Msc (Medical Biotechnology)
Sem-I

ACHOLA-I (CBCS): SUMMER - 2016
SUBJECT: MEDICAL BIOCHEMISTRY

Day: Monday
Date: 04-04-2016

Time: 10.00 A.M. 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) What is normal Blood glucose level? Discuss the hormonal regulation of blood glucose. **(05)**

OR

a) Describe the structure and functions of Cholesterol.

b) Describe the regulation of water and electrolytes in the body. **(05)**

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

a) Phenylketonuria
b) Antioxidants
c) Metabolic role of vitamin C
d) Laboratory investigation of Diabetes mellitus

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

a) Define Enzymes. Discuss the diagnostic and therapeutic application of enzymes.
b) Discuss Electrophoresis with reference to:
i) Definition ii) Factors affecting migration
iii) Its applications
c) Detoxification of xenobiotics

SECTION-II

Q.4 Answer the following:

a) Structure, types and functions of Lipoproteins. **(06)**

OR

a) Urea cycle.

b) Abnormal Hemoglobins. **(04)**

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

a) Gestational glycosuria, Alimentary Glycosuria and Renal Glycosuria.
b) Acidosis and Alkalosis.

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

a) Mention four complications of diabetes mellitus?
b) Give four functions of plasma proteins.
c) Mention the normal range of Bilirubin and different types of Jaundice.
What are the consequences of deficiency of vitamin cobalamine.

ACHOLA – I (CBCS): SUMMER – 2016
SUBJECT : HUMAN PHYSIOLOGY

Day : Tuesday
Date : 05-04-2016

Time : 10.00 A.M. To 1.00 P.M.
Max. Marks : 60

N.B.:

1) **Q.No. 1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 Attempt **ANY FIVE** of the following: **[10]**

a) Enlist any four functions of frontal lobe.
b) State components of Pancreatic juice.
c) State actions of oestrogen.
d) Enumerate respiratory centers and state function of any two centers.
e) Draw and label waves of ECG in Lead II.
f) State any two disorders of connective tissue.

Q.2 Attempt the following **[10]**

a) Describe effects of stimulation of sysmpathetic system on heart.
b) Describe oxygen dissociation curve.

Q.3 Attempt the following **[10]**

a) Describe steps in transmission across neuromuscular junction in skeletal muscle.
b) Describe actions of testosterone.

Q.4 Write notes on **ANY TWO** of the following: **[10]**

a) Collagen fibers
b) Role of platelets in blood clotting
c) Functions of saliva

SECTION – II

Q.5 Attempt the following **[10]**

a) Describe function of loop of Henle.
b) Describe different Lipid Profile tests.

Q.6 Write notes on **ANY TWO** of the following: **[10]**

a) Cyclic AMP
b) Quality control programme
c) Protein Energy Malnutrition

Q.7 Attempt the following **[10]**

a) Describe sources, actions, and deficiency disorder of Vitamin A.
b) Describe Renin-Angiotensin-Aldosterone mechanism.

Q.8 Classify hormones. Describe mechanism of action of hormones. **[10]**

OR

Describe renal function tests.

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ACHOLA- I (CBCS) SUMMER - 2016
SUBJECT: MEDICAL MICROBIOLOGY

Day: Wednesday
Date: 06-04-2016

Time: 10.00 A.M. To 1.00 P.M.
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) Define sterilization. Enlist physical methods of sterilization and elaborate on moist heat sterilization.
b) With the help of suitable diagram write the principle and applications of dark field microscope.
c) Describe nutritional requirements of bacteria and explain nutritional classification of bacteria with suitable example.

Q.2 Answer the following questions: **(10)**

a) Differentiate between cell wall of Gram positive bacteria and Gram negative bacteria.
b) Explain differential staining methods with examples.

Q.3 Answer the following: **(10)**

a) Define disinfection. Explain the characteristics of an ideal disinfectant and mechanisms of action of disinfectant.
b) What are cultural media? Explain enrichment, enriched and transport media.

Q.4 Write short notes on: **(10)**

a) Koch's postulates
b) Biochemical tests based on enzyme activity

SECTION-II

Q.5 Answer any **TWO** of the following: **(10)**

a) Describe various routes of transmission of infections with examples.
b) Define the term parasite. Explain the classification of parasite with examples.
c) Explain various diagnostic methods for viral infections.

Q.6 Briefly describe: **(10)**

a) Explain diagnostic method for superficial mycosis.
b) Describe standard safety measures to be observed in microbiological laboratory.

Q.7 Write short notes on: **(10)**

a) Stool concentration methods
b) Multiplication of viruses

Q.8 Briefly describe: **(10)**

ACHOLA– I (CBCS): SUMMER - 2016
SUBJECT: MOLECULAR BIOLOGY

Day: Thursday
Date: 07-04-2016

Time: 10.00 A.M. 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 Attempt the following (**Any FIVE**) **(10)**

a) What is hyperchromic shift?
b) Define Gene super family.
c) Give two examples of histone proteins.
d) What are house keeping genes?
e) Give the role of DNA gyrase and ligase.
f) Give two examples of structural distortions of DNA.

Q.2 Answer **ANY TWO** of the following: **(10)**

a) Explain in brief the role of histone modifications in chromatin remodelling.
b) Justify : β - clamps increases the processitivity of DNA polymerase III.
c) Explain the Holliday model for resolution of homologus recombination.

Q.3 Write short notes on **ANY TWO** of the following: **(10)**

a) Role of DNA methylation in regulation of gene expression.
b) Role of ARS elements in yeast.
c) Termination of DNA replication in prokaryotes.

SECTION – II

Q.4 Attempt the following: (**Any FIVE**) **(10)**

a) What are release factors?
b) What are amino-acyl-tRNA transferases?
c) Give the role of initiation factor eIf – 4 E.
d) Enlist various sigma factors used by prokaryotic RNA polymerase.
e) What is 'rho'-independent termination of transcription?
f) What is RNA splicing?

Q.5 Attempt **ANY TWO** of the following: **(10)**

a) Justify: N– erminal region of sigma factor behaves as auto-inhibition domain.
b) Explain in brief co-translational transport of proteins.
c) State the role of cAMP levels in response to glucose concentration.

Q.6 Attempt **ANY ONE** of the following: **(10)**

a) Explain in detail the translation process in prokaryotes with the help of a suitable diagram.
b) Explain in detail the functioning of arabinose operon.

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