EGERTON  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

NJORO CAMPUS

2021/2022 ACADEMIC YEAR

END OF FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY

COURSE CODE: PATH E300 COURSE TITLE: PATHOLOGY

TIME 2:00P.M-4:00PM (2 HOURS)

EXAMINATION SESSION: AUGUST/SEPTEMBER. YEAR:2022

PAPER 2

MULTIPLE CHOICE QUESTIONS (80 MARKS)

INSTRUCTIONS:

I. **ANSWER ALL QUESTIONS**
II. **READ THE QUESTIONS CAREFULLY**
III. **CHOOSE THE CORRECT ANSWER AND CIRCLE IT ON THE ANSWER SHEET PROVIDED**
IV. **EACH RIGHT ANSWER EARNS YOU ONE (1) MARK**

1. Which classification of diabetes mellitus is genetically predetermined, HLA- associated, chronic autoimmune disease with insulin deficiency and glucagon excess as its pathophysiologic sequelae?

A. Type I
B. Obese type II
C. Non-obese type II
D. MODY-maturity onset diabetes of the young

2. According to the WHO criteria, patients with type I diabetes mellitus are, at the time of diagnosis, characterized by: 1. hyperglycaemia 2. ketonuria 3. ketoacidosis4. normal weight

A. only 1 and 3 are correct
B. only 2 and 4 are correct
C. only 1, 2, and 3 are correct
D. 1, 2, 3 and 4 are correct

3. In a diabetic patient, this provides information about the average blood glucose concentration during the preceding 6-8 weeks:

A. HbA1c
B. HbF
C. HbS
D. HbB

4. Diabetes mellitus secondary to certain and other diseases and disorders may involve the following organs: 1. pancreas 2. liver 3. anterior pituitary 4. adrenal gland

A. only 1 and 3 are correct
B. only 2 and 4 are correct
C. only 1, 2, and 3 are correct
D. 1, 2, 3 and 4 are correct

5. The diagnosis of diabetes mellitus is reliably established by which of the following criteria?

1. unequivocally elevated postprandial or non-fasting glucose concentration with or without classical symptoms of diabetes mellitus such as polydipsia, polyuria, polyphagia, and weight loss

2. fasting and preprandial glucose values should be >7mmol/L
3. increased fasting blood glucose values on at least two occasions.
4. glucosuria is usually present with ketonuria

A. only 1 and 3 are correct
B. only 2 and 4 are correct
C. only 1,2, and 3 are correct
D. 1, 2, 3 and 4 are correct

6. Hyperalbuminemia is caused by:

A. Dehydration syndromes
B. Liver disease
C. Burns
D. Gastroenteropathy

7. Which of the following conditions can falsely increase LDH measurement?

A. Blood sample collection after exercise
B. Use of capillary serum
C. Use of haemolysed samples
D. All of these

8. This myofibrillar protein of the heart muscle is released from the myocardium following injury and is used in the late diagnosis and monitoring of the course of acute myocardial infarction.

A. Cardiac troponin (cTnT)
B. Heart fatty acid binding protein(H-FABP)
C. Myoglobin
D. Atrial Natriuretic Peptide

9. What classification of hyperbilirubinemia is caused by ineffective erythropoiesis?

A. Prehepatic jaundice
B. Intrahepatic jaundice
C. Postherpetic jaundice
D. None of these

10. What classification of hyperbilirubinemia is caused by medication-induced parenchymal and cholestatic liver damage as well as hepatic involvement in other primary diseases?

A. Prehepatic jaundice
B. Intrahepatic jaundice
C. postherpetic jaundice
D. None of these

11. The extracellular fluid volume is directly dependent on total body:

A. Sodium
B. Phosphate
C. Calcium
D. Potassium

12. An extracellular fluid volume decline by >5% causes a reversible decrease in renal blood flow. This results in:

1. The reduction of GFR
2. Increase in the secretion of ADH
3. The activation of the rennin-angiotensin-aldosterone system
4. A rise in the filtration fraction.

A. only 1 and 3 are correct
B. only 2 and 4 are correct
C. only 1, 2, and 3 are correct
D. 1, 2, 3 and 4 are correct

13. Prerenal acute renal failure is associated with:

1. Oliguria and a urine osmolality of >600mosmol/kg water
2. A disproportional increase of urea as compared to creatinine in plasma
3. A urinary sodium concentration of <10mmol/L
4. A reduction of the fractional sodium excretion to <1%

A. only 1 and 3 are correct
B. only 2 and 4 are correct
C. only 1,2, and 3 are correct

D. 1,2,3 and 4 are correct

14. The anion gap in the plasma or serum refers to the difference between the most prevalent cations and anions. It is calculated according to this equation:

A. Anion gap = sodium – chloride – bicarbonate

B. Anion gap = potassium + sodium – chloride

C. Anion gap = sodium – potassium – chloride

D. Anion gap = sodium – chloride

15. What do different CD antigens have in common?

A. They are only found on leukocytes

B. They have similar functions

C. They are all cell surface molecules

D. They are identified by monoclonal antibodies

16. Which of the following cell types mediates adaptive immune responses?

A. Dendritic cell

B. Lymphocyte

C. Macrophage

D. Neutrophil

17. Which of the following is a secondary lymphoid organ?

A. Bone marrow

B. Hypothalamus

C. Liver

D. Spleen

18. Which of the following is an accurate description of the consequences of the positive and negative selection of T cells in the thymus?

A. It results in a diverse population of T cells with high affinity for self (MHC/peptide)

B. It results in a diverse population of T cells with low affinity for self (MHC/peptide)

C. It leads to the deletion of T cells with a high affinity for self (MHC/peptide)

D. It leads to the deletion of T cells with a low affinity for self (MHC/peptide)

19. Which of the following is responsible for secondary immune responses?

A. Mediated by naïve lymphocytes
B. Mediated by memory lymphocytes
C. Mediated by effector lymphocytes
D. Mediated by macrophages

20. Which of the following best describes a primary immune response?
A. Small increase in specific IgG after 7-10 days
B. Small increase in specific IgA after 7-10 days
C. 10-100-fold increase in specific IgM after 2-3 days
D. Small increase in specific IgM after 7-10 days

21. The type I interferon response is:
A. Important in the defence against bacteria
B. Important in the defence against nematodes
C. Important in the defence against protozoa
D. Important in the defence against viruses

22. Somatic recombination is:
A. Responsible for the DNA recombination of V(D)J gene segments leading to diverse lymphocyte receptors
B. Responsible for the point mutations introduced into V region DNA sequences leading to affinity maturation of B cells
C. The proliferation and differentiation of antigen specific lymphocytes.
D. The deletion of self-reactive lymphocytes

23. What do helper (CD4) T cells bind to?
A. Class I MHC / peptide complexes found on all body cells
B. Class II MHC / peptide complexes found mainly on antigen presenting cells
C. The three-dimensional (or tertiary) structure of a pathogen
D. Pathogen associated molecular patterns (PAMPs)

24. Which of these cell types is an important antigen presenting cell?
A. Helper T cells
B. Natural Killer cells

C. Dendritic cells

D. Epithelial cells

25. Which type of cell specifically destroys virally infected body cells?

A. Cytotoxic T lymphocytes

B. Activated B lymphocytes

C. Phagocytic macrophages

D. Plasma cells

26. Helminths are multi-cellular eukaryotic pathogens with complex life cycles which present particular problems to the body. Which is the most effective immune response to eradicate them?

A. Th1, IgG2 and macrophage activation

B. Th2, IgG1 and complement activation

C. Th17 and neutrophil responses

D. Th2, IgE and eosinophil responses

27. The antigen-binding region of an antibody molecule is found in the:

A. Variable heavy chain

B. Variable light chain

C. Variable heavy and light chain

D. Hinge region

28. During a blood transfusion, ABO incompatibilities lead to the recognition of A or B antigens present on the RBC resulting in complement-mediated cell lysis. Which of the following antibody isotype is primarily involved in this type II hypersensitivity reaction?

A. IgG

B. IgM

C. IgE

D. IgA

29. Erythroblastosis fetalis is a severe form of haemolytic disease developed when Rh+ foetus expresses Rh antigen on its blood that the mother does not express. Which of the following condition is true regarding this condition?

A. During the first pregnancy, the exposure of Rh antigen leads to the generation of memory cells and the IgG response that is harmful during the subsequent pregnancy
B. This is Type II hypersensitivity reaction
C. The condition may be prevented by infusing and reducing exposure to Rh antigen within 24-48 hours of pregnancy
D. All of the above

30. Which of the following the disease is not the example of type III hypersensitivity reaction?
A. Systemic Lupus Erythematosus
B. Rheumatoid Arthritis
C. Good Pasture's syndrome
D. Down Syndrome

31. Johnny is a 1-month-old healthy child who has not, as yet, received any childhood immunizations. He presents with his first episode of otitis media (middle ear infection) that is successfully treated with a 3-week course of antibiotics. Which one of the following immune components contributed the most to his clearing the infectious agent during the first few days of his infection?
A. Antigen receptors on his B lymphocytes
B. Toll-like receptors on his neutrophils
C. Cytokines that promoted antibody formation
D. T cell responses to bacterial antigens

32. You are part of a research team that is attempting to design a better vaccine for the prevention of tuberculosis, which is caused by the intracellular bacterial pathogen Mycobacterium tuberculosis. One of your colleagues suggests that you include an adjuvant in the vaccine formulation. Based on your knowledge of protective immunity to this pathogen, which one of the following would be a reasonable choice of an adjuvant component?
A. A cytokine that promotes an IFN-γ response to mycobacterial antigens
B. The complement peptide C3d, which will ensure adequate antibody production.
C. Interleukin-10
D. Bacterial lipopolysaccharide

33. Harry is aware that he has a congenital deficiency of the C6 complement peptide. For which of the following infectious agents is Harry particularly susceptible?

A. *Streptococcus pneumoniae*

B. *Neisseria meningitidis*

C. *Clostridium tetani*

D. *Mycobacterium tuberculosis*

34. Mark the correct description of the initiation stage of carcinogenesis

A. Mutation in a critical gene controls cell proliferation and cell cycle

B. Requires specific rounds of cell division

C. When reversible the initiated cell may eventually develop into neoplasia

D. DNA repair cannot alter the process of initiation

E. None of the above

35. Which of the following is not a mechanism through which chemical carcinogens initiate cells to a tumorigenic state?

A. Activation of growth factor receptors and downstream signalling mechanisms

B. Inactivation of DNA repair processes

C. Activation of antioxidant response pathways (e.g., SOD).

D. Inactivation of growth inhibitory receptors,

36. Mark the statement that is correct about metastatic tumors

A. Invade only local and regional tissues

B. Cellular DNA and chromosomes appear abnormal

C. Require extensive treatment, and may not recur when tumours are removed sufficiently

D. They have poorly differentiated, unspecialized cells with primitive appearance

37. Which of the following is not a mechanism through which inflammation contribute to the progression of cancer

A. Contribute to tumour genomic instability

B. Inflammation hinders immunological attack of tumour cells and thus enhances metastatic spread and cancer progression

C. Induces proliferation of premalignant cells

D. Enhances tissue repair processes

38. Which of the following does not match with the type of cancer caused by the following chemical and environmental carcinogens?

A. Asbestos - lung cancer

B. Nitrosamines- Oropharyngeal cancer

C. 2-amino-1-methyl-6-phenylimidazo[4,5-b] pyridine (PhIP)- mesothelioma

D. Aflatoxin B1- liver cancer

39. A 48-year-old woman has a malignant lymphoma involving lymph nodes in the para-aortic region. She is treated with a chemotherapeutic agent which results in the loss of individual neoplastic cells through fragmentation of individual cell nuclei and cytoplasm. Over the next 2 months, the lymphoma decreases in size, as documented on abdominal CT scans. By which of the following mechanisms has her neoplasm primarily responded to therapy?

A. Coagulative necrosis

B. Mitochondrial poisoning

C. Phagocytosis

D. Apoptosis

40. A 53-year-old man has experienced severe chest pain for the past 6 hours. On physical examination he is afebrile, but has tachycardia. Laboratory studies show a serum troponin I of 10 ng/mL. A coronary angiogram is performed emergently and reveals >90% occlusion of the left anterior descending artery. In this setting, an irreversible injury to myocardial fibres will have occurred when which of the following cellular changes occurs?

A. Glycogen stores are depleted

B. Cytoplasmic sodium increases

C. Nuclei undergo karyorrhexis

D. Intracellular pH diminishes

41. While in a home improvement centre warehouse buying paint, a 35-year-old man hears "Look out below!" and is then struck on the leg by a falling pallet rack, which strikes him on his left leg in the region of his thigh. The skin is not broken. Within 2 days there is a 5 x 7 cm purple colour

to the site of injury. Which of the following substances has most likely accumulated at the site of injury to produce a yellow-brown colour at the site of injury 16 days later?

A. Lipofuscin
B. Bilirubin
C. Melanin
D. Hemosiderin

42. A 54-year-old man with a chronic cough has a squamous cell carcinoma diagnosed in his right lung. While performing a pneumonectomy, the thoracic surgeon notes that the hilar lymph nodes are small, 0.5 to 1.0 cm in size, and jet black in colour throughout. Which of the following is the most likely cause for this appearance to the hilar nodes?

A. Anthracotic pigment
B. Lipochrome deposits
C. Melanin accumulation
D. Hemosiderosis

42. A 50-year-old woman with a history of unstable angina suffers an acute myocardial infarction. Thrombolytic therapy with tissue plasminogen activator (tPA) is administered to restore coronary blood flow. In spite of this therapy, the degree of myocardial fibre injury may increase because of which of the following cellular abnormalities?

A. Cytoskeletal intermediate filament loss
B. Decreased intracellular pH from anaerobic glycolysis
C. Increased free radicals
D. Mitochondrial swelling

43. A 12-year-old boy has had multiple episodes of ear pain accompanied by fever. On examination his right tympanic membrane is red and bulging with yellow exudate. Laboratory studies of the exudate show culture positive for Hemophilus influenzae. A year later he has conductive hearing loss on the right, and a head CT scan shows a mass in the right middle ear. Which of the following materials is most likely to be seen in the tissue curetted from his middle ear?

A. Lipofuscin

B. Russell bodies

C. Neutrophils

D. Cholesterol crystals

44. A 43-year-old man has complained of mild burning substernal pain following meals for the past 3 years. Upper GI endoscopy is performed and biopsies are taken of an erythematous area of the lower oesophageal mucosa 3 cm above the gastroesophageal junction. There is no mass lesion, no ulceration, and no haemorrhage noted. The biopsies show the presence of columnar epithelium with goblet cells. Which of the following mucosal alterations is most likely represented by these findings?

A. Dysplasia

B. Hyperplasia

C. Carcinoma

D. Metaplasia

45. A 59-year-old woman had the loss of consciousness that persisted for over an hour. When she becomes arousable, she cannot speak nor move her right arm or leg. A cerebral angiogram revealed an occlusion to her left middle cerebral artery. Months later, a computed tomographic (CT) scan shows a large 5 cm cystic area in her left parietal lobe cortex. This CT finding is most likely the consequence of resolution from which of the following cellular events?

A. Liquefactive necrosis

B. Atrophy

C. Coagulative necrosis

D. Caseous necrosis

46. A 19-year-old woman gives birth to her first child. She begins breast feeding the infant. She continues breast feeding for almost a year with no difficulties and no complications. Which of the following cellular processes that began in the breast during pregnancy allowed her to nurse the infant for this period of time?

A. Stromal hypertrophy

B. Epithelial dysplasia

C. Steatocyte atrophy

D. Lobular hyperplasia

47. An 80-year-old man dies from complications of Alzheimer disease. At autopsy, his heart is small (250 gm) and dark brown on sectioning. Microscopically, there is light brown perinuclear pigment with H&E staining of the cardiac muscle fibres. Which of the following substances is most likely increased in the myocardial fibres to produce this appearance of his heart?

A. Hemosiderin from iron overload
B. Lipochrome from 'wear and tear'
C. Glycogen from a storage disease
D. Cholesterol from atherosclerosis

48. A 22-year-old man develops marked right lower quadrant abdominal pain over the past day. On physical examination there is rebound tenderness on palpation over the right lower quadrant. Laparoscopic surgery is performed, and the appendix is swollen, erythematous, and partly covered by a yellowish exudate. It is removed, and a microscopic section shows infiltration with numerous neutrophils. The pain experienced by this patient is predominantly the result of the formation of which of the following two chemical mediators?

A. Complement C3b and IgG
B. Interleukin-1 and tumour necrosis factor
C. Histamine and serotonin
D. Prostaglandin and bradykinin

49. A 40-year-old woman had bilateral silicone breast implants placed two years ago. Since that time, she has noted increased firmness with slight deformity of the breast on the left. The implants are removed, and there is evidence for leakage of the implant contents on the left. Which of the following cell types is most likely to be most characteristic of the inflammatory response in this situation?

A. Mast cell
B. Eosinophil
C. Giant cell
D. Neutrophil

50. A 40-year-old man incurs a burn injury to his hands and arms while working on a propane furnace. Over the next 3 weeks, the burned skin heals without the need for skin grafting. Which of the following is the most critical factor in determining whether the skin in the region of the burn will regenerate?

A. Good cardiac output with tissue perfusion
B. Persistence of skin appendages
C. Maintenance of underlying connective tissue
D. Diminished oedema and erythema

51. A 58-year-old woman has had a cough with fever for 3 days. A chest radiograph reveals infiltrates in the right lower lobe. A sputum culture grows Streptococcus pneumoniae. The clearance of these organisms from the lung parenchyma would be most effectively accomplished through generation of which of the following substances by the major inflammatory cell type responding to this infection?

A. Platelet activating factor
B. Prostaglandins
C. Kallikrein
D. Hydrogen peroxide

52. A clinical study is performed of patients with pharyngeal infections. The most typical clinical course averages 3 days from the time of onset until the patient sees the physician. Most of these patients experience fever and chills. On physical examination, the most common findings include swelling, erythema, and pharyngeal purulent exudate. Which of the following types of inflammation did these patients most likely have?

A. Granulomatous inflammation
B. Acute inflammation
C. Abscess formation
D. Resolution of inflammation

53. A 56-year-old man has had increasing dyspnea for 6 years. He has no cough or fever. He had chronic exposure to inhalation of silica dust for many years in his job. A chest x-ray now shows

increased interstitial markings and parenchymal 1 to 3 cm solid nodules. His pulmonary problems are most likely to be mediated through which of the following inflammatory processes?

A. Neutrophilic infiltrates producing leukotrienes
B. Foreign body giant cell formation
C. Plasma cell synthesis of immunoglobulin
D. Macrophage elaboration of growth factors

54. A 20-year-old woman has premature labour with premature rupture of foetal membranes at 20 weeks gestation. Prior to that time, the pregnancy had been proceeding normally. A stillbirth occurs two days later. Microscopic examination of the normal-sized placenta reveals numerous neutrophils in the amnion and chorion, but no villitis. These events are most likely to be mediated by the effects from release of which of the following substances?

A. Immunoglobulin
B. Prostaglandin
C. Complement
D. Fibrinogen

55. After two weeks in the hospital following a fall in which she incurred a fracture of her left femoral trochanter, a 76-year-old woman now has a left leg that is swollen, particularly her lower leg below the knee. She experiences pain on movement of this leg, and there is tenderness to palpation. Which of the following complications is most likely to occur next after these events?

A. Gangrenous necrosis of the foot
B. Hematoma of the thigh
C. Disseminated intravascular coagulation
D. Pulmonary thromboembolism

56. A 40-year-old woman has had a chronic cough with fever and weight loss for the past month. A chest radiograph reveals multiple nodules from 1 to 4 cm in size, some of which demonstrate cavitation in the upper lobes. A sputum sample reveals the presence of acid-fast bacilli. Which of the following cells is the most important in the development her lung lesions?

A. Macrophage
B. Fibroblast

C. Neutrophil

D. Mast cell

57. A 20-year-old man has experienced painful urination for 4 days following spring break. A urethritis is suspected, and Neisseria gonorrhoea is cultured. Numerous neutrophils are present in a smear of the exudate from the penile urethra. These neutrophils undergo diapedesis to reach the organisms. Release of which of the following chemical mediators is most likely to drive neutrophil exudation?

A. Histamine

B. Prostaglandin

C. Hageman factor

D. Complement C5a

58. A 4-year-old child was born at term, with no congenital anomalies. She is now only 70% of normal body weight. On examination she shows dependent oedema of the lower extremities as well as an enlarged abdomen with palpable fluid wave. Her desquamating skin shows irregular areas of depigmentation, and hyperpigmentation. Which of the following nutritional problems is most likely present in this child?

A. Marasmus

B. Scurvy

C. Vitamin A toxicity

D. Kwashiorkor

59. A 32-year-old man has a history of multiple and recurrent pulmonary infections since childhood. He also has noted foul smelling stools for the past 10 years. Laboratory studies show an elevated sweat chloride test. He has a quantitative stool fat of 10 g/day. A deficiency state involving which of the following nutrients is most likely to develop in this patient?

A. Vitamin B1

B. Vitamin D

C. Iron

D. Calcium

60. A 45-year-old woman has developed red, roughened skin in sun-exposed areas over the past 2 years. She also has a chronic, watery diarrhoea. On physical examination she exhibits memory loss with confusion. These findings are most consistent with which of the following vitamin deficiencies?

A. Vitamin A
B. Thiamine
C. Niacin
D. Pyridoxine

61. A 5-year-old child has complained of pain in his legs for the past year. On physical examination, there is bowing deformity of his lower extremities. Plain film radiographs of his lower legs shows widened epiphyses and bowing of tibiae. Bone mineral density appears normal, consistent with failure of osteoid matrix formation. Which of the following vitamin deficiencies is this child most likely to have?

A. D
B. E
C. C
D. B3

62. A clinical study of diet in pregnancy is conducted. It is observed that pregnant women who do not get a diet that includes green, leafy vegetables develop a specific nutritional deficiency that affects their developing foetuses. Which of the following abnormalities is most likely to be found with increased frequency in these foetuses?

A. Anencephaly
B. Diaphragmatic hernia
C. Low birth weight
D. Congenital cytomegalovirus

63. A clinical study is performed involving dietary iron metabolism in adults. It is observed that intestinal absorption of iron can be enhanced in patients with iron deficiency anaemia by supplementing their diet with another nutrient. Which of the following vitamins is most likely to have this effect?

A. A

B. B1

C. C

D. D

64. A 41-year-old man has had increasing dyspnea for the past year. On physical examination he has diffuse crackles at lung bases. A chest x-ray shows pulmonary oedema and cardiomegaly. Echocardiography shows an ejection fraction of 40%. Laboratory studies show hemoglobin 14 g/dL, haematocrit 42%, and WBC count 8320/microliter. A deficiency in which of the following vitamins is most likely to produce these findings?

A. A

B. B1

C. B2

D. K

65. A 49-year-old man has a 20-year history of chronic alcohol abuse. He has had worsening problems with ambulation for the past year. On physical examination his gait is ataxic. MR imaging of the brain shows diminished size of the mamillary bodies. He is most likely to have a deficiency of which of the following vitamins?

A. A

B. B1

C. C

D. D

66. A 34-year-old primigravida is in her 8th month of gestation. She is feeling increasingly tired and weak. Laboratory studies include a CBC which shows Hgb 9.7 g/dL, Hct 28.8%, MCV 71 fL, platelet count 289,000/microliter, and WBC count 5600/microliter. On the peripheral blood smear, the RBCs show increased variation in size and shape, with many that are hypochromic and microcytic. Which of the following dietary deficiencies is she most likely to have?

A. Folic acid

B. Vitamin B12

C. Iron

D. Calcium

67. A clinical study is performed to compare the risk for health problems in obese persons with a BMI >30, compared with a control group of persons with a BMI between 20 and 25. Persons in these two groups are followed for 20 years. Which of the following conditions is most likely to appear equally in both groups?

A. Osteoarthritis

B. Cholelithiasis

C. Alzheimer disease

D. Diabetes mellitus

68. A 44-year-old woman notes a lump in her left breast while taking a shower. Her physician palpates a 3 cm firm, irregular, non-movable mass in the upper outer quadrant of her left breast on physical examination. A fine needle aspiration of this mass is performed, and the cells obtained are examined cytologically and are consistent with infiltrating ductal carcinoma. The mass is removed with lumpectomy along with an axillary lymph node dissection. Which of the following findings will best predict a better prognosis for this patient?

A. Tumor cells strongly oestrogen receptor positive

B. No metastases in the sampled lymph nodes

C. Flow cytometric analysis with aneuploidy and a high S-phase

D. One relative who had a similar type of breast cancer

69. A change in bowel habits prompts a 53-year-old woman to see her physician. On physical examination there are no lesions noted on digital rectal examination, but her stool is positive for occult blood. A colonoscopy is performed and reveals a 6 cm friable mass in the cecum. A biopsy of this mass is performed and microscopic examination shows a moderately differentiated adenocarcinoma. Which of the following findings is most likely to be present in this patient?

A. K-RAS mutation in the neoplastic cells

B. Neoplastic cells positive for vimentin

C. Positive stool culture for Shigella flexneri

D. Plasma HIV-1 RNA level of 40,000 copies/mL

70. A 45-year-old healthy woman has a routine check of her health status. She has no chest pain, cough, or fever. A chest x-ray is taken and shows a peripheral 2.5 cm diameter "coin lesion" in the right mid-lung field. Which of the following biologic characteristics best distinguishes this lesion as a neoplasm, rather than a granuloma?

A. Recurrence following excision
B. Rapid increase in size
C. Sensitivity to radiation or chemotherapy
D. Uncontrolled (autonomous) growth

71. A clinical study is performed to determine the incidence of cancers in different countries. The data show that persons born in Japan and continuing to reside there have an increased risk for cancer. Which of the following cancers is most likely seen with increased frequency in this population?

A. Breast
B. Colon
C. Lung
D. Stomach

72. A 48-year-old woman goes to her physician for a routine physical examination. A 4 cm diameter non-tender mass is palpated in her right breast. The mass appears fixed to the chest wall. Another 2 cm non-tender mass is palpable in the left axilla. A chest radiograph reveals multiple 0.5 to 2 cm nodules in both lungs. Which of the following classifications best indicates the stage of her disease?

A. T1 N1 M0
B. T1 N0 M1
C. T2 N1 M0
D. T4 N1 M1

73. A study is performed to analyse characteristics of malignant neoplasms in biopsy specimens. The biopsies were performed on patients who had palpable mass lesions on digital rectal examination. Of the following microscopic findings, which is most likely to indicate that the neoplasm is malignant?

A. Pleomorphism
B. Atypia
C. Invasion
D. Increased nuclear/cytoplasmic ratio

74. Review of a series of surgical pathology reports indicates that a certain type of neoplasm is diagnosed as grade I on a scale of I to IV. Clinically, some of the patients with this neoplasm are found to have stage I disease. Which of the following is the best interpretation of a neoplasm with these designations?

A. Unlikely to be malignant
B. Arising from epithelium
C. May spread via lymphatics and bloodstream
D. Well-differentiated and localized

75. A 51-year-old man has worked for 10 years in a factory producing plastic pipe. He has noted weight loss, nausea, and vomiting worsening over the past 5 months. On examination he is afebrile. There is generalized muscle wasting. Laboratory studies show the serum alkaline phosphatase is 405 U/L with AST 67 U/L, ALT 55 U/L, and total bilirubin 1.2 mg/dL. An abdominal CT scan reveals a 12 cm right liver lobe mass. Liver biopsy reveals a neoplasm composed of spindle cells forming irregular vascular channels. The cells demonstrate vimentin positivity and cytokeratin negativity with immunohistochemical staining. Exposure to which of the following substances most likely led to development of this neoplasm?

A. Benzene
B. Radon
C. Cyclophosphamide
D. Vinyl chloride

76. A child is born with a single functional allele of a tumour suppressor gene. At the age of five the remaining normal allele is lost through a point mutation. As a result, the ability to inhibit cell cycle progression until the cell is ready to divide is lost. Which of the following neoplasms is most likely to arise via this mechanism?

A. Infiltrating ductal carcinoma of breast

B. Small cell anaplastic carcinoma of the lung

C. Retinoblastoma of eye

D. Cerebral astrocytoma

77. A 22-year-old woman goes to her physician for a routine examination. A palpable nodule is found in the right lobe of her thyroid gland. No lymphadenopathy is noted. A chest x-ray shows no masses. A fine needle aspirate of the nodule is performed and cytologic examination reveals cells present consistent with a papillary carcinoma of the thyroid. There are no other family members affected by this disorder. She works as a secretary for an accounting firm part time and is earning a college degree. Which of the following findings would you consider most relevant in her past history to indicate a risk factor for this neoplasm?

A. Chronic alcoholism

B. Radiation therapy in childhood

C. Ataxia telangiectasia

D. Blunt trauma from a fall

78. An otherwise healthy 44-year-old man with no prior medical history has had increasing back pain and right hip pain for the past decade. The pain is worse at the end of the day. On physical examination he has bony enlargement of the distal interphalangeal joints. A radiograph of the spine reveals the presence of prominent osteophytes involving the vertebral bodies. There is sclerosis with narrowing of the joint space at the right acetabulum seen on a radiograph of the pelvis. Which of the following diseases is he most likely to have?

A. Gout

B. Rheumatoid arthritis

C. Osteoarthritis

D. Osteomyelitis

79. An 80-year-old woman has had no major medical problems, but she has never been physically active for most of her life. One day she falls out of bed and immediately notes a sharp pain in her left hip. She is subsequently unable to ambulate without severe pain. Radiographs show not only a fracture of the left femoral head, but also a compressed fracture of T10. Which of the following conditions is she most likely to have?

A. Vitamin D deficiency
B. Acute osteomyelitis
C. Osteogenesis imperfecta
D. Osteoporosis

80. A 51-year-old man has noted constant, dull right hip pain for the past 3 months. On physical examination he has diminished range of motion of the right hip. A radiograph reveals a 10 x 13 cm mass involving the right ischium of the pelvis. The mass has irregular borders and there are extensive areas of bony destruction along with some scattered calcifications. The lesion is resected, and grossly the mass has a bluish-white cut surface. Which of the following attributes is most likely to describe this mass?

A. The most frequent primary tumour of bone
B. Usually seen in distal skeletal bones
C. More common in females
D. May arise in benign cartilaginous tumors

END

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

EGERTON UNIVERSITY
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF HUMAN PATHOLOGY
MCQ ANSWER SHEET
Tick (√) the correct response

STUDENT REG NO: _____

STREAM: _____ YEAR: _____ DATE: _____

S/N	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

S/N	A	B	C	D	E
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					

S/N	A	B	C	D	E
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					