

ACHOLA-I (CBCS): WINTER- 2015  
SUBJECT: MEDICAL BIOCHEMISTRY

Day: Saturday  
Date: 10-10-2015

Time: 10:00 AM TO 1:00 P.M.  
Max. Marks: 60

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 the **SEPARATE** answer books.

**SECTION-I**

**Q.1** Answer the following:

- a) Describe 5 isoenzymes of LDH. (05)

**OR**

- a) What is the significance of SGOT and SGPT in diagnosis of liver disorders?
- b) Enlist the factors on which bioavailability of vitamins is dependent. (05)

**Q.2** Write a short note on **ANY THREE** of the following: (12)

- a) Fatty liver
- b) Vitamin B<sub>12</sub>- its importance in health
- c) Acidosis and Alkalosis
- d) Urea cycle

**Q.3** Answer **ANY TWO** of the following in brief: (08)

- a) Describe the mechanism of action of steroid hormone.
- b) Describe the composition and functions of different lipoproteins.
- c) Discuss the importance of radioisotopes in medicine.

**SECTION-II**

**Q.4** Answer the following:

- a) Illustrate the structure of hemoglobin and its positive Co-operativity. (06)

**OR**

- a) Explain the biomedical implications of hemoglobin and myoglobin.
- b) Describe the types and functions of Plasma Proteins. (04)

**Q.5** Differentiate between: (10)

- a) Fat soluble and water soluble Vitamins.
- b) Insulin and Glucagon.

**Q.6** Answer very briefly (**ANY FIVE**): (10)

- a) What is hormone sensitive lipase?
- b) Why is ammonia toxic?
- c) What are the deficiency manifestations of vitamin C.
- d) What are the specialized products of tryptophan?
- e) Give two applications of chromatography.

**ACHOLA-I (CBCS) : WINTER 2015**  
**SUBJECT : HUMAN PHYSIOLOGY**

Day : **Monday**  
Date : **12-10-2015**

Time : **10:00 AM TO 1:00 PM.**  
Max. Marks : 60.

**N.B.:**

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**.
- 2) Attempt any **TWO** questions from Q. No. 2, 3, & 4 and any **TWO** questions from Q. No. 6, 7, & 8.
- 3) All questions carry **EQUAL** marks.
- 4) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION-I**

- Q.1** Attempt any **FIVE** of the following: (10)
- a) State components and functions of gastric juice.
  - b) State effects of stimulation of parasympathetic system on heart.
  - c) Enlist any four functions of cerebellum.
  - d) Classify neurotransmitters.
  - e) State actions of testosterone.
  - f) Enumerate the muscles of respiration and state function of diaphragm.
- Q.2** Attempt the following: (10)
- a) Describe origin and spread of cardiac impulse.
  - b) Describe hormonal control of menstrual cycle.
- Q.3** Attempt the following: (10)
- a) What is elastin? How are elastic fibers organized?
  - b) Describe steps in contraction of skeletal muscle.
- Q.4** Write notes on any **TWO** of the following: (10)
- a) Waves of ECG in Lead II.
  - b) Physiological basis of Respiratory distress syndrome in a newborn baby.
  - c) Sacrotubular system of skeletal muscle.

**SECTION-II**

- Q.5** Attempt the following: (10)
- a) Classify hormones. Describe mechanism of action of steroid hormones.
  - b) Describe role of different parts of nephron in reabsorption of water.
- Q.6** Write notes on any **TWO** of the following: (10)
- a) Describe various methods of collection of blood. Add a note on anticoagulants.
  - b) Describe digestion of carbohydrates by Gastro intestinal tract.
  - c) Describe liver function tests.
- Q.7** Attempt the following: (10)
- a) Describe ideal method of collection of urine. What are characteristics of normal urine?
  - b) What is Glomerular filtration rate? Describe the factors affecting GFR.
- Q.8** What is malnutrition? Explain protein energy malnutrition. (10)

**OR**

Describe the proximate principals of diet.

Day: Wednesday  
Date: 14-10-2015

Time: 10:00AM-TO1:00PM.  
Max. Marks: 60

**N.B.:**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY** Out of remaining attempt any **TWO** questions from **Q. No. 2, 3, 4** and any two questions from **Q. No. 6, 7, 8.**
- 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** Answer any **TWO** of the following: (10)
- a) Enlist various culture media and explain types of special media with suitable examples.
  - b) Explain various methods of Isolation of bacteria in pure culture with suitable examples.
  - c) With the help of suitable diagram, write the principle and applications of Electron microscope.
- Q.2** Answer the following questions: (10)
- a) Differentiate between Exotoxin and Endotoxin.
  - b) Describe sterilization by radiation.
- Q.3** Answer the following: (10)
- a) What is anaerobiosis? Explain anaerobiosis with the use of Mc-Intosh Fildes jar.
  - b) Describe the biochemical tests based on Sugar utilization.
- Q.4** Write short notes on: (10)
- a) Contributions of Robert Koch.
  - b) Extra cellular features of bacteria.

#### SECTION-II

- Q.5** Answer any **TWO** of the following: (10)
- a) What are nosocomial infections? Explain with suitable examples.
  - b) What are fungi? Elaborate classification fungi with suitable examples.
  - c) Explain diagnostic methods of haemoparasites.
- Q.6** Briefly describe: (10)
- a) Describe virus cultivation methods.
  - b) Describe recent diagnostic techniques in microbiology.
- Q.7** Write short notes on: (10)
- a) Immunological diagnostic techniques
  - b) Diagnosis of parasites in stool
- Q.8** Briefly describe: (10)
- a) Processing of urine sample.
  - b) Carriers



**ACHOLA- I (CBCS): WINTER – 2015**  
**SUBJECT: MOLECULAR BIOLOGY**

Day: Friday  
Date: 16-10-2015

Time: 10:00AM TO 1:00 P.M.  
Max. Marks: 60

**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 the **SEPARATE** answer books.

**SECTION - I**

- Q.1** Define the following (**Any FIVE**) (10)
- a) Bipartite promoter.
  - b) Satellite DNA sequence.
  - c) C – value paradox.
  - d) Interrupted and un-interrupted genes.
  - e) Photoreactivation
  - f) Activator
- Q.2** Answer **ANY TWO** of the following: (10)
- a) Explain the structure and function of centromere.
  - b) Explain the role of Lex A and Rec A proteins in DNA repair.
  - c) Explain the D – Model for resolution of homologous recombination.
- Q.3** Write short notes on **ANY TWO** of the following: (10)
- a) Role of epigenetics in human disease
  - b) Licensing factor in eukaryotes
  - c) Role of DNA polymerase I in replication and repair

**SECTION - II**

- Q.4** Define the following: (**Any FIVE**) (10)
- a) TATA binding protein
  - b) Hemi – methylated DNA
  - c) Polycistronic mRNA
  - d) Repressor
  - e) Operator
  - f) Poly (A) - tail
- Q.5** Attempt **ANY TWO** of the following: (10)
- a) Give the important features of typical RNA Polymerase II promoter of eukaryotic DNA.
  - b) Explain post – transcriptional modification of mRNA in eukaryotes.
  - c) Explain how attenuation regulates the expression of tryptophan operon.
- Q.6** Attempt **ANY ONE** of the following: (10)
- a) Compare and contrast prokaryotic and eukaryotic protein synthesis.
  - b) Explain the role of cAMP and CAP in prokaryotic transcription regulation.