

GENERAL PATHOLOGY EXAMINATION PAPER I (MCQs)

MULTIPLE CHOICE QUESTIONS (MCQs). Answer all questions in this paper by indicating true (T) or false (F). Marks will be deducted for wrong answers

1. Hypertrophy
 - a) causes shrinkage in size of the organ
 - b) Is always a pathological process
 - c) May predispose to cancer
 - d) May results from denervation
 - e) Is always accompanied by calcification
2. Atrophy
 - a) Is a hallmark of cancer
 - b) Is a decrease in the number of cells
 - c) Is an increase in the metabolic activity of the cell
 - d) Is always a pathological response
 - e) Is the main cause of decrease in brain size in patients with Alzheimer disease
3. Hyperplasia
 - a) Is an increase in cell size
 - b) Does not occur in stable cells
 - c) Is a hallmark of benign neoplasia
 - d) Maybe caused by thrombosis
 - e) Is a decrease in cell number
4. Which of the following may cause Metaplasia
 - a) Decreased workload,
 - b) Denervation,
 - c) Diminished blood supply
 - d) Inadequate nutrition,
 - e) Chronic irritation of the epithelium
5. Which of the following are features of irreversible injury
 - a) Nuclear chromatin clumping
 - b) Formation of cytoplasmic blebs
 - c) Mitochondria swelling
 - d) Disruption of cell membrane
 - e) Nuclear pyknosis

- 6. Coagulative necrosis**
- a) Is caused by bacterial infection
 - b) Has a cheese-like gross appearance
 - c) May be caused by thrombosis
 - d) Occurs in all solid organs except the heart
 - e) Is a reversible change
- 7. Gangrenous necrosis**
- a) Is common in the upper extremities of the body
 - b) Is due to vascular occlusion
 - c) Has a characteristic black color on gross appearance
 - d) Is due to deposition of immune complexes in the blood vessels
 - e) Is an adaptive response to stress
- 8. Which of the following is not an intracellular accumulation**
- a) Sacoidosis
 - b) Dystrophic calcification
 - c) Metastatic calcification
 - d) Fatty change
 - e) Iron overload
- 9. Calcification**
- a) Is an adaptive response
 - b) Is a characteristic features of metaplasia
 - c) Occurs only in dead cells
 - d) is an extracellular accumulation
 - e) may cause organ dysfunction
- 10. Mechanisms of cellular Aging**
- a) Increasing DNA damage,
 - b) Decreased cellular replication
 - c) Reduced regenerative capacity of tissue stem cells
 - d) Accumulation of metabolic damage
 - e) Increased replicative potential
- 11. Acute inflammation**
- a) May be insidious in onset
 - b) Longer duration (days to years)
 - c) Typified by influx of lymphocytes and macrophages
 - d) Associated with vascular proliferation and fibrosis
 - e) Always results in organ injury

12. Chronic inflammation

- a) Is Rapid in onset
- b) Has a Short duration
- c) Characterized by fluid and plasma protein exudation
- d) A predominantly macrophage accumulation.
- e) Is a non-reversible process

13. Causes of acute inflammation

- a) Persistent infections by microbes that are difficult to eradicate.
- b) Immune-mediated inflammatory diseases
- c) Prolonged exposure to potentially toxic agents.
- d) Trauma
- e) Radiation

14. Which of the following is not a cellular event in acute inflammation

- a) Edema
- b) Thrombosis
- c) Cellular transmigration
- d) Phagocytosis
- e) Margination

15. Which of the following may culminate into chronic inflammation

- a) Fibrosis
- b) Healing
- c) Resolution
- d) Persistent injury
- e) Calcification

16. The following are chronic inflammatory diseases except

- a) Tuberculosis
- b) Atherosclerosis
- c) Sarcoidosis
- d) Hypertension
- e) Diabetes Insipidus

17. Which of the following mediators of inflammation are responsible for pain?

- a) Serotonin
- b) Histamine
- c) Anaphylotoxins
- d) Prostaglandins
- e) C5a protein

18. Which of the following mediators of inflammation are produced by the liver?

- a) Cytokines
- b) Hageman factor
- c) Complement proteins
- d) Leukotrienes
- e) Serotonin

19. Dominant cells in acute inflammation

- a) Basophils
- b) Mast cells
- c) T-lymphocytes
- d) Macrophages
- e) Neutrophils

20. Granulomatous diseases are all of the following except

- a) Tuberculosis
- b) Malaria
- c) Sarcoidosis
- d) Hypertension
- e) Syphilis

21. Atrophy

- a) Is always a pathological response
- b) Is a decrease in the size of cells
- c) Is characterised by calcification of the organs
- d) Occurs in labile cells only
- e) Is an increase in the cell size

22. Metaplasia

- a) Is an increase in the number of cells
- b) Is synonymous with cancer
- c) Is an irreversible adaptive response
- d) Arise by genetic reprogramming of stem cells
- e) Is caused by hypoxia

23. Which of the following is a characteristic cell in chronic inflammation?

- a) Gaucher cell
- b) Macrophage
- c) Erythrocyte
- d) Neutrophil
- e) platelet

24. The following are morphological patterns of acute inflammation EXCEPT:

- a) Catarrhal inflammation
- b) Fibrinous inflammation
- c) Granulomatous inflammation
- d) Purulent inflammation
- e) Haemorrhagic inflammation

25. Pathological calcification

- a) Implies the normal deposition of calcium salts in living tissues.
- b) May cause organ dysfunction
- c) Is an adaptive change in labile tissues
- d) Occurs in dead or dying tissues
- e) Is common in apoptosis

26. Necrosis

- a) Is an adaptive response to tissue injury
- b) Is a reversible change
- c) Is characterized by pathological calcification
- d) Occur in dead bodies.
- e) Is synonymous with apoptosis

27. Hyperplasia

- a) Is an increase in cell number in an organ
- b) Exemplified by proliferation of the glandular epithelium of the female breast at puberty is an example of compensatory hyperplasia
- c) Is always a pathological response
- d) In a pathologic state may be caused by hypo secretion and stimulation of growth hormones.
- e) May cause the decrease in organ size

28. The following may cause cell injury EXCEPT:

- a) Carbon monoxide deprivation
- b) Household insecticides
- c) Epstein-Barr virus.
- d) Autoimmune reactions
- e) Viral infection

29. Apoptosis

- a) Is a tightly regulated suicide program of the cell
- b) Involves deactivation of caspase enzymes
- c) Does not occur in cells incapable of replicating
- d) Is characterized by pathological calcification
- e) Is synonymous with necrosis

30. Permanent tissues

- a) Have cells which are considered to be terminally differentiated and nonproliferative in prenatal life
- b) Can be found in the epidermis of the skin
- c) Are more likely to undergo metaplastic changes
- d) Are typically dominated by scar formation during repair
- e) Constitutes 80% of liver parenchyma

31. Which of the following does NOT affect wound healing?

- a) Nutrition status
- b) Age
- c) Tissue perfusion
- d) Dysplasia
- e) Intensity of tissue injury

32. Edema

- a) Signifies increased blood in the interstitial tissue spaces.
- b) Involves decreased vascular permeability.
- c) Is an adaptive response
- d) Is the accumulation of fluid in the interstitial spaces
- e) Is a characteristic feature of chronic inflammation

33. Which of the following is NOT a feature of the Virchow's triad?

- a) Endothelial injury
- b) Hypercoagulability
- c) Abnormal blood flow
- d) Angiogenesis
- e) Turbulent flow of blood

34. Autosomal dominant disorders

- a) Are manifested in the homozygous state
- b) Affects males more than females
- c) Are also called sex linked disease
- d) Can be transmitted by both males and females.
- e) May also be acquired in an immune compromised host

35. Marfan syndrome

- a) Is an autosomal recessive disorder of connective tissues
- b) Is a sex-linked disorder of muscle tissues
- c) Is associated with the biochemical abnormalities which affects fibrillin 1.
- d) Principally affects the Nervous system, the eyes, and the urinary system.
- e) Is an acquired disease

36. Which of the following regarding hypersensitivity Diseases is CORRECT?

- a) Type I results from the activation of the TH2 subset of CD4+ helper T cells by environmental antigens.
- b) Type IV is also called antibody-mediated hypersensitivity disorders
- c) Type III hypersensitivity disorders are caused by antibodies that bind to fixed tissue.
- d) Type III disorders are cell-mediated immune responses in which T lymphocytes cause tissue injury.
- e) They are always triggered by host antigens

37. Malignant neoplasms

- a) Are more likely to remain localized
- b) Are also called teratomas
- c) Arising from the epithelial tissue are called carcinomas
- d) Cannot spread to other sites
- e) Are always well differentiated

38. Benign tumours

- a) Can remain localized
- b) Are collectively referred to as cancers
- c) Can invade and destroy adjacent structures
- d) Can metastasize to cause death.
- e) Are poorly differentiated

39. The following are aspects of a disease process that form the core of pathology EXCEPT

- a) Aetiology
- b) Pathogenesis
- c) Morphologic changes
- d) Clinical significance
- e) Prognosis

40. The following are subdivisions of pathology EXCEPT

- a) Immunology
- b) Haematology
- c) Public Health
- d) Medical Microbiology
- e) Toxicology

41. Atrophy is caused by

- a) Increased workload
- b) innervation
- c) increased blood supply to an organ
- d) adequate nutrition
- e) loss of endocrine stimulation

42. The following are patterns of chronic inflammation except

- a) Serous inflammation
- b) Fibrinous inflammation
- c) Suppurative inflammation
- d) Granuloma
- e) Haemorrhagic inflammation

43. Causes of edema

- a) Decreased hydrostatic pressure
- b) Increased plasma osmotic pressure
- c) Lymphatic dilation
- d) Increased sodium and water retention
- e) Hepatic vein thrombosis

44. Hyperplasia

- a) Is a decrease in cell size
- b) Is an increase in cell size
- c) Is an increase in the number of cells
- d) Is a decrease in the number of cells
- e) Is always a physiological response

45. Acute inflammation

- a. Is always triggered by histamine
- b. Is a rapid response specific to the nature of the injury
- c. Leads to the formation of an exudate composed of fluid, fibrin, and eosinophils.
- d. Always heals by resolution.
- e. Is characterised by macrophages

46. Necrosis

- a) Is a physiological process.
- b) Is a characteristic feature of acute inflammation
- c) is a well-controlled form of cell death.
- d) Of the coagulative type is the commonest form.
- e) Of the caseous type typically follows infarction.

47. Chronic inflammation

- a) May be triggered by histamine
- b) Is a rapid response specific to the nature of the injury.
- c) can cause the formation of an exudate composed of fluid, fibrin, and eosinophils.
- d) always heals by resolution.
- e) is a characteristic feature of apoptosis

48. Impairment to wound healing

- a) can be due to healing by first intention
- b) can be due to healing by second intention
- c) can be caused by prolonged infection
- d) can be accelerated by the presence of fibroblasts
- e) can predispose to cancer

49. Malignant neoplasms

- a) can invade and destroy adjacent structures
- b) cannot spread to distant sites
- c) always cause death
- d) remain localised
- e) are also called cancers

50. Which of the following is NOT true about hypertrophy?

- a) It refers to an increase in size of cells in a tissue or organ
- b) is always pathological
- c) of the left ventricle occurs in patients with systemic hypertension
- d) is the principle underlying cause of prostate cancer
- e) is a non-reversible change

51. Metaplasia

- a) almost exclusively occurs in epithelial cells
- b) is irreversible
- c) commonly occurs in the ectocervix
- d) is always a premalignant state
- e) may predispose to malignancy

52. Necrosis characterized by the `ghostly` appearance of acidophilic opaque cells under light microscopy is known as:

- a) Caseous
- b) Liquefactive
- c) Coagulative
- d) Gangrenous
- e) Fibrinoid

53. Granulomatous inflammation

- a). it is defined by the presence of granulomas.
- b). has no epithelioid histiocytes
- c). is a characteristic feature of salmonellosis
- d). is a characteristic feature of tuberculosis.
- e) is almost always due to bacterial infection

54. Proliferation of the glandular epithelium of the female breast at puberty is an example of

- a) Metaplasia
- b) Hypertrophy
- c) Hyperplasia
- d) Atrophy
- e) Dysplasia

55. Apoptosis

- a) Elicits an inflammatory response.
- b) is associated with denaturation of caspase enzymes.
- c) causes loss of integrity of the cell membrane.
- d) is always a physiological process.
- e) is always a pathological response

56. Which of the following is true regarding cellular hypertrophy

- a) It is a decrease in the number of cells
- b) It is an increase in the number of cells
- c) It is always a physiological response
- d) It is caused by either increased functional demand or by specific hormonal stimulation
- e) It causes shrinkage of organs involved

57. Which of the following is not a feature of necrosis

- a) Pyknosis
- b) Karyolysis
- c) Autophagy
- d) Karyorrhexis
- e) Inflammation

58. Autophagy

- a) Is a Lysosomal digestion of the cells' own components
- b) Is a process by which a cell ingests substances from the outside for intracellular destruction
- c) Does not signal cell death
- d) Is common in young cells
- e) Causes hypertrophy of cells

59. Which of the following mechanisms is not responsible for cellular aging

- a) Decreased cellular replication
- b) Reduced regenerative capacity of tissue stem cells
- c) Decreased DNA damage
- d) Autophagy
- e) Calcification

60. Necrosis

- d) Is a physiological process.
- e) is a well-controlled form of cell death.
- c) Of the coagulative type is the commonest form.
- d) Of the caseous type typically follows infarction.
- e) is a reversible change

61. Which of the following is not a cellular event during acute inflammation

- a) Leukocyte recruitment
- b) Adhesion and transmigration
- c) Increased vascular permeability
- d) Chemotaxis
- e) Edema

62. Mediators of acute inflammation

- a) Induce their effects by binding to specific receptors on target cells
- b) May stimulate target cells to release secondary effector molecules
- c) The actions of most mediators are not tightly regulated
- d) May act on only one or a very few target cells
- e) Are specific

63. Which of the following is not a dominant cell of chronic inflammation

- a) Macrophage
- b) Neutrophil
- c) Plasma cell
- d) Eosinophils
- e) Platelets

64. Regarding Proliferative capacities of tissues

- a) Labile tissues Cells are continuously being lost and are never replaced by maturation from stem cells and by proliferation of mature cells.
- b) Labile tissue cannot readily regenerate after injury.
- c) Permanent tissue Cells have only minimal replicative activity in their normal state.
- d) Permanent tissues cells are considered to be terminally differentiated and nonproliferative in postnatal life.
- e) Neurons readily regenerate after injury

65. The following are classical features of Virchow`s triad except
- a) Endothelial Injury
 - b) Hyperemia
 - c) Blood hypercoagulability
 - d) Stasis
 - e) Congestion
66. Which of the following is **TRUE** regarding atrophy
- a) It is always pathologic
 - b) It is caused by reduced functional demand of the cell
 - c) Occurs in cells which are incapable of dividing
 - d) It is an increase in the number of cells
 - e) Is a decrease in cell size
67. Which of the following is **TRUE** regarding cellular hypertrophy
- a) It is a decrease in the number of cells
 - b) It is an increase in the number of cells
 - c) It is always a physiological response
 - d) It is caused by either increased functional demand or by specific hormonal stimulation
 - e) Is an increase in cell number
68. Which of the following is true regarding Metaplasia
- a) It is a decrease in the size of cells
 - b) It is an increase in the size of cells
 - c) It is always a pathological response
 - d) It is caused by either increased functional demand or by specific hormonal stimulation
 - e) Is a non-reversible adaptation
69. Which of the following is **NOT** a contributing factor to cell injury
- a) Oxygen enrichment
 - b) Immunological reactions
 - c) Genetic defects
 - d) Nutrient deprivation
 - e) Radiation

70. Which of the following is **NOT** a morphological consequence of ATP deprivation in cellular injury
- a) Detachment of ribosomes
 - b) Clamping of nuclear chromatin
 - c) Efflux of calcium ions
 - d) Cellular swelling
 - e) Influx of sodium ions
71. Which of the following is **NOT** a feature of apoptosis
- a) Pyknosis
 - b) Karyolysis
 - c) Autophagy
 - d) Karyorrhexis
 - e) Disruption of cell membrane
72. Regarding Necrosis
- a) Coagulative necrosis is characteristic in all solid organs except the kidneys
 - b) Liquefactive necrosis is seen in focal bacterial infections
 - c) Caseous necrosis is most often seen in tuberculosis infection
 - d) Fibrinoid necrosis is usually seen in immune reactions of the blood vessels
 - e) Is synonymous with apoptosis
73. The following are subcellular responses to injury **EXCEPT**
- a) Induction hypertrophy
 - b) Mitochondrial alteration
 - c) Apoptosis
 - d) Autophagy
 - e) Necrosis
74. Which of the following is **NOT** true regarding Apoptosis
- a) It is always a physiological response
 - b) It elicits an inflammatory reaction
 - c) Plasma membrane of apoptotic cells remains intact
 - d) It is always seen in pathological conditions
 - e) Is a feature in tumours

75. Which of the following processes may lead to Intracellular accumulations:
- a) When a normal substance is produced at a normal or an increased rate, but the metabolic rate is inadequate to remove it.
 - b) When a normal endogenous substance accumulates because of genetic defects in its transport, or secretion.
 - c) When an inherited defect in an enzyme may result in failure to degrade a metabolite.
 - d) When an abnormal exogenous substance is deposited and accumulates because the cell has neither the enzymatic machinery to degrade the substance nor the ability to transport it to other sites.
 - e) Calcification
76. Regarding pathological calcification
- a) Dystrophic calcification occurs in living tissues
 - b) Dystrophic calcification is a common in atherosclerosis
 - c) Amyloidosis is an example of metastatic calcification
 - d) It may cause organ dysfunction
 - e) Does not occur in dead cells or tissues
77. Which of the following mechanisms is not responsible for cellular aging
- a) Decreased cellular senescence
 - b) Reduced regenerative capacity of tissue stem cells
 - c) Decreased DNA damage
 - d) Autophagy
 - e) hypertrophy
78. Which of the following is not part of sequence of events in cellular recruitment during an acute inflammation
- a) Margination
 - b) Adhesion
 - c) Tissue fibrosis
 - d) Transmigration
 - e) Diapedesis
79. The most common causes of defective inflammation are
- a) bone marrow suppression caused by tumors
 - b) metabolic diseases such as diabetes
 - c) Defects in leukocyte adhesion
 - d) Defects in microbicidal activity
 - e) Defects in cellular diapedesis

80. Mediators of acute inflammation

- a) Induce their effects by binding to specific receptors on target cells
- b) May stimulate target cells to release secondary effector molecules
- c) The actions of most mediators are not tightly regulated
- d) May act on only one or a very few target cells
- e) are tissue specific

81. Which of the following is not a dominant cell of chronic inflammation

- a) Macrophage
- b) Neutrophil
- c) Plasma cell
- d) Eosinophils
- e) Basophils

82. Which of the following is **NOT a morphological pattern of acute inflammation**

- a) Serous inflammation
- b) Granulomatous inflammation
- c) Purulent inflammation
- d) Catarrhal inflammation
- e) Fibrinous inflammation

83. Which of the following is **NOT a cell-derived mediator of acute inflammation**

- a) Histamine
- b) Serotonin
- c) Factor XIII
- d) Prostaglandins
- e) Complement proteins

84. Which of the following diseases is characterized by chronic inflammation

- a) Crohn's disease
- b) Ulcerative colitis
- c) Tuberculosis
- d) Sarcoidosis
- e) Syphilis

- 85.** Which of the following is not a systemic effect of inflammation
- a) Reduce plasma levels of acute phase proteins
 - b) Fever
 - c) Leukocytosis
 - d) Neutrophilia
 - e) Thrombosis
- 86.** Which of the following processes controls normal size of cell populations
- a) Proliferation
 - b) Apoptosis
 - c) Differentiation
 - d) Necrosis
 - e) Calcification
- 87.** Extensive deposition of collagen that occurs in the organs as a consequence of chronic Inflammation is known as
- a) Repair
 - b) Regeneration
 - c) Fibrosis
 - d) Organization
 - e) Metaplasia
- 88.** Hypertrophy
- a) causes shrinkage in size of the organ
 - b) Is always a pathological process
 - c) May predispose to cancer
 - d) May results from denervation
 - e) Is always accompanied by calcification
- 89.** Metaplasia
- a) Is a hallmark of cancer
 - b) Is a decrease in the number of cells
 - c) Is an increase in the metabolic activity of the cell
 - d) Is always a pathological response
 - e) Is the main cause of decrease in brain size in patients with Alzheimer disease

90. Hyperplasia

- a) Is an increase in cell size
- b) Does not occur in stable cells
- c) Is a hallmark of benign neoplasia
- d) Maybe caused by thrombosis
- e) Is a decrease in cell number

91. Which of the following may cause Metaplasia

- a) Decreased workload,
- b) Denervation,
- c) Diminished blood supply
- d) Inadequate nutrition,
- e) Chronic irritation of the epithelium

92. Features of Healing by second intention

- a) A larger clot or scab rich in fibrin and fibronectin forms at the surface of the wound.
- b) Inflammation is less intense
- c) A small amounts of granulation tissue are formed
- d) Scar formation
- e) Wound contraction.

93. Features of Healing by first intention

- a) Small clot formation
- b) Inflammation is more intense
- c) Much larger amounts of granulation tissue are formed.
- d) Scar formation
- e) Wound contraction.

94. Which of the following factors affects wound healing

- a) Presence of foreign bodies
- b) Steroids
- c) Poor tissue perfusion
- d) Nutrition
- e) Size of the wound

95. Repair by connective tissue deposition consists of the following processes:

- a) Angiogenesis
- b) Migration of macrophages
- c) Proliferation of fibroblasts
- d) Scar formation
- e) Remodeling

- 96.** Which of the following is a component of extracellular matrix
- a) Collagen
 - b) Proteoglycans
 - c) Elastin
 - d) Fibroblasts
 - e) Integrins
- 97.** Which of the following tissues have a large proportion of labile cells
- a) Brain tissue
 - b) Cervical epithelia
 - c) Myocardial tissues
 - d) Skin epithelia
 - e) Bone marrow
- 98.** Which of the following tissues have a large proportion of stable cells
- a) Brain tissue
 - b) Cervical epithelia
 - c) Myocardial tissues
 - d) Skin epithelia
 - e) Bone marrow
- 99.** Which of the following tissues have a large proportion of permanent cells
- a) Brain tissue
 - b) Cervical epithelia
 - c) Myocardial tissues
 - d) Skin epithelia
 - e) Bone marrow
- 100.** Which phase of the cell does DNA replication takes place
- a) S
 - b) G1
 - c) G2
 - d) G0
 - e) M