iii) Define half-life of isotopes.
- iv) State third law of thermodynamics.
- v) Describe applications of bio-surfactants.
- vi) Explain transition in elasticity.
- vii) What are the constituents of cell membrane?
- viii) State the role of saturated KCl in pH meter.
- ix) How strong electrolyte differs from weak electrolyte?
- x) Define the terms – Acid, base and buffer.

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