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**B. Pharmacy (Second Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

HUMAN ANATOMY & PHYSIOLOGY-II

THEORY (BP201T)

Time Allowed : Three hours

Maximum Marks : 75

Note : All questions are compulsory : however, internal choice is provided in question 2 and question 3. Draw well-labelled diagrams wherever necessary in question 2 and question 3.

1. Attempt all sub-questions. Each sub-question carries 1 marks.

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(i) Human heart is made-up of how many chambers?

(a) 3

(b) 4

- (c) 5
 - (d) 6
- (ii) Which blood group is considered as universal donor?
- (a) AB +ve
 - (b) AB -ve
 - (c) O +ve
 - (d) O -ve
- (iii) Pepsin is mainly involved in the digestion of :
- (a) Fats
 - (b) Carbohydrates
 - (c) Proteins
 - (d) None of the above
- (iv) The maximum volume of air contained in the lung by a full forced inhalation is called
- (a) Total lung capacity
 - (b) Tidal volume
 - (c) Vital capacity
 - (d) Inspiratory capacity

- (v) In a typical menstrual cycle of 28 days, what is the most likely fertile period?
- (a) Days 1 to 5
 - (b) Days 5 to 10
 - (c) Days 11 to 14
 - (d) Days 15 to 16
- (vi) Which one of the followings is NOT the disorder of the blood?
- (a) Hemophilia
 - (b) Leukemia
 - (c) Arrhythmia
 - (d) Anemia
- (vii) Which type of blood cells are involved in the blood clotting?
- (a) RBCs
 - (b) Platelets
 - (c) Lymphocytes
 - (d) Neutrophils
- (viii) Which one of the followings is the smallest diameter blood vessel?

- (a) Vein
 - (b) Capillary
 - (c) Arteriole
 - (d) Artery
- (ix) Nodules of lymphoid tissue found in wall of intestinal tract are called
- (a) Microvilli
 - (b) Peyer's patches
 - (c) DiGeorge's nodes
 - (d) Hashimoto's nodes
- (x) Which one of the followings is a disease of cardiovascular system?
- (a) Asthma
 - (b) Peptic ulcer
 - (c) Hypertension
 - (d) Glomerulonephritis
- (xi) Which hormone promotes spermatogenesis?
- (a) Prolactin
 - (b) Progesterone

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- (c) Estrogen
 - (d) Testosterone
- (xii) Which artery supplies blood to the heart muscles?
- (a) Coronary artery
 - (b) Subclavian artery
 - (c) Radial artery
 - (d) Carotid artery
- (xiii) Which one of the following statements is NOT correct for glomerulus?
- (a) It is the filtering unit of the kidney
 - (b) It is a tuft of capillaries
 - (c) It is involved in water reabsorption from the filtrate into the blood
 - (d) It is enclosed by Bowman's capsule
- (xiv) Rh factor is the component of :
- (a) Heart
 - (b) Blood
 - (c) Lungs
 - (d) Kidneys

- (xv) In respiratory system, the exchange of gases takes place in :
- (a) Trachea
 - (b) Bronchus
 - (c) Bronchioles
 - (d) Alveoli
- (xvi) Which one of the followings regulates rate and force of contraction of heart?
- (a) Central nervous system
 - (b) Somatic nervous system
 - (c) Autohomic nervous system
 - (d) Enteric nervous system
- (xvii) The Renin-Angiotensin System (RAS) is mainly involved in :
- (a) Regulation of blood pressure
 - (b) Regulation of gastric acid secretion
 - (c) Regulation of menstruation
 - (d) None of the above
- (xviii) Which one of the following arteries carries deoxygenated blood?

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- (a) Aorta
 - (b) Renal artery
 - (c) Pulmonary artery
 - (d) Caroid artery
- (xix) Which gland is associated with female reproductive system?
- (a) Skene's gland
 - (b) Prostate gland
 - (c) Seminal vesicle
 - (d) Cowper's gland
- (xx) Which one of the followings mainly regulates gastric acid secretion?
- (a) Central nervous system
 - (b) Somatic nervous system
 - (c) Sympathetic nervous system
 - (d) Parasympathetic nervous system
2. Answer any **two** sub-questions. Each sub-question carries 10 marks. 2×10=20
- (i) Explain external and internal structure of liver and state its functions.

- (ii) Write external and internal anatomy of kidney.
Explain the physiology of urine formation.
- (iii) Describe anatomy and physiology of female reproductive system.

3. Answer any **seven** sub-questions. Each sub-question carries 5 marks. 7×5=35

- (i) Write a note on ABO and Rh blood group systems.
- (ii) Explain the mechanism of blood coagulation.
- (iii) Write functions of lymphatic system. Add a note on spleen.
- (iv) Describe anatomy of heart.
- (v) Discuss cardiac conduction system.
- (vi) Write a note on types and functions blood vessels.
- (vii) Write the functions of different digestive juices.
- (viii) Explain anatomy of respiratory system.
- (ix) Define : Chromosome, DNA, Gene, Translation and inheritance

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**M. C. A. (Second Semester) Examination,
April-May 2020**

(New Scheme)

(Computer Applications Branch)

DATABASE MANAGEMENT SYSTEM

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Solve any two parts from each unit. Each question carries equal marks.

Unit-I

1. (a) Define DBMS. Explain the advantages of DBMS over traditional file system.
(b) What do you understand by Entity and Relationship with reference to ER diagram? Construct ER

diagram for Railway Ticket Booking System. Explain all assumptions that you make for designing.

- (c) Explain architecture of DBMS. Explain Physical and Logical Data Independence.

Unit-II

2. (a) Explain various operations of Relational Algebra? Define Relational Calculus and Tuple Relational Calculus.

- (b) Consider the following relational schema STUDENT

Roll Number	Name	Section	Science_Marks	Maths_Marks
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Write SQL queries for the following :

- (i) To display the Roll_number & Name of all the students who scored more marks in Science than that in Maths in ascending order of Roll_number.
- (ii) To display the number of students of section B who failed in both Maths & Science. (Assume minimum passing marks = 40).
- (iii) To display the names of all students of section 'B' whose name contains atleast 2 A's.
- (iv) To display the Roll_number & name of all those

students who scored highest marks in Maths.

(v) To display the Roll_number and Name of the students getting top 3 marks in Science.

(c) What is DDL and DML TCL and DCL commands in Oracle. Write 4 DDL command and DML command in Oracle.

Unit-III

3. (a) Explain the need of Normalization? Explain 1NF, 2NF, 3NF & BCNF, using appropriate example.
- (b) What is Functional Dependency? How it is different from multivalued dependency. Explain the concept of 4NF.
- (c) Explain following :
- (i) Trivial and Non trivial dependency.
 - (ii) Full and Partial Functional Dependency
 - (iii) Rule of Transitivity and Pseudo Transitivity
 - (iv) Rule of Augmentation and Union.

Unit-IV

4. (a) Define Transaction. Draw state diagram and discuss

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typical states that transaction goes through during its lif cycle.

- (b) What is serializability? Write any non-serial schedule which is serializable to one of the serial schedule. Explain the idea of conflict serializability.
- (c) What is deadlock? Describe deadlock detection and deadlock Recovery technique.

Unit-V

- 5. (a) What is Log-Based technique for Recover? Explain Deferred Database Modification Technique giving suitable example.
- (b) What is Time Stamp? Explain Time Stamp Based protocol for concurrency control.
- (c) Explain concept of locking based protocol. What is strict 2PL? Explain its role in Lock-based concurrency control.

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**B. Pharmacy (Second Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

BIOCHEMISTRY-I

THEORY (BP203T)

Time Allowed : Three hours

Maximum Marks : 75

Note : All questions are compulsory. Marks are assigned against the each questions.

Part-A

1×20=20

Note : Attempt all questions.

1. Multiple Choice Questions :

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- (i) Which of the following enzyme catalyzes the first step of glycolysis :
- (a) Pyruvate kinase
 - (b) Hexokinase
 - (c) Glucokinase
 - (d) Phosphofructokinase-1
- (ii) In Kreb's cycle :
- (a) Energy is stored in the form of ATP
 - (b) Energy is stored in the form of ADP
 - (c) Energy is liberated from ADP
 - (d) Energy is liberated from ATP
- (iii) During one TCA cycle number of carbondioxide molecules released is :
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
- (iv) End product of anaerobic phase of glycolysis is :
- (a) Acetyl CoA

- (b) Pyruvate
 - (c) Fructose-1, 6 bisphosphate
 - (d) Lactate
- (v) Which of the following ETC components accepts only one electron :
- (a) Oxygen
 - (b) FMN
 - (c) FAD
 - (d) Cytochrome b
- (vi) β -oxidation of fatty acid is promoted by which of the following :
- (a) ATP
 - (b) NAD^+
 - (c) FADH_2
 - (d) Acetyl CoA
- (vii) Brain gets energy from ketone bodies if availability of glucose is :
- (a) Constant
 - (b) High

(c) Less

(d) Zero

(viii) Ketone bodies are made from :

(a) Acetone

(b) Hydrochloric acid

(c) Acetyl CoA

(d) Acetoacetic acid

(ix) The key regulatory enzymes of fatty acid synthesis is :

(a) Acyl CoA synthetase

(b) Acetyl CoA carboxylase

(c) Keto acyl synthase

(d) Thioesterase

(x) Which out of the following is the primary ketone body :

(a) Acetone

(b) Acetoacetate

(c) B-hydroxy butyrate

(d) Hydroxy methyl glutarate

- (xi) How many ATP are required to complete the urea cycle :
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
- (xii) Proteinuria can be defined as presence of protein in urine greater than :
- (a) 30 mg/dl
 - (b) 300 mg/dl
 - (c) 1 gm/dl
 - (d) 3 gm/dl
- (xiii) DNA replication is :
- (a) Conservative
 - (b) Non-conservative
 - (c) Semi-conservative
 - (d) None
- (xiv) The enzyme used to join bits of DNA is :
- (a) DNA polymerase

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- (b) DNA ligase
 - (c) Endonuclease
 - (d) Primase
- (xv) Conversion of messages carried by mRNA into amino acid sequence is called :
- (a) Replication
 - (b) DNA repair
 - (c) Translation
 - (d) Transcription
- (xvi) What is the size of the prokaryotic ribosome?
- (a) 80 s
 - (b) 70 s
 - (c) 40 s
 - (d) 60 s
- (xvii) Which of the following is considered as a start codon :
- (a) AUG
 - (b) GUG
 - (c) UAG

(d) AGG

(xviii) Mark the one, which is NOT a stop codon :

(a) UAA

(b) UAG

(c) UGA

(d) GGA

(xix) Oxidation involves :

(a) Loss of hydrogen

(b) Loss of oxygen

(c) Gain in hydrogen

(d) Gain in electrons

(xx) "Lock and Key" theory of enzyme action was proposed by :

(a) Fischer

(b) Koshland

(c) Kuhne

(d) Arrhenius

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Part-B $2 \times 10 = 20$

Note: Answer any two question from Part-B. All question carry equal marks.

2. Define Carbohydrates. Briefly explain the glycolysis pathway. What are metabolic disorder of carbohydrates?
3. **Define** Enzymes. Write in detail classification and diagnostic applications of enzymes with suitable examples.
4. Define lipids. Explain in details various disorder of lipid metabolism.

Part-C $7 \times 5 = 35$

Note: Answer any seven question from Part-C. All question carry equal marks.

5. Explain the various factors affecting enzymes activity.
6. What is citric acid cycle? Discuss its significance.
7. Discuss HMP pathway and its biological significance.
8. Discuss mechanism of oxidative phosphorylation.

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9. Define Electron Transport Chain (ETC) with its mechanism.
10. Explain in detail disorder of amino acid metabolism.
11. Discuss formation and utilization of ketone bodies.
12. Write notes on DNA replication.
13. Briefly explain urea cycle.

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**B. Pharmacy (Second Semester) Examination,
April-May 2020**

(PCI Scheme)

(Branch : Pharmacy)

PATHOPHYSIOLOGY

[Theory (BP204T)]

Time Allowed : Three hours

Maximum Marks : 75

Note : This question paper contains three parts (a), (b) and (c). Part (a) contains 20 MCQs of 1 marks each. All questions are compulsory in part (a). Part (b) contains 3 long answer questions of 10 marks each. Attempt any two questions from part (b). Part (c) contains 9 short answer questions each of 5 marks. Attempt any 7 questions from part (c).

Part-‘A’

- 1. Multiple Choice Questions (MCQs). Attempt all the questions : 20×1=20**

- (i) Apoptis can be defined as :
- (a) Sudden cell death
 - (b) Progammed cell death
 - (c) Cell injury
 - (d) Cellular adaptations
- (ii) A condition in which the lipids accumulates in the smooth muscle cells of the aorta and of large arteries :
- (a) Atherosclerosis
 - (b) Xantoma
 - (c) Hyperipidemia
 - (d) Cholesterolosis
- (iii) Histamine is secreted by :
- (a) T-cells
 - (b) Macrophages
 - (c) Basophils and Mast cells
 - (d) Eosionophils
- (iv) Angina pectoris occurs due to :
- (a) Stroke

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- (b) Coronary artery blockage
 - (c) Hypotension
 - (d) All of these
- (v) Atherosclerosis and arteriosclerosis is elated with :
- (a) Disease of artery
 - (b) Disease of bones
 - (c) Disease of liver
 - (d) Disease of kidney
- (vi) COPD differ from asthma in the following respects :
- (a) It is characterized by partial reversibility of obstruction at best
 - (b) Airway inflammation with many eosinophils renders COPD highly responsive to inhaled steroids
 - (c) COPD, Unlike asthma, is largely preventable
 - (d) Both (a) and (c)
- (vii) Tuberculosis is caused by :
- (a) Bacteria
 - (b) Viruses

- (c) Protozoan
 - (d) Malnutrition
- (viii) The fluid that fills the posterior chamber of eye is :
- (a) Lachrymal fluid
 - (b) Aqueous humor
 - (c) Choroid humor
 - (d) CSF
- (ix) Cynocobalamin is the reason of :
- (a) Pernicious anemia
 - (b) Microcytic anemia
 - (c) Macrocytic anemia
 - (d) Pellagra
- (x) Element found at the centre of corrin ring in cobalamin is :
- (a) Copper
 - (b) Cadmium
 - (c) Cobalt
 - (d) Calcium

- (xi) The neurotransmitters involved in depression is :
- (a) GABA and dopamine
 - (b) Serotonin and norepinephrine
 - (c) Dopamine and serotonin
 - (d) GABA and norepinephrine
- (xii) Depression is an :
- (a) Affective disorder
 - (b) Organic disorder
 - (c) Mood disorder
 - (d) Dissociate disorder
- (xiii) Hepatitis A :
- (a) Is a benign, self limiting disease
 - (b) Has a mean incubation period of 1-4 months
 - (c) Frequently causes fulminant hepatitis
 - (d) IgM is not a reliable marker of acute infection
- (xiv) Which of the following is not a characteristics of cancer cells?
- (a) Loss of cell cycle control
 - (b) Transplantability

- (c) Loss of control inhibition
 - (d) All of the above
- (xv) Cancer of Blood cells are called :
- (a) Sarcoma
 - (b) Melanoma
 - (c) Leukemia
 - (d) Carcinoma
- (xvi) What kind of virus is HIV?
- (a) Rotavirus
 - (b) Retrovirus
 - (c) Rhinovirus
 - (d) Coronavirus
- (xvii) Deposition of urate crystals in joints occur in :
- (a) Rheumatoid arthritis
 - (b) Gout
 - (c) Rickets
 - (d) Hepatitis
- (xviii) Which of the following is an Autoimmune disorder?

- (a) Arthritis
 - (b) Gout
 - (c) Myasthenia gravis
 - (d) Spasticity
- (xix) Dopamine deficiency is the important cause of which of the following disease :
- (a) Anemia
 - (b) Parkinson's disease
 - (c) Alzheimer's disease
 - (d) Psychosis
- (xx) Anaphylaxis is the example of :
- (a) Type I hypersensitivity
 - (b) Type II hypersensitivity
 - (c) Type III hypersensitivity
 - (d) Type IV hypersensitivity

Part-'B'

2. Long answer type questions (Answer any 02 out of 03) : **2×10=20**

- (i) What is hypertension? Mention in detail about etiology, sign, symptoms and management of hypertension.

- (ii) What is Cancer? Give a detail account of classification, etiology and pathogenesis of cancer.
- (iii) What is nervous system? Mention in detail sign, symptoms and pathogenesis of Epilepsy.

3. Short answer type questions (Answer any 07 out of 09) :

7×5=35

- (i) Write short note on Myocardial infarction.
- (ii) Describe the mechanism of cell injury.
- (iii) Differentiate between necrosis and apoptosis.
- (iv) Describe various mediators of inflammation.
- (v) What are sexually transmitted diseases?
- (vi) Write short note on diabetes.
- (vii) Write short note on Rheumatoid arthritis.
- (viii) Write short note on Asthma.
- (ix) Give a short note on Anemia.