



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2009/2010

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL LABORATORY SCIENCE

HML 210: BASIC HUMAN PATHOLOGY

DATE: Wednesday 23rd December, 2009

TIME: 8.00 a.m. – 10.00 a.m.

SECTION A

Answer ALL questions. – (15 marks)

1. Compare and contrast autolysis, apoptosis and necrosis. [5 marks]
2. Define and explain inflammation. [5 marks]
3. Outline the grading and staging of Tumors. [5 marks]

SECTION B

Answer only ONE question. – (20 marks)

4. Discuss the reversible cellular adaptation mechanisms. [20 marks]
5. Discuss the etiology pathogenesis clinical signs and management of asthma. [20 marks]

SECTION C – (15 marks)

Choose the correct answer by ticking on the correct choice.

Hypertrophy:

- a) refers to an increase in cell number 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 benign prostatic enlargement in elderly men.

Question 2

Metaplasia:

- a) almost exclusively occurs in epithelial cells.
- b) is irreversible.
- c) commonly occurs in the ectocervix.
- d) is always a premalignant state.

Question 3

Necrosis:

- a) may be a physiological process.
- b) 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.

Question 4

Apoptosis:

- a) elicits an inflammatory response.
- b) is associated with denaturation of caspase enzymes.
- c) causes loss of integrity of the cell membrane.
- d) may be a physiological process.

Question 5

Which of the following is correct regarding acute inflammation?

- a) It may be triggered by histamine.
- b) It is a rapid response specific to the nature of the injury.
- c) It leads to the formation of an exudates composed of fluid, fibrin and eosinophils.
- d) It always heals by resolution.

Question 6

Which of the following is correct regarding chronic inflammation?

- a) It always follows acute inflammation.
- b) The key inflammatory cell is the macrophage.
- c) Macrophages are activated by IL-12 secreted by CD4+ T helper lymphocytes.
- d) Scarring is triggered by transforming growth factor alpha.

Question 7

Which of the following is correct regarding granulomatous inflammation?

- a) It is defined by the presence of granulomas
- b) Epithelioid histiocytes are so-called because they begin to express epithelial proteins such as cytokeratins.
- c) It is a characteristic feature of a pyogenic granuloma.
- d) It is a characteristic feature of tuberculosis.

Question 8

Which of the following is correct regarding healing?

- a) It may occur by resolution or repair.
- b) The main cellular components of granulation tissue are blood vessels, myofibroblasts, fibroblasts and lymphocytes.
- c) Fibroblasts have contractile properties, allowing contraction of the wound.
- d) Repair involves the laying down of a fibrin rich scar.

Question 9

Which of the following is correct regarding bacteria?

- a) They have double stranded DNA enclosed in a nucleus.
- b) Gram positive bacteria stain pink with the Gram stain.
- c) Lipopolysaccharide is an integral component of the Gram negative cell wall.
- d) Chlamydiae are obligate intracellular Gram negative bacteria.

Question 10

Which of the following is correct regarding viruses?

- a) They consist of genetic material enclosed in a lipid shell called the capsid.
- b) Hepatitis B is an example of a cytopathic virus.
- c) Herpes simplex virus is a retrovirus.
- d) Epstein-Barr virus is oncogenic.

Question 11

Which of the following is correct regarding fungi?

- a) The fungal cell membrane is composed mostly of chitin.
- b) Yeasts reproduce by forming spores.
- c) *Aspergillus* spores are a known trigger of hypersensitivity pneumonitis
- d) *Pneumocystis carinii* pneumonia should be treated with high doses of antifungal agents.

Question 12

Which of the following is correct regarding malaria?

- a) The disease is caused by protozoa of the genus *Plasmodium*.
- b) Sporozoites infect and multiply within red blood cells, leading to their rupture.
- c) Most fatal cases caused by *Plasmodium vivax*.
- d) Acute renal failure is due to ischaemic acute tubular necrosis.

Question 13

Which of the following is correct regarding the mode of action of antibacterial agents?

- a) Glycopeptide antibiotics inhibit bacterial protein synthesis.
- b) Macrolide antibiotics act by inhibiting bacterial cell wall synthesis.
- c) Metronidazole acts by binding to, and breaking, bacterial DNA.
- d) Aminoglycosides inhibit nucleic acid synthesis.

Question 14

Which of the following is correct regarding human immunodeficiency virus (HIV) infection?

- a) Inoculation of the virus through contaminated needles is the dominant mode of transmission.
- b) Gastrointestinal infection by *Mycobacterium avium intracellulare* is a common cause of persistent diarrhea.
- c) Meningitis caused by *Cryptosporidium* is a well recognized infection.
- d) Kaposi's sarcoma is related to human papillomavirus infection.

Question 15

Which of the following is correct regarding classification and nomenclature of neoplasms?

- a) The histogenesis of a tumour refers to its behaviour.
- b) An acanthoma is a benign tumour of glandular epithelium.
- c) A carcinoma is an epithelial malignancy.
- d) Leiomyosarcoma is a malignant tumour of skeletal muscle.

Question 16

Which of the following is correct regarding metastasis?

- a) Metastasis refers to infiltration of surrounding tissues by a malignant tumour.
- b) Most cells shedding from a malignant tumour into the blood will successfully form a metastatic deposit.
- c) Breast carcinomas commonly spread to the supraclavicular lymph nodes.
- d) Renal cell carcinomas have a recognized tendency to spread to bone.

Question 17

Which of the following is correct regarding a patient with a malignant neoplasm?

- a) Hypercalcaemia due to bony metastases is an example of a paraneoplastic syndrome.

- b) the tumour marker alpha-fetoprotein is usually raised in patients with hepatocellular carcinoma.
- c) the grade of a neoplasm refers to how far it has spread.
- d) Venous thrombosis is particularly associated with squamous cell carcinomas.

Question 18

Which of the following is correct regarding infectious endocarditis?

- a) The infection always arises on a heart valve.
- b) Most patients present with symptoms of heart failure due to valve destruction.
- c) Acute endocarditis is a destructive infection usually caused by *Streptococcus viridans*.
- d) Subacute endocarditis is usually associated with a structural abnormality of the heart.

Question 19

Which of the following is correct regarding respiratory failure?

- a) It is defined by a pO_2 less than 7kPa.
- b) Type 1 respiratory failure is usually due to generalized alveolar hypoventilation.
- c) Treatment should be aimed at the underlying cause.
- d) Patients with chronic respiratory failure eventually develop pulmonary hypertension and right-sided heart failure.

Question 20

Which of the following is correct regarding asthma?

- a) Hyper-reactive bronchioles are characteristic.
- b) Most children with asthma are also atopic, meaning they produce large quantities of IgA in response to environmental allergens.
- c) The late inflammatory response in asthmatic airway is thought to be important in the development of hyper-reactive airways.
- c) Peak flow in asthma is usually best in the morning with worsening during the day.

Question 21

Which of the following is correct regarding tuberculosis?

- a) The disease is caused by *Mycoplasma tuberculosis*.
- b) Most people acquiring the infection develop active pulmonary tuberculosis.
- c) Symptoms of a chronic pneumonia is the typical presentation.
- c) Microscopically, non-caseating granulomas are seen.

Question 22

Which of the following is correct regarding lung carcinomas?

- a) It is the second most common cancer killer.
- b) Squamous cell carcinomas are defined by gland formation or mucin production microscopically.
- c) Adenocarcinomas typically arise centrally in the lung.
- d) Small cell carcinomas have a tendency to early, widespread dissemination.

Question 23

Which of the following is correct regarding oesophageal carcinoma?

- a) The incidence of oesophageal adenocarcinoma is falling.
- b) Oesophageal squamous cell carcinoma is associated with heavy smoking and a high alcohol intake.
- c) Most patients present with dysphasia.
- d) Most patients are suitable for surgical resection at the time of diagnosis.

Question 24

Which of the following is correct regarding *Helicobacter pylori* infection of the stomach?

- a) Following infection, the organisms localize to the body of the stomach.
- b) Most patients develop a symptomatic gastritis.
- c) Patients with corpus predominant gastritis are at increased risk of duodenal ulceration.
- d) A small percentage of patients develop marginal zone B cell lymphoma of the stomach.

Question 25

Which of the following is correct regarding colorectal carcinoma?

- a) It occurs when severely dysplastic glands breach their basement membrane and invade the lamina propria of the colorectal mucosa.
- b) Right-sided colonic tumours often present with iron deficiency anaemia.
- c) A rectal tumour that has infiltrated through the muscularis propria into mesorectal fat is a T4 tumour in the TNM staging system.
- d) The national bowel screening programme aims to use colonoscopy as a screening test for colorectal carcinoma.

Question 26

Which of the following is correct regarding liver function tests?

- a) Liver function tests are always deranged in patients with significant liver disease.
- b) An isolated rise in alkaline phosphatase level implies biliary disease
- c) An isolated rise in β -glutamyltransferase (GGT) is often seen in alcoholics.
- d) Mild elevations of bilirubin, alanine aminotransferase and aspartate aminotransferase are typical of Gilbert's syndrome.

Question 27

Which of the following is correct regarding hepatic failure?

- a) The cardinal features are hepatic encephalopathy, coagulopathy and jaundice.
- b) Most cases following a sudden massive insult to a previous healthy liver.
- c) The activated partial thromoplastin time (APTT) serves as a good indicator of the severity of hepatic failure.
- d) Prognosis is generally good for recovery.

Question 28

Which of the following is correct regarding hepatitis B infection?

- a) Acute infection usually causes a clinically evident episode of acute icteric hepatitis.

- b) Most patients develop chronic infection.
- c) The present of serum anti-hepatitis B surface antigen antibodies implies infection with the virus.
- d) The viral X protein is believed to be important in the pathogenesis of hepatitis B related hepatocellular carcinoma.

Question 29

Which of the following is correct regarding alcoholic liver disease?

- a) Alcoholic fatty liver is irreversible.
- b) Alcoholic hepatitis is defined by the presence of inflammation in the liver.
- c) Severe alcoholic hepatitis may lead to acute hepatic failure.
- d) Alcohol is the second most common cause of chronic liver disease.

Question 30

Which of the following is correct regarding cirrhosis?

- a) It is defined by the present of fibrosis in the liver.
- b) The key cell implicated in the laying down of fibrosis is the activated Kupffer cell.
- c) Ascites occurs early after the onset of cirrhosis.
- d) Most patients die of decompensated hepatic failure

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