

PGIIS-1560-B-17
M.Sc. IIIrd Semester (CBCS) Degree Examination
BIOCHEMISTRY
(Metabolism - II)
Paper : HCT-3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates :

Answer question No.1 and any four of the remaining.

(2×10=20)

1. Answer the following:

- a) Give the role of carnitine in lipid metabolism.
 - b) Name the major regulatory enzyme of cholesterol biosynthesis and mention different modes of its regulation.
 - c) What is recimization of amino acid? Give its significance.
 - d) What do you mean by glucogenic amino acids? Give examples..
 - e) What is transdeamination?
 - f) Write the enzymatic steps involved in the biosynthesis of γ -aminobutyric acid.
 - g) What is glutathione? Name the enzymes involved in its biosynthesis.
 - h) What is cancer? Mention any four anticancer drugs.
 - i) What is salvage pathway? Name the enzymes of salvage pathway of purine nucleotide.
 - j) Name the enzymes responsible for interconversion of nucleoside phosphates.
2. a) Write the enzymatic steps leading to the biosynthesis of cholesterol.
- b) Describe the β -oxidation of palmitic acid and its energetics.

(8+7=15)

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3. a) Outline the enzymatic steps involved in the degradation of an aromatic amino acid. (8+7=15)
b) Explain the regulation of amino acid biosynthesis.
4. a) Give an account on the biosynthesis of epinephrine and serotonin and add a note on their Importance. (8+7=15)
b) Explain the process of biosynthesis of heme from δ aminolevulinate.
5. a) Explain the regulation of purine nucleotide biosynthesis by feed-back mechanism. (5+5+5=15)
b) Write the enzymatic steps of transformation of inosine monophosphate into adenylate and guanylate.
c) Outline the biosynthetic pathway of CTP.
6. a) Discuss the biosynthesis of phospholipids. (5+5+5=15)
b) Explain the mechanism of symbiotic nitrogen fixation in leguminous plants.
c) Outline the reactions of Kreb's urea cycle and give its regulation.
7. Write short notes on any three of the following. (5×3=15)
a) Degradation of branched chain amino acids.
b) Inborn errors of amino acid metabolism.
c) Biosynthesis of polyamines.
d) Degradation of Pyrimidine.



PGIIS-1561-B-17
M.Sc. IIIrd Semester (CBCS) Degree Examination
BIOCHEMISTRY
(Immunology)
Paper : HCT-3.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates :

Answer question No.1 and any four of the remaining.

1. Answer the following: (10×2=20)
- a) Name any four non-immune defences against infections.
 - b) List the primary and secondary lymphoid organs.
 - c) What is the difference between a hapten and an antigen?
 - d) Enlist the classes and sub-classes of antibodies.
 - e) Write the principle of RIA.
 - f) Define "opsonisation".
 - g) What is immunological tolerance?
 - h) What are pAPCs? Give example.
 - i) What is HLA complex?
 - j) Define autoimmunity. Give examples.
2. a) Compare and contrast the key features of innate and adaptive immune systems.
b) Describe the structure and function of lymph node.

(8+7=15)

3. a) Explain the molecular events associated with development of T lymphocytes.
b) Explain immunoglobulin class switching. (8+7=15)
4. a) Describe the steps in activation and control of alternate complement pathway.
b) Describe the organization of Ig genes (8+7=15)
5. a) What is ELISA? Give its principle and applications.
b) Outline the steps involved in the production of hybridoma cells
c) What is GvHD? How it is treated? (5+5+5=15)
6. a) Explain types of hypersensitive reactions.
b) Describe the structure of class II MHC molecules. (8+7=15)
7. Write short notes on any three of the following. (3×5=15)
- a) Natural killer Cells.
b) Cytokines
c) Immuno-electrophoresis.
d) Myasthenia gravis.

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PGIIS-1563-B-17
M.Sc. III Semester (CBCS) Degree Examination
BIOCHEMISTRY
(Applied Biochemistry)
Paper : OET-3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates :*Answer question No.1 and any four of the remaining*

1. Answer the following: (2×10=20)
- a) Define the terms Ketal and specific activity.
 - b) What is the role of active site in an enzyme?
 - c) What are the characteristics of industrially important microorganisms?
 - d) What is submerged fermentation?
 - e) Differentiate between primary and secondary metabolites
 - f) What are biofertilizers? Give an example
 - g) Give the meaning of "Microbial mining"
 - h) How does anion exchanger differ from cation exchanger?
 - i) What are biofuels? Give an example
 - j) Give the role of SDS and β - mercaptoethanol in SDS - PAGE.
2. a) Discuss the classification and industrial applications of enzymes (8+7=15)
- b) What are immobilized enzymes? Discuss their advantages and limitations
3. a) What is fermentation? Discuss the procedure and applications of submerged and continuous fermentation. (8+7=15)
- b) Give an account on the downstream processing.

4. a) What are single cell proteins? Mention their applications and limitations. (8+7=15)
b) Discuss the production and applications of any one antibiotic
5. a) Discuss the microbial production of wine and vinegar (8+7=15)
b) Explain the production of biogas. Mention its applications
6. a) Give the principle and applications of affinity chromatography (8+7=15)
b) Explain the working principle and applications of HPLC.
7. Write short notes on any three of the following. (5×3=15)
- a) Agarose gel electrophoresis
 - b) Industrial fermenter
 - c) Applications of Radioisotopes in life sciences
 - d) Microbial insecticides



PGIIS-1562-B-17
M.Sc. IIIrd Semester (CBCS) Degree Examination
BIO CHEMISTRY
(Clinical Biochemistry and Hormones)
Paper : SCT-3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates :

Answer question No.1 and any four of the remaining

(10×2=20)

1. Answer the following:

- a) What is ESR? Give its significance.
- b) What is urolithiasis? How can it be controlled?.
- c) Give structure and functions of any two of bile acids.
- d) What is Glycated Hemoglobin? Give it's significance.
- e) What is Ketosis? Name any two ketone bodies.
- f) Give molecular basis of alkaptonuria.
- g) What is Lesch Nyhan syndrome?
- h) Name the hormones secreted by adrenal medulla. Give their structures.
- i) Mention physiological functions of thyroxine.
- j) What is carcinogenesis? Mention the characteristics of cancer cells.

- 2. a) Give the composition of blood. Add a note on blood coagulation mechanism and its regulation.**
- b) Write an account on clinical significance of SGOT,SGPT and Lactate dehydrogenase.**

(8+7=15)

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3. a) What is urea clearance? How is it performed? Add a note on its clinical significance.
b) Discuss different types of kidney disorders. Add a note on dialysis. (8+7=15)
4. a) Describe etiology, classification and management of diabetes mellitus.
b) Discuss the liver function tests and their significance. (8+7=15)
5. a) What are plasma lipoproteins? Add a note on hyperlipoproteinemia.
b) Discuss pathogenesis and diagnosis of atherosclerosis. (8+7=15)
6. a) Describe the hormones secreted by pituitary, and write briefly on their functions.
b) Discuss role of insulin and glucagon in regulation of carbohydrate metabolism. (7+8=15)
7. Write short notes on **any three** of the following. (3×5=15)
- a) PKU.
 - b) GOUT
 - c) Jaundice
 - d) Mechanism of cell signaling.

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