

UNIVERSITY OF GREATER MANCHESTER
SCHOOL OF HEALTH, SCIENCE AND SOCIETY
BSc (HONS) BIOMEDICAL SCIENCE
SEMESTER TWO EXAMINATION 2024/2025
CELLULAR PATHOLOGY
MODULE NO: BIO5014

Date: Monday 12 May 2025

Time: 2.00 pm – 4.30 pm

INSTRUCTIONS TO CANDIDATES:

Candidates are advised that the examiners attach importance to legibility of writing and clarity of expression. **YOU ARE STRONGLY ADVISED TO PLAN YOUR ANSWERS**
This examination paper carries a total of 150 marks in total.

Section A: 50 Marks

Section B: 100 Marks

There are **TWO** sections on this paper.

Section A: Answer **ALL** questions.

Section B: Answer **TWO** questions.

Please write **ALL** of your answers in the answer booklet, and not on the question paper.

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

Answer **ALL** questions in Section A and **TWO** question from Section B.

Make use of labelled diagrams where appropriate or requested to do so.

Section A - Answer ALL of these questions

1. Which intercellular second messengers do G-protein coupled receptors utilise?
4 marks
2. What are the major functions of the cytoskeleton?
5 marks
3. What steps are involved in cancer cell metastasis?
4 marks
4. What are the major erythrocyte (red blood cell) pathologies?
5 marks
5. What processes occur to mRNA between the gene (coded by DNA) and the synthesis of protein?
6 marks

Please turn the page

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

6. a) Name 5 types of necrosis.

(5 marks)

b) Which type of necrosis is generally seen in infection with mycobacterium tuberculosis?

(1 mark)

c) Which type of necrosis would you expect to see in breast tissue?

(1 mark)

d) Which mechanism of cell death results in cleavage of genomic material to fragments of specific lengths?

(1 mark)

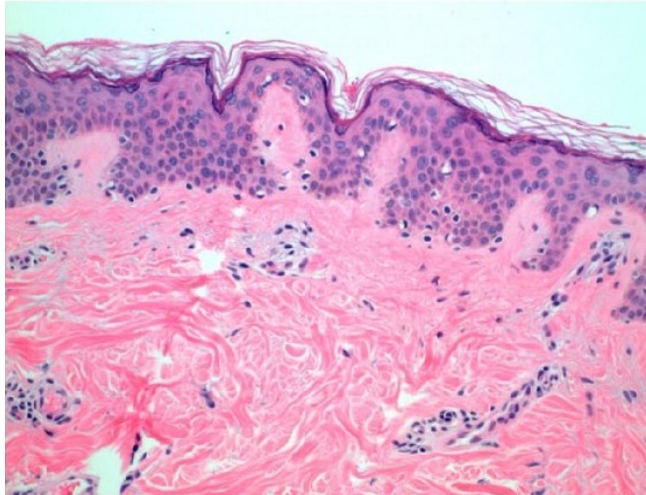
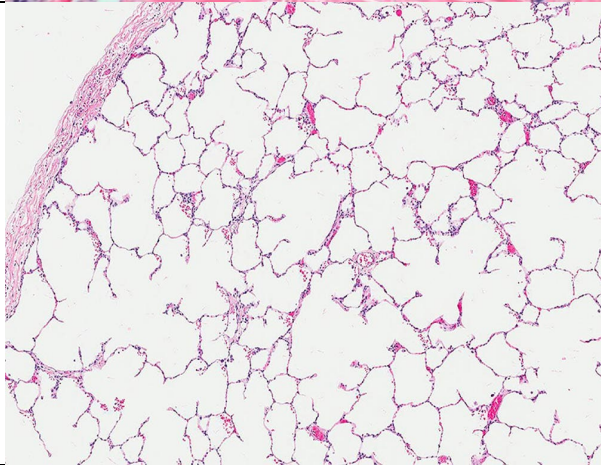
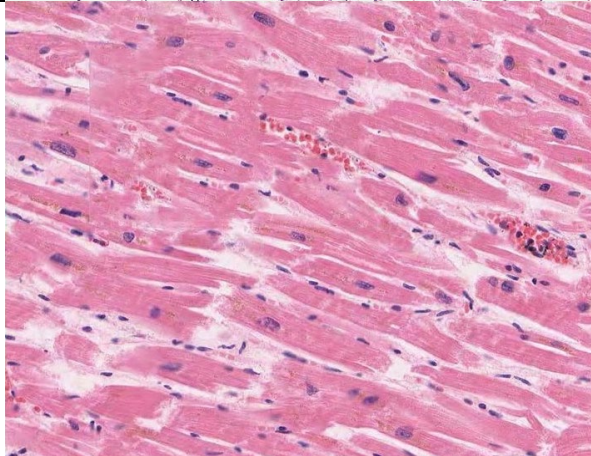
Total 8 marks

Please turn the page

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

7. Identify these tissue types

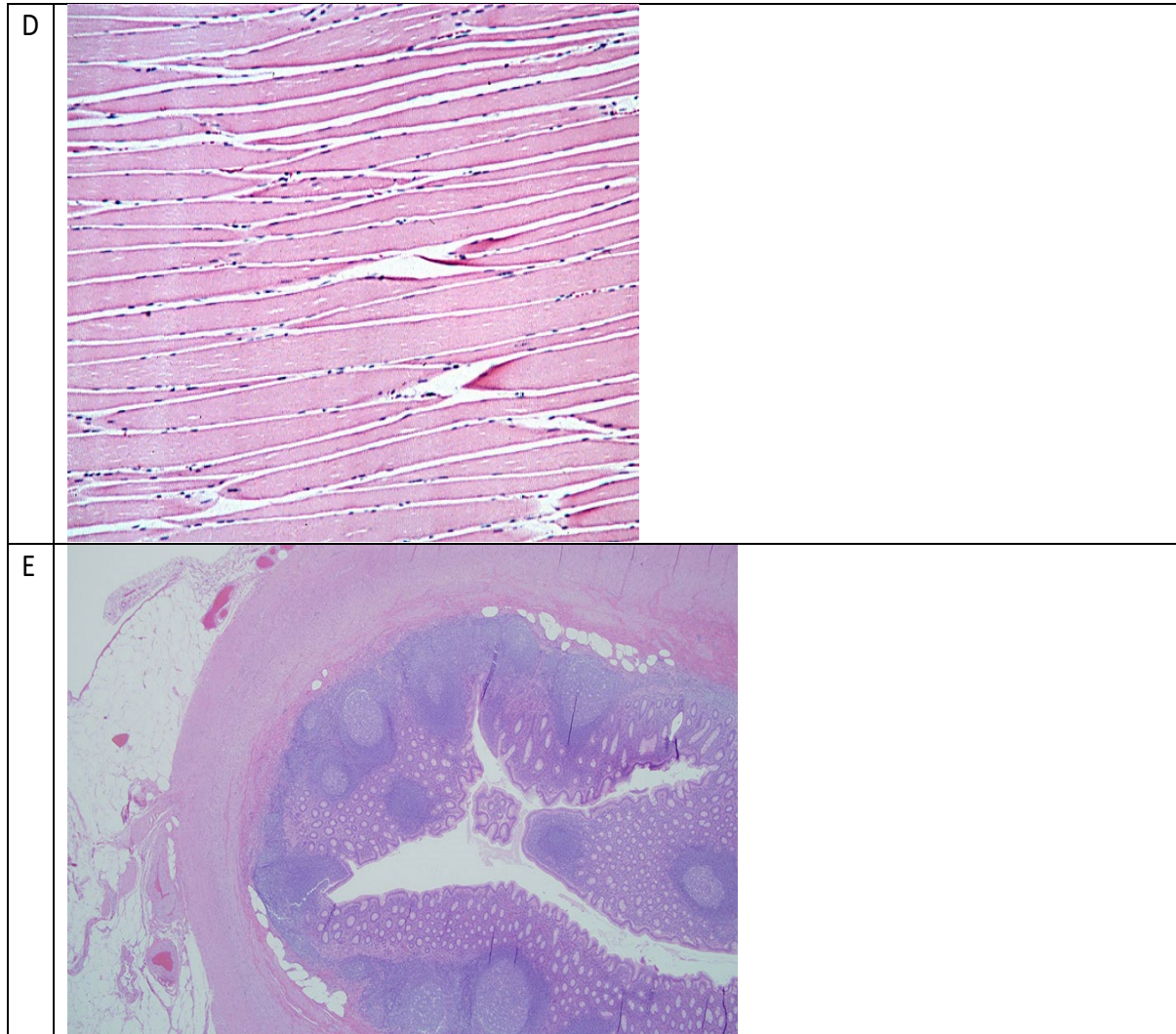
5 marks – 1 mark each

A		
B		
C		

Question 7 continued over the page...

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

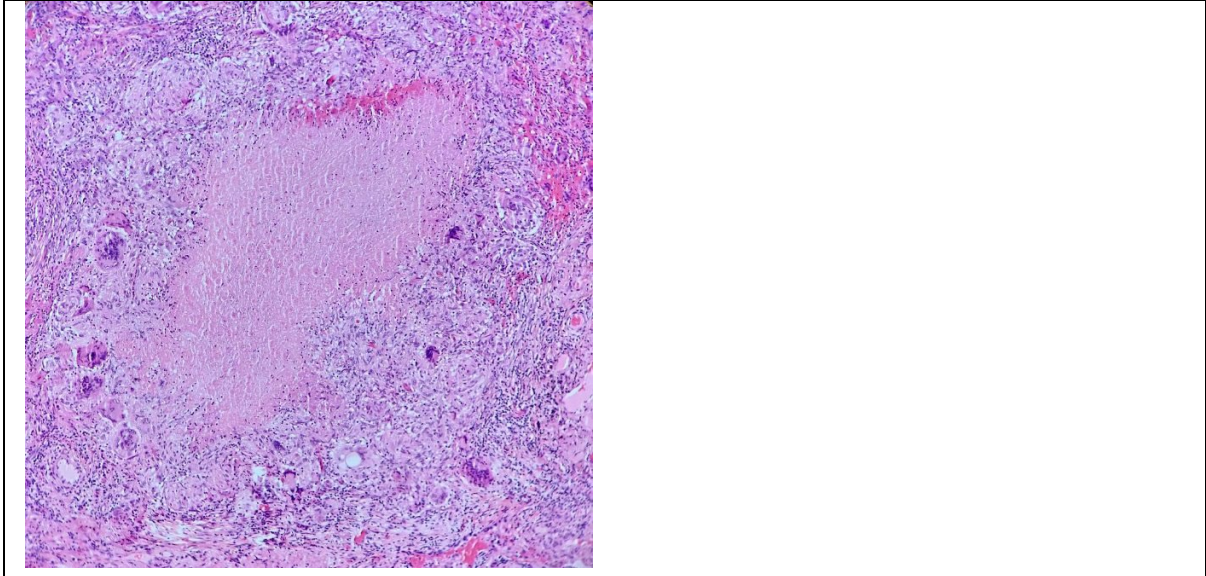
Question 7 continued



Please turn the page

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

8. a) Identify this immune mediated pathological structure. (1 mark)



b) Suggest a disease these structures are seen in.

(1 mark)

c) Outline the process that causes the formation of these structures.

(5 marks)

Total 7 marks

Please turn the page

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

9. What factors stimulate the function of p53? What is its function and what cellular pathways does it regulate?

6 marks

[Total for Section A: 50 marks]

Please turn the page

School of Health, Science and Society
BSc (Hons) Biomedical Science
Semester Two Examination 2024/2025
Cellular Pathology
Module No. BIO5014

Section B: Answer TWO questions

10. a) Briefly describe the methodology of and rationale behind the lactate dehydrogenase (LDH) assay. Discuss the advantages and limitations of the LDH assay compared to the MTT assay.
- (25 marks)

b) Discuss the mechanisms by which cell-based assays can test for potential mutagens. Include in your answer a consideration of the relative merits of the different approaches to testing for mutagens.

(25 marks)

Total 50 marks

11. a) Describe the different stages of prenatal development. Include in your answer a discussion of the difference between gestational and conceptual age.
- (25 marks)

b) Discuss a range of biomedical science tests that are used in reproductive science and what the tests are used for.

(25 marks)

Total 50 marks

12. Outline the major causes of cell injury and discuss the intracellular mechanism by which cell injury is mediated.
- 50 marks**

13. Explain how tissues can be processed for examination by light microscopy. Make reference to the different stages of tissue processing and how these result in slides suitable for microscopic examination.
- 50 marks**

14. Describe the cellular processes that occur during the process of acute inflammation.
- 50 marks**

[Total for Section B: 100 marks]

END OF QUESTIONS