CINEC CAMPUS
Beyond A Graduate

PAST PAPERS

Faculty	Department / Section/Division
Not Applicable	Learning Resource Centre

Past Papers

Faculty of Health Sciences
Department of Health Sciences

BSc.(Hons) in Biomedical Sciences

(Year 1 – Semester I)

2022

Document Control & Approving Authority	Senior Director – Quality Management & Administration

1st Issue Date: 2017.011.30	Revision No.00	Revision Date: 19.08.2022	Validated by: Librarian

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Biomedical Sciences

BSM 1122 – Medical Terminology

Batch-03

1st year 1st semester

End semester SEQ Examination

INDEX NUMBER: .....

Date : **12th of August 2020**
Time : **09.00 am – 12.00 pm- (Three 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 not allowed to take out the examination papers.

QUESTION 01 **(100 marks)**

1.1. Describe the medical term of heart failure. (20 marks)

1.2. What is angiogram? Name one disease in which you need to do this test. (10 marks)

1.3. What is atherosclerosis. (20 marks)

1.4. List three endocrine disorders. (10 marks)

1.5. Compare the medical terms of menorrhagia with dysmenorrhea. (20 marks)

1.6. What is cretinism? (20 marks)

QUESTION 02 **(100 marks)**

2.1. Draw and name the parts of the skull. (20 marks)

2.2. Name the cranial nerves. (20 marks)

2.3. Describe the term of Meningitis. (20 marks)

2.4. What is nerve supply to the upper limb? (20 marks)

2.5. List the functions of the skeletal muscle system of the body. (20 marks)

QUESTION 03 **(100 marks)**

3.1. Describe the functions of stomach. (15 marks)

3.2. What is peptic ulceration? (15 marks)

3.3. Name the diseases commonly seen in small intestine. (20 marks)

3.4. What is adduction and abduction? (25 marks)

3.5. Describe anatomical planes. (25 marks)

QUESTION 04 **(100 marks)**

4.1. What is Parkinsonism? Describe clinical features. (25 marks)

4.2. What is benign prostatic hyperplasia? (20 marks)

4.3. List the functions of the hormones secreted by the posterior pituitary. (25 marks)

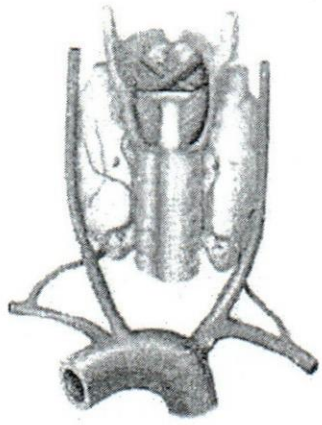
4.4. What is the difference between Corpus Albicans and Corpus Luteum? (10 marks)

4.5. Describe the changes seen in the cervix during menstrual cycle. (20 marks)

QUESTION 05 **(100 marks)**

5.1. Describe the Anatomy of Pharynx. (20 marks)

5.2. List the endocrine glands you see in this picture. (20 marks)



5.3. Name the diseases of the glands you identified in the 5.2. (20 marks)

5.4. What is melatonin? What it the functions of it? (20 marks)

5.5. Briefly describe the axial skeleton. (20 marks)

QUESTION 06 **(100 marks)**

6.1. Describe the parts of the upper urinary tract. (20 marks)

6.2. What is the pathophysiology for getting inguinal hernia? (25 marks)

6.3. Briefly describe three stages of syphilis. (25 marks)

6.4. List the three phases of labor. (10 marks)

6.5. Describe the terms of dysmenorrhea and amenorrhea. (20 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Biomedical Sciences

BSM 1143 – General Mathematics

Batch - 03

1st year 1st semester

End semester SEQ Examination

INDEX NUMBER: .....

Date : **19th August 2020**
Time : **9.00 a.m. – 12.00 p.m.**

INSTRUCTIONS TO CANDIDATES

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

MATERIALS REQURIED

You may use a scientific calculator. This must not be programmable and may be inspected during the examination. Programmable calculators, PDAs and mobile phones are not permitted in the examinations.

Question 01 **(50 marks × 2 = 100 marks)**

(a) Prove the identity $cos^2x + 1 = 2\,cos^2x + sin^2x$

(b) Prove the identity $\frac{\sin x}{\cos x} = -\frac{1}{\cos x} + \frac{\cos x}{1-\sin x}$

Question 02 **(50 marks × 2 = 100 marks)**

The gradient function of a curve is $\frac{dy}{dx} = 4x - 12$

(a) The minimum y value is 16. By considering the gradient function, find the corresponding x value.

(b) Use the gradient function and your answer from part (i) to find the equation of the curve.

Question 03 **(50 marks × 2 = 100 marks)**

(a) Find $\int(5x^3 + 750x - 1520)\ dx$

(b) Find $\int\left(8 + \frac{500}{x^2} - \frac{1}{x^4}\right)\ dx$

Question 04 **(50 marks × 2 = 100 marks)**

(a) Find the points on the curve with equation $y = x^3 + 6x^2 + 5$ where the value of the gradient is -9.

(b) Find the equation of the tangent to the curve $y = x^2 + 3x + 2$ at the point (2, 12)

Question 05 **(50 marks × 2 = 100 marks)**

(a) Evaluate $\int_0^4 \frac{1}{2x+5}\ dx$

(b) Evaluate $\int_{50}^{100} \frac{1}{10-x}\ dx$

Question 06 **(50 marks × 2 = 100 marks)**

(a) Given that $y = \frac{1+\sin x}{\cos x}$, find $\frac{dy}{dx}$ using the quotient rule.

(b) Differentiate $y = 3e^{x+1}$

Question 07 **(50 marks × 2 = 100 marks)**

(a) Solve $x^2 + 30x - 1000 = 0$

(b) Use the quadratic formula to solve $5x^2 + 4x - 3 = 0$

Question 08 **(50 marks × 2 = 100 marks)**

Standard equations of the geometric progression $T_n = ar^{n-1}$, $S_n = \frac{a(r^n-1)}{(r-1)}$

The first term of a geometric sequence is 5 and the fifth term is 1280.

(a) Find the common ratio of the geometric sequence.

(b) Find the 8^{th} term of the sequence.

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Biomedical Sciences

BSM 1143 – General Mathematics

Batch - 03

1st year 1st semester

End semester Practical Examination

INDEX NUMBER: .....

Date : **19th August 2020**
Time : **1.30 p.m. – 3.30 p.m.**

INSTRUCTIONS TO CANDIDATES

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

MATERIALS REQURIED

You may use a scientific calculator. This must not be programmable and may be inspected during the examination. Programmable calculators, PDAs and mobile phones are not permitted in the examinations.

Question 01 **(100 marks)**

(a) Differentiate $f(x) = \frac{(x^2+1)(x-5)}{x}$ (50 marks)

(b) Given that $y = \sqrt{x} - \frac{8}{x^2}$, find

(i) $\frac{dy}{dx}$ (25 marks)

(ii) The gradient of the curve at the point $\left(4, 1\frac{1}{2}\right)$ (25 marks)

Question 02 **(50 marks × 2 = 100 marks)**

(a) Given that $y = x^2 sinx$ find $\frac{dy}{dx}$ using the product rule.

(b) Differentiate $y = 50x(x-1)^8$

Question 03 **(25 marks × 4 = 100 marks)**

Factorize the given expressions

(a) $x^2 + 11x + 24$ (b) $x^2 + 4x - 5$

(c) $x^2 - 100$ (d) $15x^2 - 16x + 4$

Question 04 **(50 marks × 2 = 100 marks)**

The gradient function of a curve is $\frac{dy}{dx} = 4x$ and the curve pass through the point (1, 5)

(a) Find the equation of the curve.

(b) Find the value of y when x=1.

Question 05 **(50 marks × 2= 100 marks)**

This is an arithmetic progression 120+114+…+36

(a) How many terms are there in the progression?

(b) What is the sum of the terms in the progression?

Library

00029

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Biomedical Sciences

BSM1153– Introduction to Biomedical Sciences

Batch - 03

1st year 1st semester

End semester SEQ Examination

INDEX NUMBER: .....

Date : **25th August 2020**
Time : **09.00 a.m. – 12.00 p.m.**

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **SIX** 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. Briefly describe how DNA replication ensure accuracy. (20 marks)

1.2. Compare the DNA and RNA polymerases. (20 marks)

1.3. Describe the role of different enzymes in DNA replication. (20 marks)

1.4. Briefly describe in detail how DNA is arranged to fit inside an eukaryotic cell nucleus. (40 marks)

QUESTION 02 **(100 marks)**

Write short notes on following.

2.1. Prokaryotic promoters. (20 marks)

2.2. Rho dependent termination. (25 marks)

2.3. Open reading frame. (25 marks)

2.4. Wobble hypothesis. (30 marks)

QUESTION 03 **(100 marks)**

3.1. Differentiate the composition of eukaryotic and prokaryotic ribosomes. (15 marks)

3.2. Mention the importance of the specific structure of tRNA in relation to its function. (20 marks)

3.3. Describe how mRNA is modified in eukaryotes. (30 marks)

3.4. Briefly describe elongation stage in prokaryotic protein biosynthesis. (35 marks)

QUESTION 04 **(100 marks)**

4.1. State ten key skills that are required for a professional Biomedical Scientist. (20 marks)

4.2. State basic principle of the autoclave. (30 marks)

4.3. Write four applications of the centrifugation. (20 marks)

4.4. Differentiate between fixed angle and swinging out rotor types. (30 marks)

QUESTION 05 **(100 marks)**

5.1. Mention 4 advantages of preparing a master mix when carrying out PCR. (20 marks)

5.2. List the safety precautions you take when performing gel electrophoresis. (20 marks)

5.3. You are assigned to prepare a working solution of 250 ml of 0.1M NH_4Cl solution from a stock solution of 0.5M NH_4Cl. Write the standard laboratory procedure of preparing this working solution. (H= 1gmol^{-1}, N=14gmol^{-1}, Cl= 35.5gmol^{-1}) (25 marks)

5.4. A researcher conducted an experiment to extract DNA from a blood sample. Briefly describe the subsequent laboratory procedures that he could follow to confirm whether DNA has been extracted. (35 marks)

QUESTION 06 **(100 marks)**

6.1. Discuss in detail the importance of the interphase stage for the cell cycle. (25 marks)

6.2. Mention the main order of stages which takes place during metaphase of mitosis. (20 marks)

6.3. Write the importance of meiosis in producing recombinant genes. (25 marks)

6.4. Compare and contrast spermatogenesis and oogenesis processes. (30 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science (Hons) in Biomedical Sciences

BMS 3233 – Transfusion Science

3rd Year 2nd Semester

Batch 01

Mid Semester SEQ Examination

INDEX NUMBER: .....

Date : 3rd of December 2021
Time : 09.00 am – 10.00 am (One Hour)

INSTRUCTIONS TO CANDIDATES

- This question paper consists of **Two** questions.
- Answer **ALL** questions.
- The paper will be for one hour (9.00 am – 10.00 am).
- You should write **answers in lined papers** legibly in black or blue ink.
- You are not allowed to take out the examination papers.

Question 01 **(100 Marks)**

1.1 Define Leukoreduction. (05 marks)
1.2 State two methods used for the process of Leukoreduction. (10 marks)
1.3 Differentiate a Triple Blood Bag and Quad Blood Bag. (15 marks)
1.4 Describe the process of separation of whole blood components in a blood bank laboratory. (45 marks)
1.5 Outline the different types of blood components which can differentiate from whole blood. (15 marks)
1.6 Mention the purposes of blood transfusion. (10 marks)

Question 02 **(100 Marks)**

2.1 Classify the blood group antigens and antibodies. (15 marks)
2.2 State the antigens present in Rh blood group system. (10 marks)
2.3 Differentiate ABO blood group and Rh Blood group systems. (10 marks)
2.4 Describe the expression of antigens which determines the Rh positivity and Rh negativity of a red blood cell. (30 marks)
2.5 Mention the functions of Rh proteins. (15 marks)
2.6 State the clinical significance of Rh antibodies. (10 marks)
2.7 What are the three variants of RhD?. (10 marks)

Question 01 **(100 marks)**

1.1 Briefly describe the difference between controlled & sustained drug delivery systems. (15 marks)

1.2 State four main types of principle mechanisms involved in deigning modified release drug delivery systems. (20 marks)

1.3 Write down five importance of modifying novel drug delivery systems. (20 marks)

1.4 Dose dumping is a major concern in controlled drug delivery. Comment on this statement. (15 marks)

1.5 "Controlling the release of a drug substance over time constitutes the newness." Based on this statement, list out the possible data need to be available for a new drug with modified released profile to process with new drug application. (30 marks)

Question 02 **(100 marks)**

2.1 List five advantages of oral controlled drug delivery systems. (20 marks)

2.2 Single unit dosage form or Multiple unit dosage form affect the designing process of a modified release dosage form. Briefly describe this statement. (20 marks)

2.3 Describe the mechanism involved in Diffussion Controlled system in disigining the oral controlled drug delivery systems. (30 marks)

2.4 Describe the Osmotic Pressure Controlled System used in the development of oral controlled drug delivery systems. (30 marks)

CINEC CAMPUS
Beyond A Graduate

Faculty of Health Sciences

Bachelor of Science Honours in Industrial Pharmaceutical Sciences

IPS 3253– Drug Release and Novel Drug Delivery System

Batch - 01

3rd year 2nd semester

Mid Semester SEQ Examination

INDEX NUMBER: .....

Date : **03rd of December 2021**
Time : **09.00 a.m. – 10.00 a.m. (One hour)**

INSTRUCTIONS TO CANDIDATES

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

5.3. You are assigned to prepare a working solution of 250 ml of 0.1M NH_4Cl solution from a stock solution of 0.5M NH_4Cl. Write the standard laboratory procedure of preparing this working solution. (H= 1gmol^{-1}, N=14gmol^{-1}, Cl= 35.5gmol^{-1}) (25 marks)

5.4. A researcher conducted an experiment to extract DNA from a blood sample. Briefly describe the subsequent laboratory procedures that he could follow to confirm whether DNA has been extracted. (35 marks)

QUESTION 06 **(100 marks)**

6.1. Discuss in detail the importance of the interphase stage for the cell cycle. (25 marks)

6.2. Mention the main order of stages which takes place during metaphase of mitosis. (20 marks)

6.3. Write the importance of meiosis in producing recombinant genes. (25 marks)

6.4. Compare and contrast spermatogenesis and oogenesis processes. (30 marks)