

Name:

Enrolment No:



UPES

End Semester Examination, December 2024

Course: Pharmacotherapeutics 1

Program: Int. BMSc. (Clinical Research)

Course Code: HSCR3011

Semester : 5

Duration : 3 Hours

Max. Marks: 100

Instructions: Read questions carefully

| S. No. | Section A<br>Short answer questions/ MCQ/T&F<br>(20Qx1.5M= 30 Marks)  | Marks | COs |
|--------|---|-------|-----|
| Q 1    | Which of the following is the primary cause of cell injury in hypoxia?<br>a) Mitochondrial damage<br>b) Decreased ATP production<br>c) Increased intracellular calcium<br>d) Free radical formation | 1.5   | CO1 |
| Q 2    | Which of the following is the most important feature of necrosis?<br>a) Active energy-dependent process<br>b) Loss of membrane integrity<br>c) Cellular shrinkage<br>d) Chromatin condensation      | 1.5   | CO1 |
| Q 3    | In which type of adaptation does the size of the organ or tissue increase due to an increase in the size of individual cells?   | 1.5   | CO1 |
| Q 4    | Which type of cellular damage is most associated with apoptosis?<br>a) Mitochondrial injury<br>b) DNA damage<br>c) Free radical damage<br>d) All of the above                                       | 1.5   | CO1 |
| Q 5    | Which of the following is associated with intracellular accumulation of lipid?<br>a) Steatosis<br>b) Glycogen storage<br>c) Protein aggregation<br>d) Calcium deposition                            | 1.5   | CO2 |
| Q 6    | What is the term used to describe the process of programmed cell death?<br>a) Necrosis<br>b) Apoptosis  | 1.5   | CO2 |

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|             | c) Autophagy<br>d) Pyrosis   |            |            |
| <b>Q 7</b>  | What is the primary function of neutrophils during the inflammatory response?<br>a) Secretion of antibodies<br>b) Phagocytosis of pathogens<br>c) Activation of T-cells<br>d) Formation of a fibrin clot   | <b>1.5</b> | <b>CO2</b> |
| <b>Q 8</b>  | Which of the following is considered a systemic sign of inflammation?<br>a) Fever<br>b) Swelling at the site of infection<br>c) Redness at the site of infection<br>d) Pain  | <b>1.5</b> | <b>CO2</b> |
| <b>Q 9</b>  | During the inflammatory response, which of the following is responsible for increasing vascular permeability?<br>a) Prostaglandins<br>b) Histamine<br>c) Leukotrienes<br>d) Platelet-activating factor   | <b>1.5</b> | <b>CO3</b> |
| <b>Q 10</b> | Which of the following is the most common type of wound healing?<br>a) Healing by primary intention<br>b) Healing by secondary intention<br>c) Healing by tertiary intention<br>d) Healing by scar formation                                     | <b>1.5</b> | <b>CO3</b> |
| <b>Q 11</b> | In a patient with chronic iron deficiency anemia, which of the following laboratory findings is most likely?<br>a) High serum ferritin<br>b) Low mean corpuscular volume (MCV)<br>c) Elevated reticulocyte count<br>d) Elevated bilirubin levels | <b>1.5</b> | <b>CO3</b> |
| <b>Q 12</b> | Which of the following is a characteristic feature of megaloblastic anemia?<br>a) Microcytic, hypochromic red blood cells<br>b) Hypersegmented neutrophils<br>c) Increased iron stores<br>d) Decreased reticulocyte count                        | <b>1.5</b> | <b>CO3</b> |
| <b>Q 13</b> | The most common cause of hepatitis C infection is:<br>a) Blood transfusions<br>b) Sexual contact<br>c) Intravenous drug use<br>d) Vertical transmission from mother to child   | <b>1.5</b> | <b>CO4</b> |

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| <b>Q 14</b>                                 | The characteristic finding in chronic hepatitis is:<br>a) Necrosis of hepatocytes<br>b) Fibrosis leading to cirrhosis<br>c) Steatosis<br>d) Hepatic necrosis with jaundice   | <b>1.5</b> | <b>CO4</b> |
| <b>Q 15</b>                                 | Which of the following is the primary treatment for asthma exacerbations?<br>a) Antihistamines<br>b) Short-acting beta-agonists (SABA)<br>c) Inhaled corticosteroids<br>d) Leukotriene inhibitors  | <b>1.5</b> | <b>CO4</b> |
| <b>Q 16</b>                                 | In patients with COPD, which of the following findings would be most consistent with the disease?<br>a) Decreased total lung capacity (TLC)<br>b) Decreased forced expiratory volume in 1 second (FEV1)<br>c) Increased forced vital capacity (FVC)<br>d) Increased pulmonary compliance | <b>1.5</b> | <b>CO4</b> |
| <b>Q 17</b>                                 | The most common cause of peptic ulcer disease is:<br>a) Overuse of corticosteroids<br>b) Helicobacter pylori infection<br>c) Stress-related mucosal injury<br>d) Alcohol consumption   | <b>1.5</b> | <b>CO5</b> |
| <b>Q 18</b>                                 | The characteristic feature of cirrhosis in the liver is:<br>a) Infiltration of hepatocytes by inflammatory cells<br>b) Irreversible fibrosis and scarring<br>c) Fatty change in the liver cells<br>d) Increased bile production  | <b>1.5</b> | <b>CO5</b> |
| <b>Q 19</b>                                 | HIV primarily targets which type of immune cells?<br>a) B-cells<br>b) CD4+ T-cells<br>c) Natural killer cells<br>d) Neutrophils  | <b>1.5</b> | <b>CO5</b> |
| <b>Q 20</b>                                 | Which of the following is a classic clinical presentation of syphilis in its primary stage?<br>a) Painful ulcer at the site of inoculation<br>b) Generalized skin rash<br>c) Enlarged lymph nodes<br>d) Mucosal plaques  | <b>1.5</b> | <b>CO5</b> |
| <b>Section B</b><br><b>(4Qx5M=20 Marks)</b> |  |            |            |
| <b>Q 1</b>                                  | Discuss the different types of feedback mechanisms to maintain homeostasis.  | <b>5</b>   | <b>CO1</b> |
| <b>Q 2</b>                                  | Explain the stages of inflammation and the role of cytokines in each stage.  | <b>5</b>   | <b>CO2</b> |

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| <b>Q 3</b>                                   | Define and describe the various types of cellular adaptations (atrophy, hypertrophy, hyperplasia, metaplasia, and dysplasia).   | <b>5</b>  | <b>CO3</b> |
| <b>Q 4</b>                                   | Briefly explain the pathophysiology of iron deficiency anemia.  | <b>5</b>  | <b>CO4</b> |
| <b>Section C</b><br><b>(2Qx15M=30 Marks)</b> |   |           |            |
| <b>Q 1</b>                                   | A 35-year-old woman presents with unexplained fatigue, pale skin, and a sore tongue. Laboratory results show a low hemoglobin level, elevated mean corpuscular volume (MCV), and hyper segmented neutrophils. Bone marrow biopsy confirms megaloblastic anemia. Discuss the etiology, pathophysiology, and treatment of megaloblastic anemia. | <b>15</b> | <b>CO4</b> |
| <b>Q 2</b>                                   | Discuss the mechanisms of cell injury, focusing on mitochondrial dysfunction, membrane damage, and the role of calcium in cellular injury. Explain the morphological changes observed in these conditions.  | <b>15</b> | <b>CO5</b> |
| <b>Section D</b><br><b>(2Qx10M=20 Marks)</b> |   |           |            |
| <b>Q 1</b>                                   | Explain the life cycle of <i>Plasmodium</i> in the human body and explain how different antimalarial drugs target specific stages of the parasite's development.<br><br><b>OR</b><br>Explain the life cycle of HIV in the human body and explain how different anti-HIV drugs target specific stages of the virus development.                | <b>10</b> | <b>CO2</b> |
| <b>Q 2</b>                                   | Describe the pathophysiology, clinical features, and treatment strategies of Gonorrhoea.  | <b>10</b> | <b>CO3</b> |