



PAST PAPERS

<i>Faculty</i>	<i>Department / Section/Division</i>
<i>Not Applicable</i>	<i>Learning Resource Centre</i>

Past Papers

Faculty of health science

Bachelor of Science honours in Biomedical Sciences

Year 2 – Semester II

<i>Document Control & Approving Authority</i>	<i>Senior Director – Quality Management & Administration</i>
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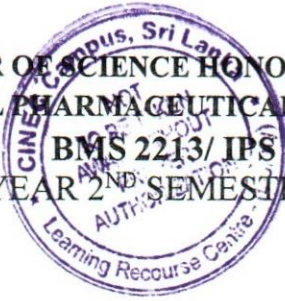
<i>1st Issue Date: 2017.011.30</i>	<i>Revision No.00</i>	<i>Revision Date: 12.01.2023</i>	<i>Validated by: Librarian</i>
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FACULTY OF HEALTH SCIENCES

BACHELOR OF SCIENCE HONOURS IN BIOMEDICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN INDUSTRIAL PHARMACEUTICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN COSMETIC SCIENCE

BMS 2213/ IPS 2213/ BCS 2213-ANATOMY AND PHYSIOLOGY II

2ND YEAR 2ND SEMESTER-END SEMESTER BRQ/MCQ EXAMINATION-5TH BATCH



INDEX NUMBER:

Date : 10th May 2023
Time : 11.15 a.m. – 12.15 p.m. (One Hour)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **Twenty** questions.
- Answer **ALL** questions.
- **Question No. 01- 08 contains a single answer** and select most appropriate answer among give five statements.

Ex:

1	2	3	4	5
		X		

- **Question No. 09- 20, consist of Five statements** and you need to select and mark either **True (T)** or **False (F)** in each statement.

Ex:

T	T	T	T	T
F	F	F	F	F

- You should write legibly in black or blue ink.
- You are not allowed to take out the examination papers.

1. **Part of the eye comparatively very rich in blood vessels,**
 1. Choroid
 2. Cornea
 3. Sclera
 4. Iris
 5. Retina

2. **Most of the reabsorption from the glomerular filtrate will take place in?**
 1. Proximal convoluted tubule
 2. Distal convoluted tubule
 3. Ascending limb of loop of Henle
 4. Descending limb of loop of Henle
 5. Collecting tubule

3. **Which one is an example for the mixed cranial nerve?**
 1. Olfactory (Sensory)
 2. Oculomotor (Motor)
 3. Glossopharyngeal
 4. Trochlear
 5. Hypoglossal

4. **Which immunity organ contains Hassal's corpuscles?**
 1. Tonsils
 2. Bone marrow
 3. Thymus
 4. Spleen
 5. Lymph nodes

5. **Which of the following hormone is secreted by the adrenal cortex?**
 1. Aldosterone
 2. Adrenalin
 3. ADH
 4. Noradrenalin
 5. Renin

6. **Which of the following best describes the function of the cerebral cortex,**
 1. Sensory perception
 2. Regulation of respiration
 3. Thermoregulation
 4. Coordination of voluntary movements
 5. Changes in heart rate

6. **Which of the hormone is not secreted by the corpus luteum?**
 1. Estrogen
 2. Progesterone
 3. Inhibin
 4. Relaxin
 5. Melatonin

7. Which one is not a pure endocrine organ?

1. Pituitary gland
2. Thyroid gland
3. Thymus
4. Parathyroid gland
5. Adrenal gland

8. True or false nervous system?

1. Ganglions are collection of neuron cell bodies.
2. Thalamus is a part of brain stem.
3. Gyri are fold in cerebral cortex.
4. There are 11 pairs of cranial nerves.
5. A bundle of axons are known as tracts.

10. True or False regarding the muscle physiology?

1. When a nerve signal reaches the muscle cell, calcium is released from the sarcoplasmic reticulum surrounding the myofibrils.
2. The myosin heads bind to the binding sites of the actin proteins, to form a cross-bridge as the inorganic phosphate is released.
3. ATP is released which causes initiation of the power stroke
4. A new ATP molecule binds to the myosin head causing the separation of the actin-myosin crossbridge.
5. Muscle relaxation is a highly passive process.

11. True or False regarding the cranial nerves,

1. Olfactory nerve is a sensory nerve which detect the smell
2. Vestibulocochlear nerve is a motor nerve
3. Vagus nerve innervates the heart, lungs and gastrointestinal system
4. Trigeminal nerve is the 5th cranial nerve which contain 3 branches
5. Optic nerve is a motor nerve

12. Hormones related with the kidney are,

1. Angiotensin II
2. Parathyroid hormone
3. Adrenaline
4. ADH
5. Thyroxin

13. True or false regarding lymphatic system?

1. Neck region contains only superficial cervical nodes.
2. Lymph nodes have an outer capsule.
3. Lymph node contains number of efferent vessels.
4. Jugular trunks receive lymph from head and neck.
5. Lymph nodes contain trabeculae.

14. Which of the followings are correct regarding the male reproductive system?

1. GnRH stimulate the secretion of FSH and LH
2. LH stimulates spermatogenesis.
3. FSH stimulates the secretion of testosterone.

4. Inhibin stimulates the secretion of FSH and LH
5. Testosterone inhibits the secretion of GnRH.

15. True or false regarding human urinary system?

1. Kidneys are intraperitoneal organs.
2. The renal cortex contains pyramids.
3. Ureters contain transitional epithelium.
4. Membranous urethra passes through the length of the penis.
5. The renal vein drains directly into the inferior vena cava.

16. True or false regarding the female reproductive system?

1. FSH stimulates the follicular phase of the ovarian cycle.
2. Estrogen stimulates the proliferative phase of the ovarian cycle.
3. Corpus luteum secretes progesterone.
4. Progesterone stimulates the secretory phase of the uterine cycle
5. Corpus luteum stimulates menstruation

17. Regarding Thyroid glands,

1. Skin is an innate defense mechanism.
2. Fever is an internal defense mechanism.
3. Inflammation is an innate defense mechanism.
4. B-lymphocytes are produced in the bone marrow and get matured in thymus.
5. T-lymphocytes are produced in thymus.

18. True or False regarding the musculoskeletal system?

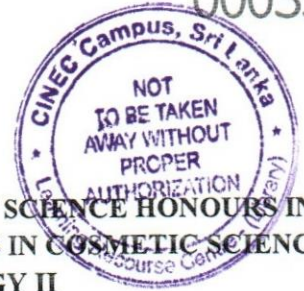
1. Carpals are short bones.
2. Patella is an example for sesamoid bone.
3. Osteoclasts mature into new osteocytes.
4. External ear contains hyaline cartilage.
5. Hyoid bone does not articulate with another bones.

19. True or false regarding endocrine organs?

1. Anterior pituitary gland is a downgrowth of nervous tissue.
2. Thyroid gland is a highly vascular gland.
3. Follicles are the functional unit of the thyroid gland.
4. Pineal gland contains astrocytes.
5. Thyroid follicles are filled with colloid.

20. True or False regarding the human ear?

1. The auricle is the visible part of the ear.
2. The tympanic membrane separates the middle ear from the inner ear.
3. Incus is a lateral hammer-shaped bone.
4. Membranous labyrinth is filled with endolymph.
5. Cochlea resembles a snail's shell.



Faculty of Health Sciences

BACHELOR OF SCIENCE HONOURS IN BIOMEDICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN INDUSTRIAL PHARMACEUTICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN COSMETIC SCIENCE

BMS 2213/ IPS 2213/ BCS 2213 -ANATOMY AND PHYSIOLOGY II
 2ND YEAR 2ND SEMESTER-END SEMESTER SEQ EXAMINATION- 5TH BATCH.

Date : 10th May 2023
Time : 09.00 a.m. – 11.00 a.m. (Two Hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **FOUR** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are not allowed to take out the examination papers.

Question 1 **(100 marks)**

1.1 List the difference between cortical and juxtamedullary nephrons. (15 marks)

1.2 Write a short note on followings.

1.2.1 Renal Corpuscle (10 marks)

1.2.2 Trigone of Urinary bladder (10 marks)

1.3 Write three differences between male and female urethra. (15 marks)

1.4 List the three main processes of urine formation. (15 marks)

1.5 Briefly describe the three (3) main steps of the uterine cycle of the of females. (35 marks)

Question 2 **(100 marks)**

2.1 Describe the microscopic view of thyroid tissues. (25 marks)

2.2 “Pancreas belongs to both exocrine and endocrine glands.” Comment on this statement. (25 marks)

2.3 State the endocrine hormones of the pancreas and state the main action of each. (20 marks)

2.4 Draw and briefly describe the HPT axis (Hypothalamic-Pituitary-Thyroid axis). (30 marks)

Question 3 **(100 marks)**

3.1 Name two examples for each of the followings.

3.1.1 Primary immune organs (10 marks)

3.1.2 Secondary immune organs (10 marks)

3.2 Describe the anatomical features of synovial joints. (30 marks)

3.3 Briefly describe the main step of phagocytosis (30 marks)

3.4 Draw the flow chart to represent the Calcium Metabolism of the body of a patient diagnosed with increased calcium ions in the body. (20 marks)

Question 4 **(100 marks)**

4.1 Describe the structure of a neuron. (25 marks)

4.2 Name the main 4 parts of the human limbic system. (20 marks)

4.3 Describe the structure of auditory ossicles. (25 marks)

4.4 Describe the stepwise process of communication of neurons at ‘Synapses’. (30 marks)

Faculty of Health Sciences

BACHELOR OF SCIENCE HONOURS IN BIOMEDICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN INDUSTRIAL PHARMACEUTICAL SCIENCE/ BACHELOR OF SCIENCE HONOURS IN COSMETIC SCIENCE

BMS 2213/ IPS 2213/ BCS 2213 -ANATOMY AND PHYSIOLOGY II

2ND YEAR 2ND SEMESTER-END SEMESTER SEQ EXAMINATION- 5TH BATCH.

Date : 10th May 2023
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- Answer **ALL** questions.
- You should write legibly in black or blue ink.
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- 1.1 List the difference between cortical and juxtamedullary nephrons. (15 marks)
- 1.2 Write a short note on followings.
- 1.2.1 Renal Corpuscle (10 marks)
- 1.2.2 Trigone of Urinary bladder (10 marks)
- 1.3 Write three differences between male and female urethra. (15 marks)
- 1.4 List the three main processes of urine formation. (15 marks)
- 1.5 Briefly describe the three (3) main steps of the uterine cycle of the of females. (35 marks)

- Question 2** (100 marks)
- 2.1 Describe the microscopic view of thyroid tissues. (25 marks)
- 2.2 "Pancreas belongs to both exocrine and endocrine glands." Comment on this statement. (25 marks)
- 2.3 State the endocrine hormones of the pancreas and state the main action of each. (20 marks)
- 2.4 Draw and briefly describe the HPT axis (Hypothalamic-Pituitary-Thyroid axis). (30 marks)

- Question 3** (100 marks)
- 3.1 Name two examples for each of the followings.
- 3.1.1 Primary immune organs (10 marks)
- 3.1.2 Secondary immune organs (10 marks)
- 3.2 Describe the anatomical features of synovial joints. (30 marks)
- 3.3 Briefly describe the main step of phagocytosis (30 marks)
- 3.4 Draw the flow chart to represent the Calcium Metabolism of the body of a patient diagnosed with increased calcium ions in the body. (20 marks)

- Question 4** (100 marks)
- 4.1 Describe the structure of a neuron. (25 marks)
- 4.2 Name the main 4 parts of the human limbic system. (20 marks)
- 4.3 Describe the structure of auditory ossicles. (25 marks)
- 4.4 Describe the stepwise process of communication of neurons at 'Synapses'. (30 marks)

Faculty of Health Sciences
Bachelor of Science Honours in Biomedical Sciences
BIOCHEMISTRY II – BMS 2225

2ND YEAR 2ND SEMESTER -END EXAMINATION SEQ. BATCH 05



Date : 2023-05-08
Time : 9. 00A.M – 12.00P.M (3 HOURS)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are allowed used a scientific calculator for the examination.

QUESTION 01

(100 marks)

- 1.1 Explain the behavior of amino acids at following pH values.
- 1.1.1 Acidic pH (15 marks)
 - 1.1.2 Isoelectric point (15 marks)
 - 1.1.3 Basic pH (15 marks)
- 1.2 Define following terms with giving two examples for each.
- 1.2.1 Ketogenic amino acid (15 marks)
 - 1.2.2 Essential amino acid (15 marks)
 - 1.2.3 Fibrous protein (15 marks)
- 1.3 Illustrate the peptide bond formation only using a labeled diagram. (10 marks)

QUESTION 02

(100 marks)

- 2.1 Write short notes on followings.
- 2.1.1 Transamination of amino acids (20 marks)
 - 2.1.2 Phenylketonuria (20 marks)
- 2.2 Describe the major mechanism for the removal of ammonia in the brain. (30 marks)
- 2.3 Describe the role of covalent modification in enzyme regulation. (30 marks)

QUESTION 03

(100 marks)

- 3.1 Describe main characteristic features of DNA double helix. (30 marks)
- 3.2 If Guanine presents in 20% in a particular double stranded DNA molecule , what are the percentages of Adenine, Thymine and Cytosine? (10 marks)
- 3.3 What is a melting temperature (T_m) of DNA? (15 marks)
- 3.4 Explain how following factors affect on melting temperature of DNA.
- 3.4.1 Base composition (15 marks)
 - 3.4.2 Length of the chain (15 marks)
 - 3.4.3 Ionic strength of the DNA solution (15 marks)

QUESTION 04**(100 marks)**

- 4.1. Mention the key junctions of metabolism. (15 marks)
- 4.2. Describe the metabolic fates of glucose – 6-phosphate. (35 marks)
- 4.3. Discuss the integrated metabolism between liver and adipose tissues in maintaining blood glucose level after consuming a meal. (50 marks)

QUESTION 05**(100 marks)**

- 5.1. Describe the following,
- Biochemical role of Vitamin E. (30 marks)
 - Vitamin A is necessary for vision in dim light (30 marks)
 - Lack of Vitamin D causes osteoporosis (20 marks)
- 5.2. Draw a flow chart to denote the mechanism pathway of hydrophobic hormone messengers. (20 marks)

QUESTION 06**(100 marks)**

Enzyme A was incubated with varying amounts of the substrate and the obtained enzyme activity in the presence and absence of compound "P" is represented in the below table.

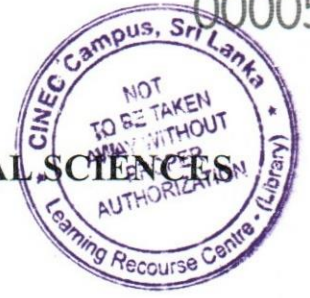
Substrate Concentration (mM) (S_o)	Enzyme Activity (V_o) $\mu\text{mol}/\text{min}$	Enzyme activity in the presence of compound P ($1/V_i$) $\mu\text{mol}/\text{min}$
0.1	0.025	56
0.2	0.041	32
0.3	0.059	24
0.4	0.067	22
0.5	0.077	18

- 6.1. Calculate $1/S_o$ and $1/V_o$ values. (10 marks)
- 6.2. Using a graph paper plot the Lineweaver-Burk plot in the absence of compound "P". (20 marks)
- 6.3. In the same graph paper, plot the Lineweaver-Burk plot in the presence of compound "P". (20 marks)
- 6.4. Calculate K_m and V_{max} for the enzyme A in the presence of compound "P". (30 marks)
- 6.5. Indicate the effect of compound P on the activity of enzyme A. (20 marks)



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FACULTY OF HEALTH SCIENCES
BACHELOR OF SCIENCE HONOURS IN BIOMEDICAL SCIENCES
INSTRUMENTATION (BMS 2234)
BATCH 05 - 2ND YEAR 2ND SEMESTER
END SEMESTER SEQ EXAMINATION

Date: 04th May 2023

Time: From 9.00 am to 11.00 pm

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **four** questions.
- Answer **all** questions.
- You should write legibly in black or blue ink.

Question 01

(100 marks)

- 1.1. What does it mean by “Good Laboratory Practice (GLP)”? (10 marks)
- 1.2. Mention the importance of “Standard Operational Procedure-SOP”. (20 marks)
- 1.3. List the instruments used for the pipetting of a certain amount of volume. (20 marks)
- 1.4. Sectioning of formalin-fixed paraffin-embedded tissue is called the microtomy. Mention the instruments that are used for the tissue processing process. (20 marks)
- 1.5. Briefly describe the three main parts of the design of a histopathology laboratory. (20 marks)

Question 02

(100 marks)

- 2.1. Write short notes for the following instruments.
- 2.1.1. Gel electrophoresis system (25 marks)
- 2.1.2. Flow cytometer (25 marks)
- 2.1.3. Protein analyzer (25 marks)
- 2.1.4. Flame photometer (25 marks)

Question 03

(100 marks)

- 3.1. Compare the terms of “Accuracy” and “Precision”. (20 marks)
- 3.2. Calculate the sensitivity and the specificity of the ELISA test results mentioned in the table given below.

	Disease +	Disease -	Total
Test +	23	5	28
Test -	7	65	72
Total	30	70	100

(40 marks)

3.2. Describe the principle of sandwich ELISA technique.

(40 marks) 00005

Question 04

(100 marks)

4.1. Compare the Class I biological safety cabinet and Class II biological safety cabinet.

(15 marks)

4.2. Briefly describe the procedure of conducting daily maintenance for the biosafety cabinets.

(20 marks)

4.3. State the optical parts of a microscope and briefly describe their function.

(40 marks)

4.4. Explain the maintenance of the light microscope in the laboratory setting.

(25 marks)



Faculty of Health Sciences

Bachelor of Science Hons. Biomedical Science Haematology BMS2243

2nd YEAR 2nd SEMESTER -END EXAMINATION SEQ -BATCH 05

Date : 2nd May 2023
Time : 9.00A.M – 11.00 AM (2 HOURS)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of FOUR questions.
- Answer ALL questions.
- You should write legibly in black or blue ink

Question 01 (100 marks)

- 1.1 Define the term hemopoiesis. (05 marks)
- 1.2 What are the different sites of hemopoiesis? (15 marks)
- 1.3 What are the general characteristics of myeloid and lymphoid growth factors? (15 marks)
- 1.4 State the growth factors which act on following haemopoietic progenitor cells. (20 marks)
- 1.4.1 Stromal cells
- 1.4.2 Pluripotent stem cells
- 1.4.3 Multipotent stem cells
- 1.4.4 Committed progenitor cells.
- 1.5 Discuss the resulting cell lineages of Lymphoid stem cells during hemopoiesis. (30 marks)
- 1.6 Mention the role of Erythropoietin on hemopoiesis. (15 marks)

Question 02 (100 marks)

A 40-years-old female with pallor of mucous membrane was admitted to emergency department of a hospital. While evaluating her clinical history it was found out that she had been suffering with fatigue, weakness, and dizziness for the past two weeks. The doctor requested a Full Blood Count (FBC) test. The results are shown below.

FBC Results:

Parameter	Result	Normal range
Haemoglobin	79 g/L	120 - 160 g/L
WBC	$12.2 \times 10^9/L$	$4.0 - 11.0 \times 10^9/L$
RBC	$2.00 \times 10^{12}/L$	$4.20 - 5.40 \times 10^{12}/L$
HCT	0.201 L/L	0.35 - 0.47 L/L
MCV	60 fL	78 - 98 fL
MCH	30.3 pg	27 - 32 pg
Platelets	$337 \times 10^9/L$	$150 - 450 \times 10^9/L$
Neutrophils	$7.6 \times 10^9/L$ (53.2%)	$2.0 - 7.5 \times 10^9/L$ (50 - 98%)
Lymphocytes	$4.50 \times 10^9/L$ (36.8%)	$1.5 - 4.0 \times 10^9/L$ (5 - 50%)
Monocytes	$0.54 \times 10^9/L$ (4.4%)	$0.2 - 1.0 \times 10^9/L$ (2 - 10%)
Eosinophils	$0.35 \times 10^9/L$ (2.9%)	$0.1 - 0.8 \times 10^9/L$ (1 - 4%)
Basophils	$0.09 \times 10^9/L$ (0.7%)	$0.01 - 0.2 \times 10^9/L$ (0 - 2%)
RDW	19.90%	11.5 - 13.9%
Absolute reticulocyte count (ARC)	$526 \times 10^9/L$	$50 - 100 \times 10^9/L$
Reticulocytes %	17.50%	0.2 - 2.0%

2.1 Comment on the FBC test results in relation to the patient's clinical history. (20 marks)

2.2 Describe the tests which can be performed to confirm whether this patient has Iron Deficiency Anemia. (30 marks)

2.3 A bone marrow biopsy was prescribed by the above patient's physician. Describe the process of Bone Marrow Biopsy procedure. (20 marks)

2.4 Upon the examination bone marrow biopsy ringed sideroblasts were observed. Describe patients' possible disease and further laboratory tests to confirm the diagnosis. (30 marks)

Question 03**(100 marks)**

3.1 What are the functions of haemostatic mechanism? (10 marks)

3.2 Describe Intrinsic and Extrinsic pathways. (60 marks)

3.3 Describe the positive feed backs of the coagulation system. (30 marks)

Question 04**(100 marks)**

4.1 Discuss the structure and function of platelets. (25 marks)

4.2 What are the biochemical characters of platelets? (20 marks)

4.3 Describe the role of Von Willebrand factor (VWF). (30 marks)

4.4 What is Von Willebrand disease and laboratory tests used for diagnosis? (25 marks)



Faculty of Health Sciences
Bachelor of Science Honours in Biomedical Science
HD 2223 Pharmacology
Batch 01
2nd year 2nd Semester End Examination SEQ

INDEX NUMBER:

Date: 21.12.2022

Time: 9.00 am – 12.00 pm (To answer the questions)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **all** questions.
- The paper will be for three hours (9.00 am-12.00 am). You will be given an extra 30 minutes for submission. Any submission after 12.30 pm will not be accepted.
- You should write the answers in **lined** sheets legibly in black or blue ink.
- You **MUST** write **examination name, module code, your name and index number** of each answer script **according to the previously circulated format via email**.
- Answer script should be numbered (right bottom) clearly.

Question 01

(100 Marks)

Describe briefly

1.1. drug absorption

(50 marks)

1.2. drug metabolism

(50 marks)

Question 02

(100 Marks)

2.1. List the types of drug interactions

(30 marks)

2.2. Describe the importance of drug interactions

(30 marks)

2.3. Describe the pharmacovigilance

(40 marks)

Question 03

(100 Marks)

Describe

3.1. Agonist

(50 marks)

3.2. Antagonist

(50 marks)

Question 04

(100 Marks)

4.1. What is ADME?

(40 marks)

4.2. How drugs are distributed in the body?

(30 marks)

4.3. What is volume of distribution?

(30 marks)

Question 05

(100 Marks)

5. Describe the drug treatment in

5.1. liver impairment

(50 marks)

5.2 Renal impairment

(50 marks)

Question 06

(100 Marks)

Briefly describe drug administration in

6.1. Elderly patients

(40 marks)

6.2. Children

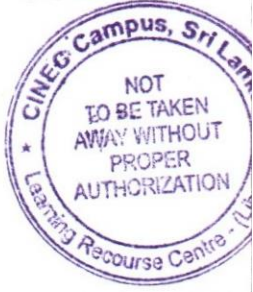
(30 marks)

6.3. Pregnancy

(30 marks)

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Faculty of Health Sciences
Bachelor of Science Honours in Biomedical Science
HD 2223 Pharmacology
Batch 01
2nd year 2nd Semester End Examination SEQ

INDEX NUMBER:

Date: 21.12.2022
Time: 9.00 am – 12.00 pm (To answer the questions)

INSTRUCTIONS TO CANDIDATES

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Question 01**(100 Marks)**

Describe briefly

- 1.1. First pass metabolism (25 marks)
- 1.2. Factors affecting drug absorption (25 marks)
- 1.3. Different routes of drug administration (25 marks)
- 1.4. Bioavailability (25 marks)

Question 02**(100 Marks)**

- 2.1. List the types of drug interactions (10 marks)
- 2.2. Describe the importance of drug interactions (30 marks)
- 2.3. What is pharmacovigilance ? (10 marks)
- 2.4. Describe the different types of ADR (30 marks)
- 2.5. Indicate how you are going to avoid ADR in patients (20 marks)

Question 03**(100 Marks)**

Describe briefly

- 3.1. Agonist (25 marks)
- 3.2. Antagonist (25 marks)
- 3.3. Potentiation (25 marks)
- 3.4. Summation (25 marks)

Question 04**(100 Marks)**

- 4.1. What is ADME ? (25 marks)
- 4.2. How drugs are distributed in the body ? (25 marks)
- 4.3. What is volume of distribution ? (25 marks)
- 4.4. If drug is a lipid soluble, what is the extent of the drug distribution ? (25 marks)

Question 05**(100 Marks)**

- 5.1. What is first order kinetic elimination ? (25 marks)
- 5.2. What is the common type of drug elimination? (25 marks)
- 5.3. What is zero order kinetics? (25 marks)
- 5.4. How do you determine the half life of drug ? (25 marks)

Question 06**(100 Marks)**

Briefly describe drug administration in

6.1. Elderly patients

(40 marks)

6.2. Children

(30 marks)

6.3. Pregnancy

(30 marks)

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Faculty of Health Sciences
Bachelor of Science Honours in Biomedical Science
BMS 2213 Anatomy and Physiology II
2nd Year 2nd Semester
End Semester SEQ Examination
3rd Batch

INDEX NUMBER:

Date : 2nd February 2022
Time : 09.00 a.m. – 11.00 a.m. (Two Hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **FOUR** questions.
- Answer **ALL** questions.
- You should write legibly in black or blue ink.
- You are not allowed to take out the examination papers.

Question 1**(100 marks)**

- 1.1 What is the site of spermatogenesis in the testes? (10 marks)
- 1.2 Describe the process of spermatogenesis. (25 marks)
- 1.3 Describe the microscopic view of cortex of human ovary. (35 marks)
- 1.4 Write the main function of the following structures of male reproductive system.
- 1.4.1 Epididymis (10 marks)
 - 1.4.2 Seminal vesicles (10 marks)
 - 1.4.3 Prostate gland. (10 marks)

Question 2**(100 marks)**

- 2.1 Draw a label diagram of a nephron. (20 marks)
- 2.2 Describe the three (3) steps involved in formation of urine (30 marks)
- 2.3 State the following hormonal functions of renal tubule functions
- 2.3.1. Antidiuretic hormone (10 marks)
 - 2.3.2. calcitonin (10 marks)
 - 2.3.3. parathyroid hormone (10 marks)
- 2.4 Define the term "Glomerular Filtration Rate (GFR)". (20 marks)

Question 3**(100 marks)**

- 3.1 List the main types of joints based on their structural differences giving example for each type. (20 marks)
- 3.2 Describe the structure of a synovial joint. (30 marks)
- 3.3 List accessory structures associated with synovia joint. (20 marks)
- 3.4 Describe four major properties of the muscles that enable them to function. (30 marks)

Question 4**(100 marks)**

- 4.1 Name the three layers of meninges. (15 marks)
- 4.2 Describe a structure of a nerve trunk. (30 marks)
- 4.3 List the functions of the cerebral cortex. (20 marks)
- 4.4 Draw a label diagram of a section of human eye. (35 marks)



Faculty of Health Sciences
Bachelor of Science Hons. Biomedical Science
Haematology BMS 2243
2nd year 2nd semester –Batch 03
End Semester Examination- SEQ Examination
Duration 2 hrs

INDEX NUMBER:.....

Date : 27.01.2022
Time : 09.00 am – 11.00 am (2 hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of FOUR questions.
- Answer ALL questions.
- You should write legibly in black or blue ink
- You are not allowed to take out the examination papers.

Question 01 (100 marks)

- 1.1 What are the functions of haemostatic mechanism? (20 marks)
- 1.2 Describe the mechanism of primary and secondary haemostasis. (60 marks)
- 1.3 Outline the coagulation pathways. (20 marks)

Question 02 (100 marks)

- 2.1 Discuss the structure and function of platelets. (25 marks)
- 2.2 Describe the activation and regulation of Fibrinolysis. (30 marks)
- 2.3 What are the disorders of fibrinolysis? (20 marks)
- 2.4 Outline the naturally occurring anticoagulants and their importance. (25 marks)

Question 03 (100 marks)

- 3.1 Define the term hemopoiesis. (05 marks)
- 3.2 Mention different types of stem cells depending on hierarchy of cell potency. (10 marks)
- 3.3 Describe the process of hemopoiesis with the growth factors involved in the process. (35 marks)
- 3.4 What are the general characteristics of myeloid and lymphoid growth factors? (15 marks)
- 3.5 Illustrate the regulation of hemopoiesis. (25 marks)
- 3.6 Mention the causes of thrombocytopenia. (10 marks)

Question 04 (100 marks)

A 31-year-old male was admitted to accident and emergency department of a hospital due to an abdominal pain. He was having persistent cough and shortness of breath and suspected to have an upper respiratory tract infection. In addition, patient had been complaining of intense pain in his lower right leg which was red and warm when touched. The doctor requested a Full Blood Count (FBC) test. The results are shown below.

FBC Results:

Parameter	Result	Normal range
Haemoglobin	87 g/L	120 - 160 g/L
WBC	$12.2 \times 10^9/L$	$4.0 - 11.0 \times 10^9/L$
RBC	$2.86 \times 10^{12}/L$	$4.20 - 5.40 \times 10^{12}/L$
HCT	0.271 L/L	0.35 - 0.47 L/L
MCV	94.7 fL	78 - 98 fL
MCH	30.3 pg	27 - 32 pg
Platelets	$337 \times 10^9/L$	$150 - 450 \times 10^9/L$
Neutrophils	$7.6 \times 10^9/L$ (53.2%)	$2.0 - 7.5 \times 10^9/L$ (50 - 98%)
Lymphocytes	$4.50 \times 10^9/L$ (36.8%)	$1.5 - 4.0 \times 10^9/L$ (5 - 50%)
Monocytes	$0.54 \times 10^9/L$ (4.4%)	$0.2 - 1.0 \times 10^9/L$ (2 - 10%)
Eosinophils	$0.35 \times 10^9/L$ (2.9%)	$0.1 - 0.8 \times 10^9/L$ (1 - 4%)
Basophils	$0.09 \times 10^9/L$ (0.7%)	$0.01 - 0.2 \times 10^9/L$ (0 - 2%)
RDW	19.90%	11.5 - 13.9%
Absolute reticulocyte count (ARC)	$526 \times 10^9/L$	$50 - 100 \times 10^9/L$
Reticulocytes %	17.50%	0.2 - 2.0%

4.1 Comment on the FBC test results in relation to the patient's clinical history. (20 marks)

4.2 This patient would be described as "Anaemic". Demonstrate this diagnostic by means of results provided by FBC. (60 marks)

4.3 Outline the expected characters observed on the peripheral blood smear drawn of this patient's blood. (20 marks)



Faculty of Health Sciences
Bachelor of Science Honours in Biomedical Sciences
BMS 2225 – Biochemistry II
Batch - 01
2nd Year 2nd Semester
End semester SEQ Online Examination

INDEX NUMBER:

Date : 03rd May 2021
Time : 9.00 am. – 12.00 pm (Three Hours)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** questions.
- Answer **ALL** questions.
- You should **write answers in lined papers** legibly in black or blue ink.
- You **MUST** write your **index number in the top right corner** of each answer script.
- **Answer script should be numbered** (right bottom) clearly.
- Photograph of your answer scripts must be taken by keeping them on a clear platform (e.g. table).
- Arrange the photographs of your answer script in a word document in an orderly manner, then convert the word document to a PDF.
- **Label the PDF: Your Index No-Biochemistry II.**
- **Upload the labelled PDF to LMS AND also email** the PDF to Fohs.exams@cinec.edu

1.
 - 1.1. State the chemical bonds that stabilize the tertiary structure of proteins. (20 marks)
 - 1.2. Describe the alfa helix structure of protein. (30 marks)
 - 1.3. State two super secondary structures of proteins and describe the structure (50 marks)

2.
 - 2.1 Describe the characteristic features of enzymes when compared to other catalysts. (30 marks)
 - 2.2 State three mechanisms that facilitate an enzyme-substrate reaction. (20 marks)
 - 2.3 a) Demonstrate the behavior of competitive and non-competitive inhibitors of enzyme reactions using Michaelis-Menten plots. (35 marks)
 - b) Outline the action of three competitive inhibitors that are used as drugs. (15 marks)

3.
 - 3.1. Give an account of metabolic adaptation by body during prolonged starvation with reference to carbohydrates, lipids and proteins. (75 marks)
 - 3.2. Discuss the role of Cortisol hormone in regulation of fuel metabolism. (25 marks)

4.
 - 4.1. Describe the three main steps which nitrogen gets removed from the circulation. (40 marks)
 - 4.2. Describe how ammonia is detoxified in the liver. (40 marks)
 - 4.3. Discuss the biochemical complications arise due to accumulation of phenylalanine. (20 marks)

5.
 - 5.1. Discuss the importance of phosphoribosyl transferases (PRTs) in both *de novo* and salvage pathways of nucleotides anabolism. (30 marks)
 - 5.2. Outline the structural feature of messenger RNA (mRNA). (40 marks)
 - 5.3. Describe the biochemical consequences of Glucose-6-Phosphatase deficiency that results in gout. (30 marks)

6.
 - 6.1. Discuss how bicarbonate buffer system regulate the pH of blood. (40 marks)
 - 6.2. a) Compare five features of group I and group II hormones. (25 marks)
 - b) Type I Diabetes mellitus patients have low level of C-peptide compared to type II Diabetes mellitus patients. Discuss this observation in terms of structure of insulin. (35 marks)