

March-1990

187

M.D. DEGREE EXAMINATION, MARCH 1990.

Branch XIII — Biochemistry

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR BIOLOGY
AND BIOSTATISTICS

Time : Three hours.

Answer ALL the questions.

1. Give an account of determination of amino acid sequence in a protein molecule.
 2. Describe the phenomenon of adsorption and mention its applications in our daily life.
 3. Write notes on :
 - (a) Structure of Keratin.
 - (b) Derivatives of monosaccharides.
 - (c) RIA and EIA.
 - (d) Various models of biomembranes.
 - (e) Importance of statistics in biochemical investigations.
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September-1991

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M.D. DEGREE EXAMINATION, SEPTEMBER 1991.

Branch XIII — Biochemistry

Paper I

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR
BIOLOGY AND BIostatISTICS

Time : Three hours. Maximum : 100 marks.

Answer ALL the questions.

1. Describe the major experiments that indicated DNA is the genetic material.

Describe the structure of the phosphodiester bond that links the ribonucleosides of RNA to one another. Contrast the composition and structures of RNA and DNA. (25 marks)

2. Explain how recombinant DNA technology is used to determine the amino acid sequences of nascent proteins.

What are the differences between a nascent protein and a protein that has undergone post-translational modification? (25 marks)

3. Write notes on :

(a) Isoelectric point of a protein and the isoelectric focussing separation method.

(b) O-linked and N-linked glycoproteins.

(c) Use of synthetic peptides.

(d) HPLC.

(e) Gaussian (normal) frequency distribution.

(5 × 10 = 50 marks)

M.D. DEGREE EXAMINATION, MARCH 1992.

Branch XIII — Biochemistry

Paper I — PHYSICAL AND ORGANIC ASPECTS,
MOLECULAR BIOLOGY AND BIostatISTICS

Time : Three hours

Answer ALL the questions.

1. Outline the basic process by which a Watson-Crick duplex replicates to give two identical daughter duplexes. Explain the reasons for the accuracy of the process. Discuss the universality of the genetic code.
2. Explain the effect of 2,3 diphosphoglycerate on the affinity of hemoglobin for oxygen. Describe the major structural differences between the oxygenated and dioxygenated forms of the hemoglobin molecule.
3. Write notes on :
 - (a) Affinity chromatography.
 - (b) Determination of protein mass by SDS-PAGE.
 - (c) Nuclear magnetic resonance.
 - (d) Salting in and salting out of proteins.
 - (e) Standard deviation and its significance in analysis of clinical laboratory data.

M.D. DEGREE EXAMINATION, SEPTEMBER
1992

Branch XIII - Biochemistry

Paper I - PHYSICAL AND ORGANIC ASPECTS
MOLECULAR BIOLOGY AND BIO-
STATISTICS

Time: Three hours Maximum:100 marks

Answer ALL questions

1. Outline the chemistry and properties of (a) Bile pigments (b) Porphyrins
Discuss the methods available to identify and quantitate them.
(25 marks)
2. Discuss the chemical organisation and function of biomembranes and organelles.
(25 marks)
3. Write short notes on:
 - (a) ELISA
 - (b) Iso electric focussing
 - (c) Apolipo Proteins
 - (d) Structure of Immunoglobulins
 - (e) Clinical osmometry

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(5x10=50 marks)

November-1993

[P R 3 9 2]

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

(Old/New Regulations)

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR
BIOLOGY AND BIostatISTICS

Time : Three hours.

Maximum : 100 marks.

Answer ALL questions.

1. Describe the common methods of purification of a protein from a tissue homogenate. How do you establish its purity ? (25)
 2. Describe the principles and applications of Gas Liquid Chromatography and HPLC. (25)
 3. Write short notes on :
 - (a) Plasma lipoproteins.
 - (b) Bacterial cell walls.
 - (c) Muramic acid and Neuraminic acid.
 - (d) ELISA.
 - (e) Why statistical evaluation is important in biochemical experiments. (5 × 10 = 50)
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April-1994

[VM 1095]

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

(Old / New Regulations)

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR
BIOLOGY AND BIOSTATISTICS

Time : Three hours. Maximum : 100 marks.

Answer ALL questions.

1. Describe the principles and applications of Scintillation counters and GM counter in assaying radio isotopes. (25)
 2. Describe the various methods of determining the molecular weight of a protein. (25)
 3. Write short notes on :
 - (a) Structures and functions of cell membranes.
 - (b) Glycosamino glycans.
 - (c) Prostaglandins and prostacyclins.
 - (d) Radio immuno assay of hormones.
 - (e) Calculation of standard deviation and t -value of small experimental groups. (5 × 10 = 50)
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November-1994

[ND 197]

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

(Old/New Regulations)

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR
BIOLOGY AND BIostatISTICS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Give an account of the Biochemical aspects of membrane transport. (25)
2. Give an account of the extraction structure and physical properties of DNA. (25)

Write short notes on :

- (a) Geometrical isomerism.
 - (b) Cerebrosides.
 - (c) Redox potential.
 - (d) Pantothenic Acid.
 - (e) Micelle formation. (5 × 10 = 50)
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April-1995

[SB 197]

M.D. DEGREE EXAMINATION.

Branch XIII – Biochemistry

(Old/New Regulations)

PHYSICAL AND ORGANIC ASPECTS, MOLECULAR
BIOLOGY AND BIostatISTICS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss the structure of enzymes and mechanism and regulation of their action. (25)
 2. Describe the mechanism of biological oxidation. Describe electron transport chain, function and inhibitors of various components. (25)
 3. Write short notes on :
 - (a) Glycogen.
 - (b) Structure of tRNA.
 - (c) Collagen.
 - (d) DELFIA.
 - (e) Encephalines. (5 × 10 = 50)
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MB 163

M.D. DEGREE EXAMINATION

Branch XIII - BIOCHEMISTRY

(Revised Regulations)

Paper I - PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time: Three hours

Max.marks:100

Answer All Questions

1. Describe the structure of protein and the methods to elucidate it. (25)
2. Discuss about the electrophoretic techniques and their role in biochemistry. (25)
3. Write briefly on:
 - (a) Gel permeation chromatography
 - (b) Colloids
 - (c) RIA
 - (d) Sandwich technique
 - (e) Western blot technique.

(5x10=50)

October-1997

MS 161

M.D. DEGREE EXAMINATION
Branch XIII - Biochemistry
(Revised Regulations)

Paper I - PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time: Three hours

Max.marks:100

Answer All Questions

1. Discuss on 'Non-isotopic labelled assay'
and its role in biochemical analysis. (25)
2. Mention the modes of separation of biochemical
substances. Describe one technique and its
importance. (25)
3. Write briefly on:
 - (a) Ion selective electrode
 - (b) Osmometry
 - (c) Isomerism
 - (d) Transport of molecules across
biological membranes
 - (e) Structure of glucose.

(5x10=50)

M.D. DEGREE EXAMINATION
Branch XIII - Biochemistry
(Revised Regulations)

Paper I - PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time: Three hours

Max.marks:100

Answer All Questions

1. What is common chemical composition of plasma membranes? Relate this to the fluid mosaic model for plasma membrane. What would you predict concerning the chemical and physical characteristics of these components? (25)
2. Discuss about high performance liquid chromatography (HPLC) and its role in biochemistry. (25)
3. Write briefly on:
 - (a) Spectrofluorimetry
 - (b) Flame photometry
 - (c) Northern blot analysis
 - (d) Enzyme immunoassay
 - (e) Phospholipids.

(5x10=50)

April-1999

[SG 172]

Sub. Code : 2049

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

(Revised Regulations)

Paper I — PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Describe the primary, secondary, tertiary and quaternary structure of hemoglobin. What structural changes occur during oxygenation and deoxygenation of hemoglobin? Add a note on how an abnormality in the primary structure of Hb S is responsible for 'sickling' of RBC. (25)
 2. What are the principles of RIA? Discuss the application of RIA in biochemistry. (25)
 3. Write short notes on : (5 × 10 = 50)
 - (a) Ultra centrifugation.
 - (b) Immunelectrophoresis.
 - (c) Henderson-Hasselbach equation and its applications.
 - (d) Structure and functions of glycosaminoglycans.
 - (e) Synthetic oligonucleotide probes.
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October-1999

[KA 172]

Sub. Code : 2049

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper I — PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Write the principles and applications of colorimetry. (25)
 2. How the amino terminal and carboxy-terminal of the protein are sequenced? Explain with reactions. (25)
 3. Write briefly on : (5 × 10 = 50)
 - (a) Handerson-Hasselbach equation
 - (b) Donnan membrane equilibrium
 - (c) Southern blot analysis
 - (d) Radioisotopic techniques
 - (e) Ion exchange chromatography.
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April-2000

[KB 172]

Sub. Code : 2071

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper I — PHYSICAL AND ORGANIC ASPECTS OF
BIOCHEMISTRY, INSTRUMENTATION AND
BIOCHEMICAL TECHNIQUES

Time : Three hours : Maximum : 100 marks

Answer ALL questions.

1. Describe the structure of DNA. Explain how DNA is structurally organized in chromosomes. Add a note on Repetitive sequence of DNA. (25)
2. What is affinity chromatography? How does it differ from ion-exchange chromatography and gel filtration chromatography? Discuss the application of affinity chromatography in biochemistry. (25)
3. Write short notes on : (5 × 10 = 50)
 - (a) HPLC
 - (b) PCR
 - (c) Plasma protein electrophoresis
 - (d) Lectins and their usefulness
 - (e) ELISA