BC – 3.1

Karnataka State Open University
III Semester, M.Sc. Biochemistry
OPEN BOOK EXAMINATION, SEPTEMBER/OCTOBER- 2020

METABOLISM - I

Time: _____ **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section-A

Answer **Any FOUR** of the following: **(4 x 5 = 20)**

1. Explain the conversion of Glucose to Glucose-6-phosphate.
2. Describe Cori cycle. Give its importance.
3. Write the chemical structure of any two disaccharides.
4. Give an account on glycogen storage diseases.
5. Discuss the importance of phospholipids.
6. Explain circulating lipids.

Section-B

Answer **Any THREE** of the following: **(3 x 10 = 30)**

7. Explain reverse cholesterol transport.
8. Describe the steps involved in β-oxidation of a fatty acid.
9. Discuss the degradation of phospholipids.
10. Write in detail about Glycogenolysis.
11. Explain the reactions of Pyruvate dehydrogenase complex.

Section-C

Answer **Any TWO** of the following: **(2 x 15 = 30)**

12. Briefly explain the steps involved in Cholesterol biosynthesis.
13. Describe the steps involved in synthesis of a fatty acid.
14. Explain Glycolytic pathway.
15. Write a note on:
    A. Foam cell. **5**
    B. Glucagon. **5**
    C. Glucose paradox. **5**

BC – 3.2

Karnataka State Open University
III Semester, M.Sc. Biochemistry
OPEN BOOK EXAMINATION, SEPTEMBER/OCTOBER- 2020

METABOLISM - II

Time: _____ **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section-A

Write short note on **Any FOUR** of the following: **(4 x 5 = 20)**

1. Conversion of glutamate to Proline.
2. Gout.
3. Degradation of Threonine.
4. Regulation of bacterial glutamine synthase.
5. Synthesis of Coenzyme-A.
6. Enzymatic digestion of proteins.

Section-B

Answer **Any THREE** of the following: **(3 x 10 = 30)**

7. Give an account on Calvin cycle and its regulation.
8. Describe the reactions of urea cycle. Add a note on its regulation.
9. Explain the mechanism of action of Methotrexate as anticancer agent.
10. Briefly explain the biosynthesis of Leukotrienes.
11. Describe the fixation of ammonia into amino acids.

Section-C

Answer **Any TWO** of the following: **(2 x 15 = 30)**

12. Write a short note on;
    A) Alkaptonuria **5**
    B) Desulphuration **5**
    C) Azathymidine **5**
13. Describe in detail the biosynthesis and regulation of heme in humans.
14. Write the structure of PLP. Explain the mechanism of transamination involving PLP.
15. Explain the entry of R- groups of various amino acid as TCA cycle intermediates.

BC – 3.3

Karnataka State Open University
III Semester, M.Sc. Biochemistry
OPEN BOOK EXAMINATION, SEPTEMBER/OCTOBER- 2020

IMMUNOLOGY

Time: _____ **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section-A

Answer **Any FOUR** of the following: **(4 x 5 = 20)**

1. Write the contributions of Robert Koch.
2. What are vaccines? Explain with an example.
3. Explain tumor associated antigens.
4. Describe ELISA technique and its applications.
5. What are interleukins? Explain the role of IL-2.
6. Write a note on hypersensitivity reactions.

Section-B

Answer **Any THREE** of the following: **(3 x 10 = 30)**

7. Explain the structure of B and T cell receptors.
8. Discuss antibody diversity based on the immunoglobulin gene structure.
9. Explain the antigenicity of proteins. Add a note on cells as antigens.
10. Explain non-specific defense in man.
11. Describe the processing and presentation of antigens by Class I and II MHC.

Section-C

Answer **Any TWO** of the following: **(2 x 15 = 30)**

12. Describe the immunology behind transplantation and transplant rejection.
13. Explain the features of tumor immunity. Add a note on immune surveillance.
14. Write an account on the classes of immunoglobulins. Give the salient features of Ig G.
15. Write short notes on:
    A) SCID **5**
    B) AIDS **5**
    C) Type I diabetes **5**

BC – 3.4

Karnataka State Open University
III Semester, M.Sc. Biochemistry
OPEN BOOK EXAMINATION, SEPTEMBER/OCTOBER- 2020

PRINCIPLES OF GENETICS

Time: _____ **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section-A

Answer **Any FOUR** of the following: (**4 x 5 = 20)**

1. Explain Ames test used to detect mutagens.
2. Compare between deletion and inversion of chromosomes.
3. Give a brief note on Replica plating.
4. Explain Co-dominance in chicken.
5. Write a note on Chemical mutagens.
6. Describe in detail about Nucleosome Organization.

Section-B

Answer **Any THREE** of the following: (**3 x 10 = 30)**

7. Explain cytoplasmic inheritance taking male sterility in plants as example.
8. Describe Spontaneous and Induced mutations.
9. Explain Bacterial Transformation process in detail.
10. Discuss the basic principles of Mendelism with reference to laws of inheritance.
11. Write a note on;
    A. Karyotyping. **5**
    B. C-value paradox. **5**

Section-C

Answer **Any TWO** of the following: **(2 x 15 = 30)**

12. A. Describe fine structure of rII locus of T_4 Phage. **10**
    B. Write a note on mobile genetic elements. **5**
13. A. Discuss Holliday model of recombination. **10**
    B. Explain the structure of bacterial chromosome. **5**
14. A. Describe point mutation. Explain types of point mutations. **10**
    B. Write a note on *E. coli* Rec system. **5**
15. A. Explain in detail about Polytene chromosomes. **10**
    B. Describe plaque formation and Lytic cycle. **5**
