R7673	Sub. Code 508101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Biomedical Science

HUMAN ANATOMY AND PHYSIOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Blood cells are originating from

   (a) Leucocytes (b) Hematopoietic stem cell

   (c) Erythrocytes (d) Platelets

2. Protein synthesis takes place in cellular organs of

   (a) Smooth ER (b) Rough ER

   (c) Golgi bodies (d) Mitochondria

3. In general, hypertension is a blood pressure reading of

   (a) 110/80mm Hg (b) 130/90mm Hg

   (c) 120/90mm Hg (d) 100/80mm Hg

4. Heart's natural pacemaker is

   (a) VA node (b) SA node

   (c) AA node (d) None of the option given

5. Drugs are metabolized in

(a) Liver (b) Kidney

(c) Stomach (d) None of the above

6. Damaged or old RBC cells are removed by

(a) Kidney (b) Liver

(c) Spleen (d) Heart

7. Our body's chemical messengers are

(a) Protein (b) Hormone

(c) Lipid (d) None of the above

8. Endocrine system consists of

(a) Hypothalamus (b) Thyroid

(c) Pituitary gland (d) All of the above

9. Olfaction is the special sense of ————————.

(a) Taste (b) Smell

(c) Touch (d) All the options

10. A person is said to have hearing loss if they are not able to hear with normal hearing thresholds of

(a) 10 dB (b) 20 dB

(c) 30 dB (d) none of the above

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short notes on structure and function of hemoglobin.

Or

(b) Write short note on blood grouping antigen and their characteristics.

12. (a) Write briefly feedback control for blood pressure.

Or

(b) Discuss the physiology and phases of cardiac cycle.

13. (a) Describe Physiology and different steps of exchange of gases.

Or

(b) Discuss the different types of pulmonary function test.

14. (a) Briefly describe the general characteristics of hormones.

Or

(b) Write the importance of hormonal regulation of ovulation.

15. (a) Briefly describe about renal blood flow and their control.

Or

(b) Write the factors determines the rate of glomerular filtration.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Explain in detail about the structure of animal cell with suitable diagram.

17. Give an account on anatomy of skin with neat diagram.

18. Describe in detail about principles of cardiac cycle with suitable illustration.

19. Write a brief note on anatomical structure of nervous system.

20. Explain the Physiology of GI system with schematic diagram.

21. Discuss in detail about structure and function of male reproductive organ.

22. Write a detail note of physiology of urine formation with suitable diagram.

23. Narrate a detail note on anatomy of ear with hearing mechanism.

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R7674	Sub. Code 508102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Biomedical Science

MEDICAL BIOCHEMISTRY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Hydrolysis of starch yields a large number of

   (a) Dextrose (b) Glucose

   (c) Fructose (d) Mannose

2. The glycogen in the ———— supplies glucose to all tissues through blood.

   (a) Muscles (b) Liver

   (c) Stomach (d) Spleen

3. Artherosclerosis may lead to

   (a) Heart attack

   (b) Stroke

   (c) Kidney dysfunction

   (d) All the above

4. The essential fatty acids not synthesized by animal body is

(a) Linoleic

(b) Linolenic

(c) Arachidonic acids

(d) All the above

5. Phenylketonuria (PKU) is the disorders of _____ metabolism.

(a) Lipid (b) Carbohydrate

(c) Amino acid (d) None of the above

6. Porphyria is a group of liver disorders negatively affecting the

(a) Skin (b) Nervous system

(c) Spleen (d) Both (a) and (b)

7. Nucleotides are polymers that are separated into

(a) Purine (b) Pyrimidine

(c) Nucleic acid (d) Both (a) and (b)

8. Hyperuricemia is an excess amount of ———— in blood.

(a) Urea (b) Uric acid

(c) Ammonia (d) All of the above

9. Type 1 allergic reaction is mediated by ———— cells.

(a) B cell (b) Mast cell

(c) T cell (d) APC

10. Rheumatoid factors are autoantibodies specific for the constant regions of

(a) IgM (b) IgG

(c) Both (a) and (b) (d) None of the above

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short note on how does galactosemia affect the body.

Or

(b) Write short note on pathophysiology of diabetes mellitus.

12. (a) Write briefly salient characteristics of disorders of lipid metabolism of human body.

Or

(b) Discuss the pathophysiology of triglycerides disorder.

13. (a) Describe different steps involved in amino acid metabolism under starvation condition.

Or

(b) Discuss the pathophysiology and clinical symptoms albuminuria.

14. (a) Briefly describe the structure of purine and how does purine metabolisms relate to gout.

Or

(b) Write short note on pathophysiology metabolic syndrome of xanthinuria.

15. (a) What are the prime causes of immunoglobulin deficiency syndrome?

Or

(b) Write short note on pathophysiology of antibody mediated allergic reaction.

Part C (5 × 8 = 40)

Answer any **five** questions.

16. Explain in detail about carbohydrate metabolism with suitable example.

17. How does the blood sugar level can be measured by conventional biochemical methods?

18. Explain the steps involved in cholesterol metabolism in human body. Add a note on main metabolic end product of cholesterol.

19. Write a brief note on causes, symptom and adverse clinical effect of LNS.

20. Explain the causes, pathogenesis and metabolic syndrome of anemia.

21. Discuss in detail about pathophysiology and metabolic syndrome of alkaptonuria.

22. Explain briefly the steps involved in biosynthesis of nucleotides.

23. Give an account on characteristics of immediate type of hypersensitivity reaction.

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R7675

Sub. Code
508103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Biomedical Sciences

CLINICAL PATHOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Select the one which is important in the wound contraction

   (a) Epithelial tissue (b) Myofibroblast

   (c) Collagen (d) Elastin

2. The major molecules responsible for the rejection of transplant is ————————.

   (a) B cells (b) T cells

   (c) MHC molecules (d) Antibodies

3. Select the microscopic parasite that causes amoebiasis

   (a) Intestine

   (b) *E. coli*

   (c) *Enterococcus*

   (d) *Entamoeba histolytica*

4. Select the CORRECT statement related to rheumatic heart disease
   (a) The heart valves permanently damaged by rheumatic fever
   (b) Rheumatic fever is an inflammatory disease
   (c) Rheumatic fever is the cause of rheumatic heart diseases
   (d) All the Above

5. Which statement is NOT CORRECT concerning Tuberculosis?
   (a) Tuberculosis mainly affects lungs
   (b) Mycobacterium tuberculosis is not responsible for infection
   (c) Infection results in formation of a granuloma
   (d) The Ghon focus is a primary lesion caused by microbe

6. Select the most common site of leukoplakia.
   (a) Throat
   (b) Cheek mucosa
   (c) Beneath the tongue
   (d) Gingiva

7. Which of the following is NOT considered as a differential diagnosis for acute cholecystitis?
   (a) Acute pancreatitis
   (b) Irritable bowel syndrome
   (c) Peptic ulcer disease
   (d) None of the above

8. What is splenomegaly?
   (a) Enlarged spleen
   (b) Fatty liver
   (c) Enlarged Pancreas
   (d) Fibrotic spleen

9. Which of the following statements about osteoporosis is true?
   (a) Low levels of sex hormones (estrogen-women; testosterone-men) can lead to it
   (b) Decrease in calcium level
   (c) Bones are brittle
   (d) All of the above

10. The symptoms of pituitary tumors that secrete growth hormones include:
   (a) Enlarged hands and feet
   (b) Stretch marks and thinning of the skin
   (c) Milky discharge from the breasts
   (d) All of the above

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

Each answer should not exceed 1 page or 250 words.

11. (a) Describe the difference between thrombosis from embolism.

Or

(b) Explain in detail about the biopsy and their types.

12. (a) Write a note on mode of transmission and pathogenesis of leprosy.

Or

(b) Elucidate the causes, symptoms and risk factors of atherosclerosis.

13. (a) Give an account of Salivary gland tumors.

Or

(b) Write a short note on the pathogenesis of oral cancer.

14. (a) Write a detailed note on types of anemia.

Or

(b) How will you differentiate Hodgkin's and non-Hodgkiti's lymphoma symptoms?

15. (a) Describe the reasons and diagnostic methods of ovarian tumors.

Or

(b) Write a short note on endocrine disorders

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

Each answer should not exceed 2 pages.

16. Write a detailed note on different stages involved in wound healing.

17. Explain the causes, signs, symptoms and treatment of Ischemic and hypertensive heart disease.

18. Illustrate the methods of urine analysis and discuss the causes, diagnostic methods of Urinary Tract Infection (UTI).

19. Explain about the significance of spleen and the reasons for splenomegaly.

20. Explain the diseases of female reproductive system with reference to cervix, uterus and breast.

21. Explain about the immune based graft rejection in detail.

22. Explain about the causes, symptoms and diagnosis of Diabetic Mellitus.

23. Describe the overall view of mycobacterial diseases and its diagnosis.

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R7676

Sub. Code
508501

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Biomedical Science

BIOINFORMATICS AND IPR

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. The bioinformatics covers many specialized areas of biology such as

   (a) Functional Genomics

   (b) Structural Genomics

   (c) DNA Microarrays

   (d) All the above

2. Structural genomics is the predictions related to functions of

   (a) Proteins (b) DNA

   (c) RNA (d) None of the above

3. Human genome project was an international scientific research project which got successfully completed in

   (a) 2000 (b) 2002

   (c) 2003 (d) none of the above

4. Nucleic acid sequences are stored in primary sequence databases such as

   (a) GenBank

   (b) EMBL nucleotide sequence database

   (c) DNA Data Bank

   (d) All the above

5. Pairwise sequence alignment method used to match two sequence of

   (a) DNA (b) RNA

   (c) Protein (d) All of the above

6. Multiple sequence alignment is to incorporate more than ———— at a time.

   (a) two sequences

   (b) three sequences

   (c) one sequence

   (d) all the above

7. Molecular visualization tool RASMOL developed by

   (a) Peer Bork

   (b) Roger Sayle

   (c) Steven Salzberg

   (d) Lior Pacher

8. Molecular modelling used to generate ideas on

   (a) macromolecules 3D conformation

   (b) protein-ligand interactions

   (c) to make predictions on biological activities

   (d) all the above

9. Common types of intellectual property rights include

(a) copyrights

(b) trademarks

(c) patents

(d) all the above

10. Trade-Related Aspects of Intellectual Property Rights includes

(a) Biotechnology

(b) Biodiversity and traditional knowledge

(c) Climate change

(d) All the above

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write short note on computer system in bioinformatics.

Or

(b) Write short note on machine language used in bioinformatics with suitable example.

12. (a) Write briefly salient goals of human genome project.

Or

(b) Explain different types of sequence database.

13. (a) Describe the types of pairwise alignment in bioinformatics.

Or

(b) Write the CLUSTAL programme for Phylogenetic analysis.

14. (a) Briefly describe the importance of molecular modeling for drug designing.

Or

(b) Write short note on CHIME tool to visualize molecule.

15. (a) Describe the importance of WTO-GATT.

Or

(b) Write short note on important objectives of IPR.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Give an account on URL web browsing used to analyze various online data base.

17. How does SWISS-PORT tools used to analyze protein sequence database?

18. Write short note on importance and programs used by PHYLIP for phylogenetic analysis.

19. Write in brief on prediction of protein structure using bioinformatic tools.

20. Give an account on molecular modeling techniques used to design a new drug.

21. Discuss in detail about MOLMOL visualization tool used to characteristics and confirm protein.

22. Explain the role and importance of IPR in trade related activities.

23. Give an account on patent application procedure and various steps of product patent in India.

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