

Sem. I
Subject : Botany

Day : Monday
Date : 04/04/2016



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 the outline of general classification of the plant kingdom.
ii) Distinguish between algae and fungi.
- B) Attempt **ANY TWO** of the following: (10)
i) Give classification of algae according to G. M. Smith.
ii) Describe internal structure of *Riccia* thallus.
iii) Explain morphological features of *Selaginella*.
- Q.2 Attempt **ANY FOUR** of the following: (16)
a) Concept of plant diversity
b) Concept of binominal nomenclature
c) Diversity in habit and habitat of the plant
d) Structure of typical flower
e) Morphological characters of stem
f) Asexual reproduction in *Aspergillus*

SECTION-II

- Q.3 A) Attempt **ANY ONE** of the following: (06)
i) Distinguish between bryophytes and pteridophytes.
ii) Explain general organization of plant body.
- B) Attempt **ANY TWO** of the following: (10)
i) What is an inflorescence? Describe their types of racemose inflorescence.
ii) Explain concept of seed dormancy.
iii) What is aggregate fruit? Describe its type of with suitable example.
- Q.4 Attempt **ANY FOUR** of the following: (06)
a) Give application of anatomy in pharmacognosy.
b) Explain the process of phloem transport.
c) Give type of plant tissues with suitable examples.
d) Describe structure of dicot seed with suitable examples. (10)
e) Give types of flower based on symmetry.
f) What is salinity stress? How does plants overcome it?
- Q.5 Attempt **ANY FOUR** of the following: (16)
a) Concept of alternation of generation.
b) Wood identification
c) Apomixes
d) Photoperiodism
e) Apocarpy
f) Syconus fruit

Subject : Zoology

Day : Tuesday

Date : 05/04/2016



Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 1

N.B.:

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- 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 *Taenia solium* in man.
 - ii) Describe the life cycle of *Entamoeba histolytica*.
- B)** Attempt any **TWO** of the following: (10)
- i) Describe the histological structure of ovary.
 - ii) Describe the function's of liver in rat.
 - iii) Describe the role Estrogen and Progesterone.
- Q.2** **A)** Attempt any **FOUR** of the following: (16)
- i) Describe the digestive system of earthworm.
 - ii) Describe the process of copulation and cocoon formation in earthworm.
 - iii) Describe central nervous system of earthworm.
 - iv) Explain in brief five kingdom approach of classification.
 - v) Describe binnary fission in paramecium.
 - vi) What is cyclosis? Explain the process of cyclosis in *Paramecium*.

SECTION-II

- Q.3** **A)** Attempt any **ONE** of the following: (06)
- i) Describe respiratory tract of rat and add a note on mechanism of respiration.
 - ii) Describe the internal structure of heart of rat.
- B)** Attempt any **TWO** of the following: (10)
- i) Describe female reproductive system of rat.
 - ii) Describe habits, habitat and sexual dimorphism of rat.
 - iii) Describe excretory system of rat.
- Q.4** Attempt any **FOUR** of the following: (16)
- i) Describe wild species of honey bees.
 - ii) Describe usefulness of vermiculturing in agro industries.
 - iii) Explain the role of honey bees in pollination.
 - iv) Describe the role of insulin and glucagon.
 - v) Describe the hormones secreted by neurohypophysis.
 - vi) Explain impact of hormones on different physiological processes.
- Q.5** Attempt any **FOUR** of the following: (16)
- i) Explain in brief socio- economic relevance in livestock industry.
 - ii) Explain in brief importance of dung and urine.
 - iii) Write note on food value of chicken and eggs.
 - iv) Write brief note on fish preservation methods.
 - v) Write note on poultry feed and vaccination.
 - vi) Describe different types of silk worms.

Subject : Biophysical Chemistry

Day : Wednesday

Date : 06/04/2016



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) Explain the reaction that occurs in RBC's when blood circulates through tissue and lungs.
- ii) Describe the oxidation and reduction reactions in TCA cycle.

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

- i) Explain change in vapour pressure for depression in freezing point.
- ii) Explain applications of isotopes in health and agriculture.
- iii) Explain hydrophilic and hydrophobic interactions.

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

- i) Role of charges in movement
- ii) Surface tension
- iii) Spontaneous process
- iv) Order of reaction
- v) Specific gravity.

SECTION-II

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

- i) Write a note on Gibbs free energy and its significance.
- ii) Explain effect of temperature and pressure on interfacial tension.

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

- i) State and explain First law of thermodynamics.
- ii) Write a note on density gradient centrifugation.
- iii) Explain spontaneity of a process on the basis of entropy.

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

- i) Vapour pressure
- ii) Dialysis
- iii) Colloidal systems
- iv) Faraday's law of electrolysis
- v) Biosensors.

P.T.O.

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

(16)

- i) State Avagadro's law.
- ii) Define the term – Zwitter ion.
- iii) Explain dielectric constant with examples.
- iv) Describe dissociation constant of weak electrolyte.
- v) Role of reducing agents in photosynthesis.
- vi) Describe applications of bio-surfactants.
- vii) Define hydrogen bonding.
- viii) State role of saturated KCl in pH meter.
- ix) Properties of colloids.
- x) Note- stabilizing forces of molecular structures.

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