C 22491 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Biochemistry

BCH 4E 03—CANCER BIOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Short Answer)

Answer any four questions.

Weightage 2 each.

1. What are retroviral oncogenes ? Cite an example.
2. What are immune modulators ?
3. How are oxygen free radicals formed ?
4. Give the characteristics of Papilloma viruses.
5. What is the mechanism of action of isothiocyanates ?
6. State Knudson's two hit hypothesis.
7. Give one disadvantage of chemotherapeutic drug.

(2 × 4 = 8 weightage)

Part B (Short Essay)

Answer any **four** *questions.*

Weightage 3 *each.*

8. Discuss the types and functions of cytokines.
9. How do heat shock proteins regulate immune response to cancer ?
10. List out the characteristics of cancer cells.
11. Write short note on virus-host interaction.
12. Discuss the morphological characteristics of cell during apoptosis.
13. Briefly discuss the characteristics of Polyoma viruses.
14. Write short note on the role of growth factors in carcinogenesis.

(3 × 4 = 12 weightage)

Part C (Long Essay)

Answer any **two** *questions.*

Weightage 5 *each.*

15. Elaborate on mechanism of chemical and physical carcinogenesis.
16. Explain the mechanism of tumor metastasis.
17. Detail on the different methods of cancer therapy.
18. Describe the different tumor suppressor genes.

(5 × 2 = 10 weightage)

C 22489 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE [REGULAR/SUPPLEMENTARY] EXAMINATION, APRIL 2022

(CBCSS)

Biochemistry

BCH4E01—BIO-CHEMICAL TOXICOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Short Answers)

Answer any **four** *questions.*
Each carries weightage of 2.

1. Define chemical carcinogenesis. Give two examples of chemical carcinogen.
2. Name any four Phase II enzymes.
3. Define LD50 and mention the purpose of determining LD50.
4. What do you mean by teratogenesis ? Give two examples of teratogen.
5. How is mutagenicity different from genotoxicity ?
6. Give five examples of harmful food additives.
7. List out the reasons for recommending fruit fly in toxicity testing.

(4 × 2 = 8 weightage)

Turn over

Part B (Short Essays)

Answer any **four** *questions.*
Each carries weightage of 3.

8. Write on the factors affecting toxicity of a substance.
9. Elaborate on comet- based *in vitro* DNA repair assay.
10. Detail the signs and symptoms of paracetamol toxicity
11. Briefly explain arsenic toxicity.
12. Write note on neurotoxicity citing one example.
13. Give an account of Phase I reactions.
14. Briefly explain Ames test procedure.

(4 × 3 = 12 weightage)

Part C (Long Essays)

Answer any **two** *questions.*
Each carries weightage of 5.

15. Describe the toxicity mechanism and health effects of lead, mercury and cadmium.
16. Explain in detail the bio-transformation reaction phases.
17. Elaborate in detail bio-chemical mechanism of liver toxicity.
18. Elucidate in detail the metabolism of haloalkanes and haloalkenes and their toxicity on tissues.

(2 × 5 = 10 weightage)

C 21048 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER P.G. DEGREE EXAMINATION, APRIL 2022

(CCSS)

Biochemistry

BCH4E04—CLINICAL AND DIAGNOSTIC BIOCHEMISTRY

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions, each question carries* 2 *marks.*

1. What is precision ?
2. How blood sample is preserved ?
3. Give the normal value of blood urea and serum cholesterol.
4. Comment on therapeutic index.
5. What is the renal threshold of glucose ?
6. Comment on glycosuria.
7. Give the clinical significance of galactosemia.
8. Comment on Diabetes mellitus.
9. Write note on fatty liver.
10. Mention the metabolic defect associated with alkaptonuria.
11. Name different types of tyrosinemia.
12. What are the clinical signs of phenylketonuria ?
13. Write the biochemical defect and clinical signs of MSUD.
14. What is hematuria ? Give its significance.
15. Write the clinical significance of Hemophilia.
16. Comment on porphyrins.
17. Give the uses of hematology counter.

18. What is hepatic coma ?

19. Mention the defects associated with gouty arthritis.

20. Comment on ulcers.

(20 × 2 = 40 marks)

Part B

Answer any **five**, *each question carries* 8 *marks.*

21. Describe quality control in biochemical analysis.

22. Discuss the gastric function tests.

23. Briefly describe the disorders of lipid metabolism.

24. Describe vitamin deficiency diseases .

25. Write note on the disorders of clotting mechanisms.

26. Discuss glycogen storage diseases.

27. Write note on different types of anaemia.

(5 × 8 = 40 marks)

C 21047 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER P.G. DEGREE EXAMINATION, APRIL 2022

(CCSS)

Biochemistry

BCH 4E 03—INDUSTRIAL ENZYMES

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Section A

Answer all questions in 2 **or** 3 *sentences.*

Each question carries 2 *marks.*

1. Define enzyme technology.
2. What are carbohydrases ? Give one example.
3. Comment on therapeutic enzymes. Give one example.
4. Name two enzymes of microbial origin, that is used in industry.
5. What is enzyme optimization ?
6. Give the importance of strain improvement in enzyme technology.
7. Define enzyme stabilization.
8. Name two carriers of natural origin which are used in enzyme immobilization.
9. List out the applications of immobilized enzymes ?
10. Outline entrapment immobilization of enzymes.
11. What are enzyme reactors ?
12. Distinguish between batch reactor and continuous flow reactor.
13. What are modified enzymes ?
14. Define synzymes.
15. Comment on enzyme inhibition.
16. Define non-competitive enzyme inhibition.

17. List out the sources of enzyme inhibitors.

18. Mention any *two* applications of enzyme inhibitors in food industry.

19. Give any *two* economic advantages in the use of industrial enzymes.

20. Give one example for biomedical application of enzyme.

(20 × 2 = 40 marks)

Section B

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

Each question carries 8 *marks.*

21. Describe the different classes of industrial enzymes based on nature of substrate.

22. Explain the factors that influence the optimum activity of an enzyme.

23. Discuss the natural sources of enzymes with examples.

24. Explain the different methods of enzyme immobilization.

25. Outline the industrial applications of enzyme inhibitors with suitable examples.

26. What are the different types of reversible enzyme inhibitors ? Explain with examples.

27. Explain how the microenvironment influence the activity of immobilized enzymes.

(5 × 8 = 40 marks)