

Subject : Botany

Day : Monday

Date : 10/10/2016



31421

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) Answer to both the sections should be written in **SEPARATE** answer book.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1 A)** Answer any **ONE** of the following: (06)
- i) Give various types of mode of nutrition observed in plant kingdom.
 - ii) Describe different forms of lichen with suitable examples.
- B)** Attempt any **TWO** of the following: (10)
- i) Explain the concept of binomial nomenclature.
 - ii) Describe external structure of *Riccia* thallus.
 - iii) Distinguish between dicotyledons and monocotyledons.
- Q.2** Write short notes on any **FOUR** of the following: (16)
- a) Give general characteristics of algae
 - b) Describe asexual reproduction in *Aspergillus*.
 - c) Describe structure of strobilus in *Selaginella*.
 - d) Give economic importance of gymnosperms
 - e) Describe structure of typical leaf.

SECTION-II

- Q.3 A)** Answer any **ONE** of the following: (06)
- i) Define flower and describe structure of typical flower.
 - ii) Describe development of female gametophyte in angiosperms.
- B)** Attempt any **TWO** of the following: (10)
- i) What is fruit? Give its major types.
 - ii) Describe types and function of plant tissues.
 - iii) Describe process and types of seed germination.
- Q.4** Attempt any **FOUR** of the following: (16)
- a) Describe types of endosperms in angiosperms.
 - b) Give major types of inflorescence.
 - c) What is polyembryony? Give its types.
 - d) Explain the concept of seed dormancy.
 - e) Explain the significance of inflorescence.
- Q.5** Write short notes on any **FOUR** of the following: (16)
- a) Photoperiodism
 - b) Wood identification
 - c) Symbiotic nitrogen fixation
 - d) Role of auxins
 - e) Development of male gametophyte

Subject : Zoology

Day : Thursday
Date : 13/10/2016



Time : 02.00 PM TO 05.00 PM
Max Marks : 80 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
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SECTION-I

- Q.1 A)** Answer any **ONE** of the following: (06)
- i) Describe the life cycle of *Plasmodium vivax* in man.
 - ii) Describe the life cycle of *Taenia solium* in man.
- B)** Answer any **TWO** of the following: (10)
- i) Describe in detail female sex hormones in mammals.
 - ii) Describe the ultrastructure of ovary.
 - iii) Describe the steps of digestion in small intestine.
- Q.2** Write short notes on any **FOUR** of the following: (16)
- i) Describe nerve ring and nerve cord in earthworm.
 - ii) Describe intestinal blood vascular system in earthworm.
 - iii) Explain female reproductive organs in earthworm.
 - iv) Explain five kingdom approach of classification.
 - v) Describe the process of cyclosis in paramecium.
 - vi) Explain the mechanism of conjugation in paramecium.

SECTION-II

- Q.3 A)** Answer any **ONE** of the following: (06)
- i) Describe internal structure of heart of rat.
 - ii) What is respiration? Explain respiratory tract of rat.
- B)** Answer any **TWO** of the following: (10)
- i) Explain the excretory system of rat.
 - ii) Describe different types of Leucocytes (WBCs) in blood of rat.
 - iii) Explain associated digestive glands in rat.
- Q.4** Answer any **FOUR** of the following: (16)
- i) Describe usefulness of vermiculturing in garden and agriculture.
 - ii) Describe different species of honey bees.
 - iii) Explain honey bee is an important pollinator.
 - iv) Describe the structure of pituitary gland.
 - v) Describe role of oxytocin and ADH.
- Q.5** Write short notes on any **FOUR** of the following: (16)
- i) Explain in brief role of dung and urine as a bio-fertilizer.
 - ii) Explain importance of fish and its products.
 - iii) Explain milk as a complete food.
 - iv) Describe Muga, Tasar and mulberry silk worms.
 - v) Describe different vaccines used in poultry industry.
 - vi) Explain importance of livestock industry.

Subject : Biophysical Chemistry

Day : Friday

Date : 14/10/2016



Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 2

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 book.
- 4) Draw neat diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** A) Attempt any **ONE** of the following: (06)
- i) Photosynthesis is a reductive process. Explain.
 - ii) Describe redox potential and explain its effect on flow of electrons with suitable example.
- B) Attempt any **TWO** of the following: (10)
- i) Discuss the organization of lipids, proteins and carbohydrates in cell membrane.
 - ii) Describe the elevation of boiling point.
 - iii) Explain the functions of plasma in a cell.
- Q.2** Write short notes on any **FOUR** of the following: (16)
- a) Osmotic pressure
 - b) Antioxidants
 - c) Depression in freezing point
 - d) Cell as a unit of life
 - e) Forces stabilizing molecular structure

SECTION-II

- Q.3** A) Attempt any **ONE** of the following: (06)
- i) What are colloids? Classify them and elaborate on their properties.
 - ii) Explain the phenomenon of ultrafiltration and mechanism involved in dialysis.
- B) Attempt any **TWO** of the following: (10)
- i) Define free radicals and discuss their role in aging.
 - ii) What is electrolytic conductance? What are the factors affecting it?
 - iii) Define half-life and explain the applications of radioactive isotopes.

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

- a) Brownian motion
- b) Carbon dating
- c) Significance of Gibb's free energy
- d) Biological buffers
- e) Water an universal solvent

Q.5 Attempt any **EIGHT** of the following: (16)

- a) Define Zwitter ions and give two examples.
- b) Differentiate between ideal and real gases.
- c) What is dielectric constant?
- d) State the role of saturated KCl in pH meter.
- e) State and explain second Law Thermodynamics.
- f) State two properties of colloids.
- g) Name two applications of isotopes in agriculture.
- i) Explain isothermal and adiabatic process.
- j) State the effect of temperature on interfacial tension.

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