

B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Second Semester

Biochemistry

ENZYMES

(Non-CBCS—2004 onwards)

Duration : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** of the following.

1. Give a brief historical account of enzymes.
2. Define the terms International Unit and Specific activity.
3. Draw the structures of biotin.
4. Define Proximity and Orientation effects.
5. Define K_{cat} .

6. Write the role of metal ion in enzyme catalysis.
7. Define the terms Salting in and Salting out.
8. Briefly explain the Industrial applications of immobilized enzymes.

Part - B

(5 × 10 = 50)

Answer any **five** of the following.

9. Describe the different types of nomenclature of enzymes.
10. Give a detailed account of metalloenzymes with suitable examples.
11. Give the structure and functions of FMN.
12. How are K_m and V_{max} estimated from plots of kinetic data ?

13. Explain the applications of amylase and pectinases.
14. Explain the effect of substrate concentration and temperature on enzyme activity.
15. Write an elaborate note on allosteric enzymes with suitable examples.

Part - C

(2 × 16 = 32)

Answer any **two** of the following.

16. Explain the Oligomeric enzymes and Multienzyme complexes.
17. Describe the reversible inhibition of enzymes.
18. Describe the classical methods employed in purification of enzymes.
19. Explain the role of TPP and THF in enzymes catalysis.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Fourth Semester

Biochemistry

INTERMEDIARY METABOLISM

(Non-CBCS—2004 onwards)

Duration : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** questions

1. Mention the significance of Pentose Phosphate pathway.
2. What are the two enzymes that are specific to glyoxalate cycle ? Mention the site of occurrence of this pathway.
3. What do you mean by biological oxidation and oxidative phosphorylation ?

4. Explain the discovery of the pathway of β -oxidation.
5. What are ketone bodies ? Give their structure.
6. Explain the deamination of homoserine.
7. How is uric acid degraded ?
8. List the biologically important compounds formed from glycine.

Part - B

(5 × 10 = 50)

Answer any **five** questions.

9. Give the pathway of TCA cycle.
10. Mention the role of high energy phosphates.
11. Explain the catabolic pathways of glycine.

12. Elaborate on the chain elongation of fattyacids.
13. Explain the sawage pathway of purine synthesis. Comment on the inhibitors of its significance.
14. Define gluconeogenesis. Mention the key reactions of this pathway and its regulation.
15. Give the metabolic pathways of proline.

Part - C (2 × 16 = 32)

Answer any **two** questions.

16. Describe the pathway of glycogenesis. Add a note on its regulation.
17. Elaborate on the respiratory chain complexes.
18. Discuss the biosynthesis of cholesterol.
19. Explain the biosynthesis and breakdown of pyrimidines.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Biochemistry

HUMAN PHYSIOLOGY

(Non-CBCS—2004 onwards)

Duration : 3 Hours

Maximum : 100 Marks

Draw suitable diagram wherever necessary.

Part - A

(6 × 3 = 18)

Answer any **six** of the following

1. Comment on Plasma.
2. Write short notes on blood.
3. Define Composition of Saliva.
4. Define Nephron.

5. Explain Synapse.
6. Write any *two* steroid hormones and its functions.
7. Explain Hypoxia.
8. Differentiate acidosis and alkalosis.

Part - B

(5 × 10 = 50)

Answer any **five** of the following.

9. Give an account on the structure, functions and composition of lymph.
10. Discuss in detail about blood cells, haemoglobin and haemopoiesis.
11. Describe the composition, functions and regulations of bile.
12. Explain the digestion of proteins and lipids.

13. Explain the composition and formation of urine.
14. Brief notes on mechanisms of Intra and Extracellular hormone actions.
15. Write the role of lungs and kidney in acid base balance.

Part - C (2 × 16 = 32)

Answer any **two** of the following.

16. Describe in detail about blood groups and coagulation of blood.
17. Write the composition, functions and regulation of gastric juice.
18. Explain tubular reabsorption of glucose.
19. Discuss the Respiratory System in detail.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Biochemistry

NUTRITIONAL BIOCHEMISTRY

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** (out of eight) of the
following questions.

1. Give a short note on protective foods.
2. What do you mean by energy giving foods ?
3. Explain SDA
4. List out the essential micronutrients.

5. What is anemia ?
6. Give any three vitamin deficiency disorders.
7. What are new Protein foods ?
8. Write the sources of Vitamin–C.

Part - B (5 × 10 = 50)

Answer any **five** (out of seven) of the
following questions.

9. What do you mean by food fads and fallaries ?
10. Explain Basal metabolism. What are the factos affecting BMR ?

11. How do you measure the Basal Metabolic Rate ?

12. Write the distributions, sources and functions of micro nutrients.

13. What are Vitamins ? Write the sources, functions, deficiency and RDA of Vitamin–K.

14. List out the Diets for infants and children

15. Give a brief note on trace elements and its deficiency symptoms.

Part - C

(2 × 16 = 32)

Answer any **two** (out of four) of the following.

16. Discuss in detail about the food sources and functions of fats.

17. Write the sources, distribution, function, deficiency and excess of Vitamins–B₆ and B₁₂

18. Discuss the sources, distribution, function, deficiency and excess of Vitamins E and K.

19. List out the Diets for infants, adolescents and older persons.

B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Biochemistry

MICROBIOLOGY AND IMMUNOLOGY

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** of the following :

எவையேனும் ஆறிற்கு விடையளிக்கவும்.

1. Write short notes on Microbiology and its importance in Applied Science.

நுண்ணுயிரியல் மற்றும் பயன்பாட்டு அறிவியலில் அதன் முக்கியத்துவங்களின் பங்கீட்டை எழுதுக.

2. Differentiate between Gram positive and Gram negative bacteria.

கிராம் பாஸிட்டிவ் மற்றும் கிராம் நெகட்டிவ் பாக்டீரியாக்களை வேறுபடுத்துக.

3. Write a brief account on Autotrophic and Heterotrophic Nutrition.

சுயஜீவிகள் மற்றும் புறஜீவிகளின் உணவுகளைப் பற்றி கணக்கிடுக.

4. Define Fermentation.

நொதித்தல் பற்றி சிறு குறிப்பு வரைக.

5. Write the applications of Microbes in chemical and pharmaceutical industries.

வேதிப்பொருள் மற்றும் மருந்து தொழிற் சாலைகளில் நுண்ணுயிரின் பயன்பாட்டினை எழுதுக.

6. Give an account on Immunogen and Hapten.

நோய் தடை காப்பு (இம்யூனோஜென்) மற்றும் ஹப்டன் பற்றி கணக்கீடு தருக.

7. Define Drug Idiosyncrasy.

மருந்து இடியோசின்க்ரசி வரையறு.

8. Comment on Immunosuppressive agents

இம்யுனோசப்ரசிவ் ஏஜென்ட்ஸ் பற்றி கூறுக.

Part - B

(5 × 10 = 50)

Answer any **Five** of the following questions :

எவையேனும் ஐந்திற்கு விடையளிக்கவும் :

9. Explain the 5 – Kingdom concept of Whitakker in the classification of Micro organism.

நுண்ணுயிரிகள் உலக வகைப்பாட்டியலை ஒயிட்டேக்கர் கருத்தின்படி விளக்குக.

10. Discuss the normal bacterial growth curve.

பாக்டீரியாவின் பொதுவான வளர்ச்சி விகிதத்தை விவரி.

11. Discuss the detail the reproduction of Bacteria.

பாக்டீரியாவின் இனப்பெருக்கத்தை விரிவாக விளக்குக.

12. What are the Microbes present in raw milk ? How will you minimize the contamination of milk ?

காய்ச்சாத பாலில் உள்ள நுண்ணுயிர்கள் யாவை ? பால் நுண்ணுயிர்களினால் மாசுபடுவதை கட்டுப்படுத்தும் முறைகளை எழுதுக.

13. Give a detailed note on Blood Transfusion.

இரத்த சுத்திகரிப்பு பற்றி விரிவாக விவரி.

14. Write short notes on the following :

(a) Antigen–Antibody interactions

(b) Epitope, paratope and Idiotype

பின்வருவன பற்றி சிறுகுறிப்பு வரைக.

(அ) எதிர்செனீ - எதிர்ஓபாருள் கலப்புவினை.

(ஆ) எபிடோப், பாராடோப் மற்றும் ஐடியோடைப்.

15. Give an account on Type I and Type II Hypersensitivity.

ஓவ்வாமை (ஹைப்பர் சென்சிடிவிட்டி) வகைகள் I மற்றும் II பற்றி கணக்கீடு தருக.

Part C

(2 × 16 = 32)

Answer any **two** of the following questions :

எவையேனும் இரண்டிற்கு விடையளிக்கவும் :

16. Elaborately discuss the history of Microbiology

நுண்ணுயிரியலின் வரலாற்றை பற்றி விரிவாக விவரி.

17. Describe in detail the Bacterial photosynthesis.

பாக்டீரியாவின் ஒளிச்சேர்க்கை பற்றி விரிவாக விவரி.

18. Discuss in detail food spoilage and food poisoning process.

உணவு கெட்டுபோதல், உணவு நஞ்சாகுதல் பற்றி விரிவாக கூறுக.

19. Give an account on Transplantation Immunology.

உறப்பு மாற்று தடைகாப்பியல் பற்றி ஒரு கணக்கீடு தருக.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Biochemistry

CLINICAL BIOCHEMISTRY—I

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** (out of eight) of the following.

1. Define Proinsulin.
2. What is impaired glucose tolerance ?
3. Brief on hyper triglyceridaemia.
4. Give a brief account on Taylach's disease..

5. What is amino acidurias ?
6. Explain tubular proteinuria and postrenal proteinuria.
7. What is β -amino isobutyric aciduria ?
8. Define Autoimmunity. Explain its types in brief.

Part - B (5 × 10 = 50)

Answer any **five** (out of eight) of the following.

9. What is hypoglycemia ? What are the causes of hypoglycemia ? Give an account on hypoglycemia in diabetes mellitus.
10. Discuss in brief the inborn errors of galactose and fructose metabolism.

11. Define Fatty liver. Write a note on its types in order of its severity.

12. Write short notes on :
 - (i) Krabbe's disease
 - (ii) Fabry's disease.

13. Brief on the following :
 - (i) Maple syrup disease
 - (ii) Cystinuria

14. Give an account on orotic aciduria.

15. What is Lesch–Nyhan syndrome and xanthinuria ? Explain.

16. Explain any two organ–specific autoimmune diseases.

Part - C

(2 × 16 = 32)

Answer any **two** questions.

17. Define hypo and hyperlipoproteinemia. Explain its types in brief.

18. Detail on Nephrotic Syndrome.

19. Discuss primary and secondary gout with respect to diagnosis and treatment.

20. What is hypersensitivity ? Give its classification and explain any two with examples.

B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Biochemistry

CLINICAL BIOCHEMISTRY—II

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** (out of eight) of the following.

1. What is the use of biochemical test ?
2. What are the constituents of CSF ?
3. What is sickle cell anemia ?
4. Define Fanconi syndrome.

5. Give the clinical significance of thyroid hormones.
6. Define Isoenzyme.
7. Name any three carcinogenic substance.
8. Define and explain the types of Tumor.

Part - B (5 × 10 = 50)

Answer any **five** (out of eight) of the following.

9. Write note on Quality control.
10. Discuss Renal function test.
11. Explain the Blood clotting mechanism.

12. Explain the diseases associated with sex hormones.
13. Describe the diagnostic use of enzyme assay.
14. Write note on isoenzymes of LDH.
15. Explain the inherited disorders associated with bilirubin metabolism.
16. Write note on carcinogenesis.

Part - C

(2 × 16 = 32)

Answer any **two** questions.

17. Elaborate Liver function test.

18. Explain the laboratory investigations in diseases associated with adrenal cortex and adrenal medulla.
19. Discuss the pattern of enzymes in health and disease.
20. Give a detailed account on different types of Anaemia.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010**Sixth Semester****Biochemistry****MOLECULAR BIOLOGY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** (out of eight) of the following.

1. What is meant by the terms primer and template ?
2. What is Okazaki fragments ?
3. Differentiate : Initiation site and Elongation site.
4. Define : Translation.

5. Write a note on Disulfide bonds.
6. What is meant by DNA sequencing ?
7. What are shuttle vectors ?
8. Define : DNA footprinting.

Part - B (5 × 10 = 50)

Answer any **five** (out of eight) of the following.

9. What is the role of RNA and DNA replication ?
10. Describe briefly about the RNA splicing.
11. Write an account on Wobble hypothesis.

12. Write the differences between the mechanism of translation in prokaryotes and eukaryotes.
13. Explain briefly the proteolytic cleavages.
14. Write an account on yeast artificial chromosomes (YAC_s).
15. Give an account on the Sanger's method of DNA sequencing.
16. Give an account on the inhibitors of translation.

Part - C

(2 × 16 = 32)

Answer any **two** questions.

17. Describe the two classical experiments which demonstrated the semi conservative mode of DNA replication.

18. Explain in detail the mechanism of Eukaryotic transcription.

19. Describe the general properties of Genetic code.

20. What is CDNA ? Give a detailed account on the construction of CDNA library.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Biochemistry

PLANT BIOCHEMISTRY

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** of the following questions.

1. What are Carotenoids ? Give two examples.
2. Write the functions of flavones.
3. Define Photosynthesis.
4. Write any two factors affecting photorespiration.

5. Write the importance of GA.
6. Give the deficiency of essential mineral nutrients.
7. What do you mean by Vernalization ?
8. Write a brief account on physiology of germination.

Part - B

(5 × 10 = 50)

Answer any **five** of the following questions.

9. Write the occurrence and functions of flavonols.
10. Give the importance of Auxins.

11. Explain in detail about synthetic growth hormones.
12. Draw and explain N_2 cycle.
13. Write in detail about the factors affecting photorespiration.
14. Write the role of Abiscis acid in plant growth.
15. Discuss about photoperiodism.

Part - C

(2 × 16 = 32)

Answer any **two** of the following questions.

16. Discuss in detail about the occurrence, structure and functions of chlorophylls.

17. Explain the factors affecting photosynthesis.

18. Write an essay on symbiotic nitrogen.

19. Give an account on physiology of seed germination and dormancy.

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B.Sc. DEGREE EXAMINATION, NOVEMBER 2010

Sixth Semester

Biochemistry

BIOSTATISTICS AND BIOINFORMATICS

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part - A

(6 × 3 = 18)

Answer any **six** out of eight of the following.

1. Merits of primary data.
2. Define data editing.
3. What is discrete variation ?
4. What is standard deviation and give its formula ?

5. Define Range.
6. Define E-mail.
7. Define Phylogenetic tree.
8. Give any two literature databases.

Part - B (5 × 10 = 50)

Answer any **five** out of six of the following.

9. Explain in detail about sampling and sampling methods.
10. Explain about classification of data.

11. How to measure Kurtosis ?
12. Explain the methods of file management with suitable example.
13. Comment on World Wide Web.
14. Write a short note on EMBL.

Part - C

(2 × 16 = 32)

Answer any **two** out of four of the following.

15. Give an account on diagrammatic and graphical representation of data.

16. Explain about :

(i) Tests and measures of Skewness.

(ii) Measures of Kurtosis.

17. Give a detailed account on virtual library.

18. Explain the biological databases and its applications.

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