



ANJUMAN-UL-ISLAM'S

AIKTC KALSEKAR TECHNICAL CAMPUS

INNOVATIVE TEACHING · EXUBERANT LEARNING

School of Architecture

School of Engineering & Technology

School of Pharmacy

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2022-23/

Date: 25/01/23School: SoP-PCIBranch: SoPSEM: II

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following ^{ATKT} **Semester/Periodic** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
1	APP - II	BP201T		✓	
2	Pharmaceutical Organic Chemistry I	BP202T		-	
3	Biochemistry	BP203T		✓	
4	Pathophysiology	BP204T		✓	
5	Computer Applications in Pharmacy	BP205T		-	
6	Environmental sciences	BP206T		-	

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

11.11.2022 Sem-II CBCS R-2020

Paper / Subject Code: 65811 / Human Anatomy & Physiology- II

11

Duration : 3 hours

(Total Marks : 75)

- N.B. 1. All questions are compulsory
2. Figures to the right indicate full marks.

Q1. Choose the correct alternative for the following. 20 M

- 1) _____ is one of the enlargements seen when the spinal cord is viewed externally.
a. Thoracic enlargement b. Cervical enlargement
c. Caudal enlargement d. Sacral enlargement
- 2) _____ cells secrete intrinsic factor for vit B12 absorption.
a. Chief b. Parietal c. Mucous neck d. G
- 2) The additional volume of air inhaled by taking a deep breath is _____.
a. Inspiratory capacity b. Inspiratory reserve volume
c. Expiratory reserve volume d. Vital capacity
- 4) Kidneys produce the two hormones _____ and _____.
a. Thymosin and Calcitriol b. Glucocorticoids and erythropoietin
c. Calcitriol and erythropoietin d. Thymosin & Glucocorticoids
- 5) _____ is an example of Exocrine gland
a. Sudoriferous b. Thymus c. Pancreas d. Ovaries
- 6) Fluid secreted by the seminal vesicles normally constitutes about _____ of the volume of semen.
a. 40 % b. 50 % c. 60 % d. 100 %
- 7) _____ is the neuroglia which acts as phagocytes in CNS.
a. Oligodendrocyte b. Astrocyte c. Microglia d. Schwann cells
- 8) During the _____ phase of digestion, the smell, sight, thought, or initial taste of food activates neural centers.
a. Gastric b. Cephalic c. Intestinal d. Mechanical

- 9) The basic rhythm of respiration is controlled by _____ area.
- a. Pneumotaxic
 - b. Apneustic
 - c. Medullary rhythmicity
 - d. Cough reflex
- 10) Voiding Phase means.
- a. Transfer of materials from peritubular capillaries to renal tubular lumen
 - b. A relaxed bladder in which urine slowly fills in bladder
 - c. A contracted bladder that forces the external sphincter open and discharges urine through the urethra
 - d. Solutes and water are removed from the tubular fluid and transported into the blood
- 11) Thyroid-stimulating hormone is secreted by _____ glands
- a. Thyroid
 - b. Parathyroid
 - c. Pituitary
 - d. Adrenal
- 12) _____ produces progesterone, estrogens, relaxin, and inhibin hormone
- a. Corpus luteum
 - b. Corpus albicans
 - c. Corpus haemorrhagicum
 - d. Germinal epithelium
- 13) Which of these is an accessory reproductive gland in male mammals
- a. Thyroid
 - b. Ovary
 - c. Gastric gland
 - d. Prostate gland
- 14) _____ hormone is thought to promote sleepiness
- a. Thymosin
 - b. Melatonin
 - c. Inhibin
 - d. Glucocorticoids
- 15) The _____ parts of the female reproductive system is homologous to the glans penis in males.
- a. Labia minora
 - b. Labia majora
 - c. Clitoris
 - d. Mons pubis
- 16) _____ is the inhalation and exhalation of air and involves the exchange of air between the atmosphere and the alveoli of the lungs.
- a. Pulmonary ventilation
 - b. Internal respiration
 - c. Tissue respiration
 - d. External respiration

- 17) The four layers of GI tract from deep to superficial are _____
- mucosa, submucosa, muscularis, and serosa
 - submucosa, muscularis, mucosa and serosa
 - muscularis, mucosa, submucosa, and serosa
 - serosa, mucosa, submucosa and muscularis
- 18) Which of these areas is the association area in the cerebrum?
- Broca's speech area
 - Primary visual area
 - Primary auditory area
 - Wernicke's area
- 19) A dome shaped portion superior to the uterine tubes is called as _____
- Body
 - Fundus
 - Cervix
 - Vagina
- 20) Contraction of the dartos muscle causes the scrotum to become tight which _____
- Reduces heat loss
 - Absorb body heat
 - Produce sperm
 - Helps in sperm maturation

II Answer the following (Any 2 out of 3) 20 M

- Draw a neat labelled diagram of a neuron. Explain the phases of action potential generation in neuron.
- Draw a neat labelled diagram of the respiratory system and write a note on respiratory centers.
- Define and classify hormone and describe location and structure of thyroid gland, synthesis, release and storage of thyroid hormones.

III Answer the following (Any 7 out of 9) 35 M

- Describe the anatomy and structure of the cerebrum.
- Write in detail the composition, function and formation of Cerebrospinal fluid.
- Draw a neat labelled diagram of histology of the small intestine, and mention the anatomical parts of the small intestine.
- Mention the phases of digestion and describe any two in detail.
- Define Pulmonary ventilation and explain the mechanism of inhalation.
- With the help of neat labelled diagram explain the structure of the urinary bladder.
- Elaborate in detail pancreas as endocrine gland and exocrine gland and describe the regulation of insulin and glucagon secretion.
- Enlist the organs involved in the female reproductive system and describe histology of the ovary.
- Explain in detail various ducts of the male reproductive system.

17/11/22

(3 Hours)

[Total Marks: 75]

- N.B.: 1. All questions are compulsory
2. Figures to right indicate full marks

Q. 1 Choose appropriate option for following multiple choice-based questions. 20

- 1 The amino acid, which contains sulphur is _____.
 - a Methionine
 - b Serine
 - c Glycine
 - d Leucine
- 2 What is the standard free energy change of ATP?
 - a Small and negative
 - b Large and positive
 - c Large and negative
 - d Small and positive
- 3 A reaction, which proceeds with net release of free energy and is spontaneous, is called as _____.
 - a Endergonic reaction
 - b Exergonic reaction
 - c Endothermic reaction
 - d Exothermic reaction
- 4 Which of the following is correct about Krebs Cycle?
 - a Pyruvate condenses with Oxaloacetate to form Citrate
 - b Alpha ketoglutarate is a five Carbon compound
 - c Oxidative Phosphorylation occurs in the cytoplasm only
 - d Krebs cycle can operate in anaerobic condition
- 5 Gluconeogenesis involves conversion of _____.
 - a Glucose-6-Phosphate to Fructose-6-Phosphate
 - b Pyruvate to Lactate
 - c Pyruvate to Acetyl CoA
 - d Oxaloacetate to Phosphoenolpyruvate
- 6 Which of the following is a debranching enzyme?
 - a Glycogen synthetase
 - b Glucose-6-phosphatase
 - c Amylo 1,6 glucosidase
 - d Amylo 1,4-1,6 transglycosylase

- 7 Final acceptor of electrons in ETC is
- a Cyt c
 - b Oxygen
 - c FADH₂
 - d CoQ
- 8 Pyruvate is converted to acetyl CoA by _____.
- a Oxidative Phosphorylation
 - b Oxidative decarboxylation
 - c Oxidative carboxylation
 - d Oxidative dephosphorylation
- 9 Number of ATP formed by oxidation of one molecule of palmitic acid is
- a 146
 - b 106
 - c 134
 - d 34
- 10 Conversion of acetoacetate to acetone is the step involved in
- a ketogenesis
 - b urea cycle
 - c glycolysis
 - d HMP shunt
- 11 Argininosuccinic aciduria is a recessive disease due to lack of ____ enzyme.
- a argininosuccinate lyase
 - b argininosuccinase
 - c arginase
 - d arginine transcarbamylase
- 12 Dopamine is synthesized from _____.
- a tyrosine
 - b tryptophan
 - c threonine
 - d lysine
- 13 Hydrolases enzymes are involved in _____.
- a Oxidation reduction reaction
 - b Hydrolysis reaction
 - c Isomerization reaction
 - d Addition or removal group reaction

- 14 If K_m changes and V_{max} remains the same. What is the type of enzyme inhibition?
- Competitive Inhibition
 - Noncompetitive Inhibition
 - Uncompetitive inhibition
 - Suicide Inhibition
- 15 Puromycin is a drug that interferes with _____.
- Protein synthesis
 - Nucleotide synthesis
 - DNA replication
 - RNA synthesis
- 16 Genetic lack of _____ causes Lesch Nyhan syndrome.
- Hypoxanthine guanine phosphoribosyl transferase
 - Adenine phosphoribosyl transferase
 - Adenine deaminase
 - Guanine deaminase
- 17 AUG serves as
- Start codon
 - Non-sense codon
 - Stop codon
 - Anticodon
- 18 In DNA replication _____ is responsible for removal of supercoiling as the replication fork moves ahead.
- Topoisomerase
 - Primase
 - Ligase
 - Helicase
- 19 The role of sigma factor present in bacterial RNA polymerase is
- Positioning of RNA polymerase correctly on DNA template
 - Catalyzing RNA synthesis
 - Terminating RNA synthesis
 - Separating the two strands of DNA
- 20 Which enzyme is a part of urea cycle?
- ornithine transcarbamoylase
 - Asparaginase
 - Glutamate synthase
 - gluatamine transaminase

- Q. 2 Answer any two questions. 20**
- a i) Elaborate in detail the regulatory steps of glycolysis with respect to name and structure of intermediates, enzymes and cofactors. 6
 - ii) Discuss ketogenesis w.r.t reactions and regulation. 4
 - b i) Outline reactions involved in conversion of AMP to IMP and write a note on salvage pathway for purines. 6
 - ii) Explain in brief about initiation and elongation steps in prokaryotic replication. 4
 - c i) Discuss Michaelis Menten and line Weaver Burk plot with respect to enzyme inhibitors. 6
 - ii) Explain the terms i) spontaneous reaction, ii) activation energy iii) ΔG iv) Entropy 4

Q. 3 Answer any seven questions 35

- i) Write a note on secondary structure of proteins. Draw structure of Lecithin.
 - ii) Classify carbohydrates based on their structure and chemical nature. Give structure of lactose.
 - iii) Give the names and structures of substrate and product for the reactions catalysed by following enzymes. a) Lactonase, b) Pyruvate kinase.
 - iv) Explain various steps involved in glycogenolysis.
 - v) Write a note on carnitine shuttle. Explain the energetics for β oxidation of palmitic acid
 - vi) Explain β oxidation of palmitic acid with energetics.
 - vii) Explain the biosynthesis of adrenaline with its significance.
 - viii) Outline the synthesis of CTP from orotate. Write a note on treatment of gout.
 - ix) Discuss the IUB classification of enzymes with suitable examples.
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19/11/2022

Time- 3 hrs

Marks 75

Q. I	MCQ	Mark
1	Inflammation of prolonged duration in which, inflammation, tissue injury, and attempts of repair coexist is called as _____	1
a	Chronic Inflammation	
b	Acute Inflammation	
c	Transient Inflammation	
d	Compound Inflammation	
2	Reduced Oxygen supply to an organ or part of the body is called as	1
a	Hypoxia	
b	Hyperemia	
c	Hyponatrimia	
d	Hypokalemia	
3	Exudate is an extravascular fluid that has _____	1
a	Low protein concentration, cellular debris and has a low specific gravity	
b	Low protein concentration, cellular debris and has a high specific gravity	
c	High protein concentration, cellular debris and has a low specific gravity	
d	High protein concentration, cellular debris and has a high specific gravity	
4	_____ is a fluid released during inflammation and has higher amount of proteins.	1
a	Lymph	
b	Transudate	
c	Exudate	
d	Intracellular Fluid	
5	Increased sensitivity to pain is called as	1
a	Hyperalgesia	
b	Hypoalgesia	
c	Analgesia	
d	Algesia	
6	Hypertension caused by chronic kidney disease is called as _____	1
a	Primary Hypertension	
b	Secondary Hypertension	
c	Nonlethal Hypertension	
d	Essential Hypertension	
7	_____ infarct is referred as 'non-ST elevation infarct (NSTEMI)'	1
a	Anterior	
b	Transmural	
c	Septal	
d	Subendocardial	

- 8 Inability of the kidneys to perform excretory function leading to retention of nitrogenous waste products from the blood is called as _____ 1
- a Renal Failure
 - b Renal calculi
 - c Urinary Tract Infection
 - d Kidney stone
- 9 _____ is irreversible necrosis of heart muscle secondary to prolonged ischemia. 1
- a Acute Myocardial Infarction
 - b Hypertension
 - c Hypotension
 - d Atherosclerosis
- 10 In which type of emphysema, the acini are uniformly enlarged from the level of the respiratory bronchiole to the terminal alveoli? 1
- a Pan acinar
 - b Para septal
 - c Irregular
 - d Distal
- 11 The immediate cause of _____ is disturbance in normal protective mucosal 'barrier' by acid pepsin, resulting in digestion of the mucosa. 1
- a Ischemic heart disease
 - b Peptic ulcer disease
 - c Brain stroke
 - d Schizophrenia
- 12 Which of the following is not characteristic of Hemolytic anemia 1
- a Erythroid hyperplasia
 - b Increased erythropoietin levels
 - c Increased reticulocytes
 - d Thrombocytopenia
- 13 Parkinson disease (PD) is a neurodegenerative disease that is caused by loss of _____ from the substantia nigra. 1
- a Adrenergic neurons
 - b Dopaminergic neurons
 - c Serotonergic neurons
 - d cholinergic neurons
- 14 _____ is caused by beta cell destruction and insulin deficiency. 1
- a Type 1 diabetes mellitus
 - b Type 2 diabetes mellitus
 - c Nephrogenic diabetes insipidus
 - d Cranial diabetes insipidus.

- 15 Which of the following is negative symptoms of schizophrenia 1
a delusions
b hallucinations
c withdrawal from social contacts
d thought disorder
- 16 Which is correct regarding IBD 1
a Toxic megacolon occurs Crohn's and Ulcerative colitis
b Risk of developing ulcerative colitis is higher in smokers than non-smokers
c Cobblestone appearance on bowel wall is more characteristic of Crohn disease
d Patients with Crohn disease are more at a risk of colorectal cancer than UC patients
- 17 In the treatment of osteoporosis, which of this essential vitamin is needed to ensure that enough calcium is absorbed by the body? 1
a Vit. A
b Vit. C
c Vit. B
d Vit. D
- 18 Chemicals, that can induce cancer are called 1
a Hazardous substances
b Carcinogens
c Mutagenic agents
d Non-Carcinogens
- 19 What are the symptoms of the people suffering from latent tuberculosis infection? 1
a Spread TB bacteria to others
b Patient feel sick
c Have no symptoms
d Patients have a negative TB blood test.
- 20 Syphilis is caused by which microorganism? 1
a *C. oerfringes*
b *C. botulinum*
c *Ventral pallidum*
d *Treponema pallidum*
- II. Long Answers (Answer 2 out of 3) 20
A Describe any FOUR biochemical mechanisms of Cell Injury.
B What is Angina? Explain the types of angina. Discuss Risk factors and pathophysiology of Angina pectorice
C Discuss in detail signs and symptoms, etiology and pathogenesis of Peptic Ulcer.

III. Short Answers (Answer 7 out of 9)

35

- A Note on Basic principles of wound healing in the skin
- B Explain the signs and symptoms, etiopathogenesis and types of asthma
- C Write a note on pathogenesis of Gynecomastia
- D Discuss signs, symptoms and etiology of megaloblastic anemia
- E Define Benign and Malignant Tumour. Discuss the mechanism of carcinogenesis.
- F Enlist the carcinogenic factors.
- G What is Jaundice? Classify according to Pathogenesis. Discuss Symptoms and pathogenesis of Jaundice.
- H Write a note on Urinary tract infections
- I Discuss signs, symptoms and etiology of Syphilis
