



PAST PAPERS

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

Past Papers

Faculty of Health Sciences

Higher diploma in Biomedical Sciences

(Year 1 – Semester I)

<i>Document Control & Approving Authority</i>	<i>Senior Director – Quality Management & Administration</i>
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Faculty of Health Sciences

Higher Diploma in Biomedical Science
HD 1123 – Introduction to Microbiology

1st year 1st semester – Batch 1 - End Semester Examination – SEQ (Repeat)



Date : 13th January 2023
Time : 9.00 a.m. to 12.00 p.m.

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 are not allowed to take out the examination papers.

Question 01

(100 marks)

- 1.1. What are the advantages of dark field microscopy? (20 marks)
- 1.2. Compare and contrast the optical microscope and electron microscope. (30 marks)
- 1.3. Briefly describe the method of preparing a bacterial smear for the staining purpose (25 marks)
- 1.4. Compare and contrast between simple staining and differential staining with examples. (25 marks)

Question 02

(100 marks)

2.1. A scientist wanted to check the microorganisms present in a water sample taken from a pond. Therefore he plated the water sample on Nutrient Agar medium. For doing this he used many laboratory instruments.

State whether he had followed “sterilization” or “disinfection” for each of item mentioned below.

And mention the most appropriate method that he can use to achieve sterilization /disinfection of each item accordingly.

- 2.1.1. Nutrient Agar medium
- 2.1.2. Petri dishes
- 2.1.3. Working bench
- 2.1.4. Inoculation loop

(80 marks)

2.2. Mention the stains used for bacterial Endospore staining

(20 marks)

Question 03

(100 marks)

- 3.1. Mention the disease caused by each organism
- 3.1.1. *Corynebacterium diphtheriae*
 - 3.1.2. *Vibrio cholera*
 - 3.1.3. *Bacillus anthracis*

3.1.4. *Mycoplasma pneumoniae*

3.1.5. *Neisseria meningitidis*

(50 marks)

3.2. Describe the bacterial morphology of the *Chlostridium tetani* (20 marks)

3.3. Describe the action of neurotoxin produced by *Chlostridium tetani* and clinical symptoms of a patient which are arising due to that. (30 marks)

Question 04

(100 marks)

Describe the bacterial morphology, identification characteristics and the pathogenesis of following microorganisms.

4.1. *Mycobacterium tuberculosis*

(25 marks)

4.2. *Vibrio cholera*

(25 marks)

4.3. *Streptococcus pneumoniae*

(25 marks)

4.4. *Escherichia coli*

(25 marks)

Question 05

(100 marks)

5.1. Mention 2 key differences between sterilization and disinfection in microbiology.

(30 marks)

5.2. Describe the steps of "Generalized transduction" process in which DNA is transferred from one bacterium to another by a virus. (40 marks)

5.3. Define the following bacteria groups based on their optimum growth temperature.

5.3.1. Thermophiles

5.3.2. Hyperthermophiles

(30 marks)

Question 06

(100 marks)

6.1. Classify the culture methods based on ingredients and give example for each type.

(40 marks)

6.2. Describe on the procedure of preparing a Nutrient agar plate for bacteria culturing at the laboratory. (30 marks)

6.3. Describe on different types of hemolysis on blood agar. (30 marks)

Library

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Faculty of Health Sciences
Higher Diploma in Biomedical Sciences
HD 1153 – English
1st Year 1st Semester
Batch 01
End Semester Repeat SEQ Examination

Date : 12th of January 2023
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.
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QUESTION 01

(100 Marks)

Read the passage and answer the questions given below.

1. Global Warming is a term almost everyone is familiar with. But, its meaning is still not clear to most of us. So, Global warming refers to the gradual rise in the overall temperature of the atmosphere of the Earth. There are various activities taking place which have been increasing the temperature gradually. Global warming is melting our ice glaciers rapidly. This is extremely harmful to the earth as well as humans. It is quite challenging to control global warming; however, it is not unmanageable. The first step in solving any problem is identifying the cause of the problem. Therefore, we need to first understand the causes of global warming that will help us proceed further in solving it. In this essay on Global Warming, we will see the causes and solutions of Global Warming.

2. Global warming has become a grave problem which needs undivided attention. It is not happening because of a single cause but several causes. These causes are both natural as well as manmade. The natural causes include the release of greenhouses gases which are not able to escape from earth, causing the temperature to increase. Further, volcanic eruptions are also responsible for global warming. That is to say, these eruptions release tons of carbon dioxide which contributes to global warming. Similarly, methane is also one big issue responsible for global warming. After that, the excessive use of automobiles and fossil fuels results in increased levels of carbon dioxide. In addition, activities like mining and cattle rearing are very harmful to the environment. One of the most common issues that are taking place rapidly is deforestation. So, when one of the biggest sources of absorption of carbon dioxide will only disappear, there will be nothing left to regulate the gas. Thus, it will result in global warming. Steps must be taken immediately to stop global warming and make the earth better again.
 3. As stated earlier, it might be challenging but it is not entirely impossible. Global warming can be stopped when combined efforts are put in. For that, individuals and governments, both have to take steps towards achieving it. We must begin with the reduction of greenhouse gas. Furthermore, they need to monitor the consumption of gasoline. Switch to a hybrid car and reduce the release of carbon dioxide. Moreover, citizens can choose public transport or carpool together. Subsequently, recycling must also be encouraged. For instance, when you go shopping, carry your own cloth bag. Another step you can take is to limit the use of electricity which will prevent the release of carbon dioxide. On the government's part, they must regulate industrial waste and ban them from emitting harmful gases in the air. Deforestation must be stopped immediately and planting of trees must be encouraged.
 4. In short, all of us must realize the fact that our earth is not well. It needs to treatment and we can help it heal. The present generation must take up the responsibility of stopping global warming in order to prevent the suffering of future generations. Therefore, every little step, no matter how small carries a lot of weight and is quite significant in stopping global warming.
1. According to the text, what is global warming? (10 marks)
 2. As mentioned in the passage, what is the first step of solving a problem? (10 marks)
 3. What is the author's main purpose of writing this article? (10 marks)
 4. Why has the author mentioned that increasing temperature is harmful to both the earth and the humans? (10 marks)
 5. Do you agree with the author's statement, 'Global warming has become a grave problem which needs undivided attention?' If yes, why? (20 marks)
 6. Are humans responsible for global warming? Support your answer referring to the text. (20 marks)
 7. What is the main idea of the following paragraphs? (20 marks)
 1. Paragraph 1
 2. Paragraph 2
 3. Paragraph 3
 4. Paragraph 4

QUESTION 02

(100 marks)

Fill in the blanks with the words given below in the box. (The first one has been done for you).

rule	skin	better	dark-skinned	colours	country
discrimination	transport	smaller	became	services	population
work	facilities	colonialism	according	racial	equal
spend	path	divided			

There was a time when facilities were divided among people on the basis of their 1.....colour. From the seat reservations in public 2..... to any other public facilities, everywhere, whites used to get 3..... facilities whereas 4.....people, the blacks, got the worst 5..... White supremacy existed in every 6..... under British 7..... In some countries, racial 8..... was found on a larger scale whereas in others on a 9..... scale. However, in South Africa, it 10..... worse.

Three-fourths of the total 11 were black people there. The country's economy used to run on the strength of their hard 12....., but all the good 13..... were available to the whites. Although racial discrimination was there in South Africa for a long time, the National Party government made a 14 in 1948 that blacks and whites would live in different places and the public facilities were divided 15..... to their skin 16..... Since good always triumphs over evil, the struggles of Nelson Mandela put an end to the rules of 17..... discrimination, after which everyone started getting 18..... facilities. It was not so easy. Nelson Mandela had to 19..... 28 years of his life in prison. Mandela was a man who followed Gandhi's 20..... . He did this without taking up arms, without any bloodshed.

QUESTION 03

(100 marks)

Part A

(50 marks)

Put the verbs in the brackets into the correct tense.

I 1. (be) a fan of soap operas for years. I 2. (always watch) my favourite show three times a week. In fact, until about a week ago, I 3. (never / miss) a single episode. Last Saturday, while I 4. (sit) in front of the TV, the electricity suddenly 5..... (go off). After waiting for about an hour, I finally phoned the telephone company. "What 6. (happen)?" I asked them. "When 7. (we / have) electricity again?" The man I spoke to said it 8. (take) a while to fix the problem. So I 9. (not watch) my favourite soap opera that day. Strangely enough, I 10. (not watch) it since. Suddenly, there are so many other things to do!

Part B**(50 marks)**

When Francis Lee was a boy he 1) (want) to be an astronaut. He
 2)(watch) TV one day in 1969 when he 3) (see) Neil
 Armstrong walk on the moon. Since then he 4) (always/dream) of doing
 the same. Every night when there is a full moon, he 5)..... (stare) up at it for hours
 and imagines himself walking around on it. At the moment, however, he 6).....
 (work) as a night-watchman at a meat factory. He 7) (do) the same job since
 he left school fifteen years ago, but he still hopes that one day his dream 8)
 (come) true. He has heard that in the 21st century they 9) (sell) tickets to fly to
 the moon. For this reason he 10)(save) half of his wages every month for the
 past two years.

QUESTION 04**(100 marks)****Re-write the sentences in reported speech.**

1. "Don't go!" (10 marks)
She said
2. "Do you work in London?" (10 marks)
3. "Could you tell me where the post office is?" (10 marks)
She said
4. "Come here!" (10 marks)
She said
5. "I've never been to Wales" (10 marks)
She said
6. "Have you ever seen 'Lord of the Rings'?" (10 marks)
She said
7. "I don't like mushrooms" (10 marks)
She said
8. "Don't be silly!" (10 marks)
She said
9. "Would you mind waiting a moment please?" (10 marks)
She said
10. "How often do you play sport?" (10 marks)
She said.....

QUESTION 05**(100 marks)****Part A****(50 marks)**

Change the following sentences into passive voice.

1. They make these cars in Japan. (05 marks)
2. You must not drop litter in the street in Singapore or you'll get a fine. (05 marks)
3. Someone smashed our window last night. (05 marks)
4. They have already mended the TV set. (05 marks)
5. People will need more public transport in the near future. (05 marks)
6. They are decorating the walls. (05 marks)
7. You should not replace the roof at the beginning of winter. (05 marks)
8. People are spending less money on cars this year. (05 marks)
9. They had cooked the meal before 10 o'clock. (05 marks)
10. Someone was building the wall. (05 marks)

Part B**(50 marks)**

Fill the gaps with the correct tenses suitably. (passive voice)

1. In this street letters by the postman at 8 every day. (deliver) (05 marks)
2. This bagon the bus yesterday night. (find) (05 marks)
3. I'm afraid the dressin hot water. (cannot wash) (05 marks)
4.your motorbike yet? I'd like to borrow it. (repair) (05 marks)
5. The message tomorrow, I promise. (send) (05 marks)
6. These offices now. Be careful, the floors are wet. (clean) (05 marks)
7. This report in time if you didn't help me. Thank you very much. (not finish) (05 marks)
8. Why the TV ? Everyone has gone to bed. (turn on) (05 marks)
9. This building needs renovating. It since the 1960's. (not reconstruct) (05 marks)
10. Madam, you cannot take your bag into the gallery. All bags in the cloakroom. (must leave) (05 marks)

QUESTION 06**(100 marks)**

Write an essay on:

Do you think that movies can be considered as a good source of information for students? Why or why not? Give your reasons and provide examples.

(Word limit 175 – 200. Important! – You will be penalized if you exceed the word limit.)

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Faculty of Health Sciences
Higher Diploma in Biomedical Sciences
HD 1113 – Cell Biology
1st Year 1st Semester
Batch 01
End Semester Repeat SEQ Examination

Date : 11th of January 2023
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. State the components of a typical eukaryotic cell.	(30 marks)
1.2. Relate the role of nucleus in controlling the cell.	(30 marks)
1.3. Write short notes on the following.	
i. Peroxisome	(20 marks)
ii. Lysosome	(20 marks)

QUESTION 02	(100 marks)
2.1. Define fluid mosaic model.	(10 marks)
2.2. Relate the structure of phospholipid in relation to its function.	(35 marks)
2.3. Discuss the factors which aid to maintain the fluidity of the plasma membrane.	(35 marks)
2.4. Differentiate between endocytosis and exocytosis.	(20 marks)

QUESTION 03**(100 marks)**

- 3.1. Define what is known as cell junctions. (15 marks)
- 3.2. Compare and contrast between the main types of cell junctions. (30 marks)
- 3.3. Describe the structure of gap junctions using a diagram. (25 marks)
- 3.4. Discuss about the importance of tight junctions. (30 marks)

QUESTION 04**(100 marks)**

- 4.1. State three pathways of vesicular transport. (15 marks)
- 4.2. Draw a flow chart to denote the steps of the secretory pathway. (25 marks)
- 4.3. Relate the structure of the clathrin coat for its function. (30 marks)
- 4.4. Mention two ways in which the secretory vessels are formed and briefly discuss those methods. (30 marks)

QUESTION 05**(100 marks)**

- 5.1. Briefly indicate.
- i. Polysaccharides. (15 marks)
 - ii. Secondary structure of proteins. (15 marks)
 - iii. Saturated fatty acids. (15 marks)
- 5.2. Compare and contrast purines and pyrimidines. (30 marks)
- 5.3. Differentiate the structures of messenger RNA and ribosomal RNA. (25 marks)

QUESTION 06**(100 marks)**

- 6.1. Describe the importance of S phase for the interphase process. (25 marks)
- 6.2. Draw a diagram to denote the stages of mitosis and briefly describe those stages. (25 marks)
- 6.3. Discuss the importance of independent assortment of chromosomes during meiosis process. (25 marks)
- 6.4. Compare and contrast spermatogenesis and oogenesis processes. (25 marks)