



UNIVERSITY OF NAIROBI

UNIVERSITY EXAMINATIONS - 2014/2015

LEVEL III EXAMINATIONS FOR THE DEGREES OF BACHELOR OF MEDICINE
AND BACHELOR OF SURGERY (6 YEAR PROGRAM)

HHP 300 : GENERAL PATHOLOGY

SAQ/MCQ PAPER

DATE: TUESDAY 19TH MAY, 2015

TIME 9.00 A.M. - 12.00 P.M.

INSTRUCTIONS:

1. There will be 5 minutes reading time
2. Enter your Registration Number in all your answer books and scripts
3. The examination consists of 2 parts

Part A : - MCQ

- i) Each question has only one correct answer
- ii) Answer the question in the answer sheet provided
- iii) If you do correction do so very clearly

Part B: - SAQ

- i) Answer each question in a separate book
- ii) Number all your questions clearly

PART A: MULTIPLE CHOICE QUESTIONS

1. An AIDS defining malignancy
 - A) Primary Central Nervous system lymphoma
 - B) Squamous cell carcinoma of the conjunctiva
 - C) Gastric adenocarcinoma
 - D) Hepatocellular carcinoma
 - E) Squamous cell carcinoma of the skin

2. An AIDS associated malignancy
 - A) Primary central nervous system lymphoma
 - B) Kaposi sarcoma
 - C) Burkitt lymphoma
 - D) Diffuse large B cell
 - E) Squamous cell carcinoma of conjunctiva

3. HIV virus drives carcinogenesis via all **EXCEPT**:
 - A) Mutations
 - B) Cytokines surge
 - C) Micro RNAs
 - D) Co-infective agents
 - E) Large pool of proliferating B cells

4. Cellular Features of malignant cells **EXCEPT**
 - A) Hyperchromasia
 - B) Increased nuclei cytoplasmic ratio
 - C) Irregular nuclear membrane
 - D) Prominent nucleoli
 - E) invasion

5. **True** of sarcomas
 - A) Benign mesenchymal tumours
 - B) Growth pattern shows nests, cords and trabeculae
 - C) Usually spreads through haematogenous route
 - D) TNM staging is **not** applicable
 - E) Does **not** metastasise to lymphnodes

6. An example of soft tissue tumour **EXCEPT**
 - A) Fibroepithelial polyp
 - B) Lipoma
 - C) Uterine fibroids
 - D) Osteosarcoma
 - E) Rhabdomyoma

7. Familial tumour with a suppressor gene **EXCEPT**
 - A) WILMS tumour
 - B) Neuro fibromatosis-1
 - C) Retino blastoma
 - D) Burkitts lymphoma
 - E) Familial polyposis coli

8. Special stain used to demonstrate amyloid deposition
- A) Congo Red
 - B) Haematoxylin and eosin
 - C) Giemsa stain
 - D) Grocott stain
 - E) Pap stain
9. 90% of the amyloid deposits are composed of
- A) Glycosaminoglycans
 - B) Apolipoprotein F
 - C) Serum amyloid P
 - D) Serum amyloid E
 - E) Aggregation of misfolded proteins
10. Cellular adaptive response **EXCEPT**:
- A) Hypertrophy
 - B) Hyperplasia
 - C) Atrophy
 - D) Neoplasia
 - E) Metaplasia
11. Tissue composed of stable cells **EXCEPT**:
- A) Intestinal mucosa
 - B) Liver
 - C) Kidney
 - D) Pancreas
 - E) Endothelial cells
12. **Not** a role of extra cellular matrix in tissue repair
- A) Provide mechanical support for cell anchorage
 - B) Control all growth by signalling through links with intracellular integrins
 - C) Limit capillary proliferation within site of repair
 - D) Establishment of tissue micro-environment
 - E) Storage and presentation of regulatory molecules
13. Following a myocardial infarction, healing occurs by
- A) Regeneration
 - B) Inflammation
 - C) Fibrosis
 - D) Metaplasia
 - E) hyperplasia
14. **TRUE** regarding malignant hypertension
- A) 75% recover with no loss of renal function
 - B) Is associated with abnormal renin levels
 - C) Is more common compared to benign hypertension
 - D) Affects 1-5% of hypertensive patients
 - E) Has an insidious onset

15. **Not** a major criterion in diagnosis of Rheumatic fever
- A) Sydenham's chorea
 - B) Carditis
 - C) Polyarthralgia
 - D) Erythemas nodesum
 - E) Subcutaneous nodules
16. Causes for Lymphocytosis include all **EXCEPT**
- A) Chronic lymphocytic leukaemia
 - B) Infectious mononucleosis
 - C) Brucellosis
 - D) Haemolysis
 - E) Tuberculosis
17. Peripheral blood features of neutrophil leucocytosis with a left shift and toxic granulation would be consistent with
- A) Parasitic infection
 - B) Bacterial infection
 - C) Virial infection
 - D) Bone marrow hypoplasia
 - E) Acute myeloid leukaemia
18. Infestation with the following parasite is associated with a microcytic hypochromic blood picture
- A) *Necator americanus*
 - B) *Plasmodium falciparum*
 - C) *Leishmania donovani*
 - D) *Diphilopbothrium latum*
 - E) *Ascaris lumbricoides*
19. The following one is classified amongst the early acting growth factors
- A) Erythropoietin
 - B) Thrombopoietin
 - C) Gm - CSF
 - D) G-CSF
 - E) m-CSF
20. Microcytic red cell changes occurs in the following conditions **EXCEPT**
- A) Iron deficiency anemia
 - B) Thalassemias
 - C) Lead poisoning
 - D) Hypothyroidism
 - E) Sideroblastic anaemia
21. The following changes are associated with iron def anaemia
- A) Elevated serum iron levels \uparrow
 - B) Elevated serum ferritin \uparrow
 - C) Reduced MCH
 - D) Raised MCV \uparrow
 - E) Reduced total iron binding capacity \downarrow

22. Vitamin B₁₂
- A) Rich sources constitute plants
 - B) Has no role in haemopoiesis
 - C) Normal serum levels 160-923 ng/L
 - D) Is absorbed in the stomach using intrinsic factor
 - E) Destroyed during cooking > 70%
23. The serum folate levels in adults is
- A) 160 - 640 µg/L
 - B) 3 - 15 µg/L
 - C) 160 - 500 µg/dL
 - D) 4 - 20 µg/dL
 - E) 60 - 80 µg/L
24. Non megaloblastic macrocytic anemia are associated with the following condition **EXCEPT**
- A) Liver disease
 - B) Drugs
 - C) Vitamin B₁₂ deficiency
 - D) Aplastic anemia
 - E) Hypothyroidism
25. A mother is blood group A+ve and the father blood group AB+ve, the offspring will have blood group **EXCEPT**
- A) O +ve
 - B) B +ve
 - C) A +ve
 - D) AB +ve
 - E) Any of the above
26. The shelf life of platelets concentrates is
- A) 35 days in room temperature
 - B) 3 - 5 days in room temperature
 - C) 21 days
 - D) 3 - 5 days at refrigeration
 - E) 28 days
27. An ideal blood donor ~~concentrate's~~
- A) 16 year old or younger
 - B) Regularly donates blood
 - C) A multiparous female
 - D) Bisexual
 - E) Commercial donor

28. Adhesion, aggregation and release are functions of the
- A) Fibrinolysis
 - B) Anticoagulation
 - C) Coagulation system
 - D) Blood vessel
 - E) platelet
29. The inheritance pattern of haemophilia B is
- A) Double Autosomal
 - B) X-linked recessive
 - C) Unknown
 - D) Autosomal dominant
 - E) Autosomal recessive
30. In haemophilia A laboratory tests manifest with
- A) A prolonged prothrombin time
 - B) Abnormal platelet function in presence of antibodies of factor VII
 - C) Normal thrombin time
 - D) A prolonged bleeding time
 - E) Prolongation of the activated partial thromboplastin time
31. A known haemophilia patient presents to the casualty with a minor bleeding. appropriate investigation is
- A) Serum blood sugar
 - B) Serum creatinine
 - C) Blood slide for malaria parasite
 - D) Coagulation screen
 - E) Serum lactate dehydrogenase
32. Which one of the following is the **ODD** one out
- A) Hereditary elliptocytosis
 - B) Defect in the hexose monophosphate shunt
 - C) Hereditary stomatocytosis
 - D) Disorders of permeability of membrane
 - E) Abnormal membrane lipid composition
33. Which of the following is **NOT** included in immune haemolytic anaemia
- A) IgM mediated
 - B) Warm antibody
 - C) Paroxysmal nocturnal haemoglobinuria
 - D) IgG mediated
 - E) Cold antibody
34. One of the following regions does **NOT** have a high prevalence of HbS
- A) Mediterranean
 - B) West Africa
 - C) East Africa
 - D) Saudi Arabian peninsula
 - E) South East Asia

35. The definitive diagnostic test in sickle cell disease is
- A) Sickling test
 - B) Hb electrophoresis
 - C) Hb solubility test
 - D) Peripheral blood picture
 - E) Positive family history for sickle cell disease
36. Excess ADH production may lead to:
- A) Polyuria
 - B) Hypernatraemia
 - C) Increased plasma osmolarity
 - D) Increased urine osmolarity
 - E) proteinuria
37. Iron overload is usually associated with:
- A) Increased plasma ferritin
 - B) Decreased plasma iron
 - C) Increased total iron binding capacity
 - D) Increased plasma transferrin
 - E) Pernicious anaemia
38. Causes of hypercalcemia include the following: *except*
- A) Thiazide diuretics
 - B) Sarcoidosis
 - C) Tuberculosis
 - D) Thyrotoxicosis
 - E) Chronic kidney disease
39. The total amount of iron in the body is about
- A) 3 - 4 grams
 - B) 2 - 10 grams
 - C) 15 - 30 milligrams
 - D) 100 - 2000 grams
 - E) 1 - 2 grams
40. Causes of Hyperphosphatemia include the following EXCEPT:
- A) Renal FAILURE
 - B) Vitamin D excess
 - C) Tumour lysis syndrome
 - D) Hypoparathyroidism
 - E) Alcohol withdrawal
41. High Cortisol levels and low ACTH levels indicate:
- A) Addison's Disease
 - B) Acromegaly
 - C) Pheochromocytoma
 - D) Cushing's Disease
 - E) Prolactinoma

42. All these endocrinopathies can arise from hypopituitarism EXCEPT
- Dwarfism
 - Secondary adrenal cortical insufficiency
 - Lack of lactation
 - Secondary hypothyroidism
 - Hypergonadotrophic hypogonadism
43. How much glucose is administered in an oral glucose tolerance test?
- 20 grams
 - 45 grams
 - 50 grams
 - 75 grams
 - 120 grams
44. The reference range for fasting plasma blood sugar is approximately:
- 1 - 2.2 mmol/L
 - 2.2 - 3.2 mmol/L *FBS*
 - 3.2 - 6.1 mmol/L *BBS*
 - 3.2 - 7.8 mmol/L *FBS*
 - > 11.0 mmol/L
45. All these endocrinopathies lead to ^{hypoglycaemia} hyperglycaemia EXCEPT:
- Insulinoma *hypoglycaemia*
 - Addison's Disease
 - Pheochromocytoma
 - Hypothyroidism
 - Glucagon deficiency
46. For how long does sodium fluoride stabilize glucose in blood at room temperature
- 1 hour
 - 12 hours
 - 24 hours
 - 72 hours
 - 48 hours
47. Which of the following specimen is preferred for emergency tests?
- 24 hour urine
 - 3 hour urine
 - Early morning urine
 - Random urine
 - Catheter urine
48. A positive test for ketone bodies in urinalysis may be indicative of _____
- Proteinuria
 - Bacteriuria
 - Malabsorption
 - Anorexia
 - High carbohydrate intake

49. Which of the following is the major paraprotein associated with multiple myeloma?
- A) IgA
 - B) IgD
 - C) Ig~~D~~ E
 - D) IgM
 - E) IgG
50. Which of the following urinary metabolite is associated with catecholamine metabolism?
- A) Globulins
 - B) Bence jones
 - C) Dopa
 - D) Vanillyl mandelic acid
 - E) creatinine
51. In serum protein electrophoresis, an abnormal ceruloplasmin (CER) protein can be detected in _____
- A) The albumin band
 - B) The alpha one globulin band
 - C) The alpha two globulin band
 - D) Beta globulin band
 - E) Gamma globulin region
52. Decreased total and LDL-cholesterol with normal triglycerides suggest
- A) Tangier's disease
 - B) Hypo-lipoproteinaemia
 - C) Abetalipoproteinaemia
 - D) Lp(a) disease
 - E) Hypo- β -lipoproteinaemia
53. In the differential diagnosis of hypercalcaemia the following should **not** be included
- A) Vitamin D dependent rickets
 - B) Vitamin D intoxication
 - C) Excess absorption secondary to "milk alkali syndrome"
 - D) Multiple myeloma
 - E) Primary hyperparathyroidism
54. Of the enzymes listed which one is **least** useful for reflecting hepatobiliary disease
- A) GGT
 - B) Glutamate dehydrogenase
 - C) S' nucleotidase
 - D) ALP
 - E) Leucine amino peptidase (arylamidase)
55. True of a specimen for measurement of lipids:
- A) Use of fluoride is mandatory
 - B) Should be frozen immediately
 - C) Should be a fasting specimen
 - D) Only serum should be used
 - E) None of the above

PART B: SHORT ANSWER QUESTIONS (SAQS)*Anat Patho*

- 1
- a) Describe the mechanisms involved in the termination of an acute inflammatory response (2.5 marks)
- b) Discuss paraneoplastic syndromes under the following (2.5 marks)
- Definition
 - Discuss the clinical importance of paraneoplastic syndrome
 - Describe the pathogenesis of one endocrine paraneoplastic syndrome

Hemat

2 A 29 year old has the following blood count results.

Hb - 5.9 g/dl
 WBC - $6.2 \times 10^9/L$
 MCV - 55 fl
 MCH - 18 pc.
 Platelets - $400 \times 10^9/L$

- Interpret the above results. (3 marks)
- Give the most likely differential diagnosis. (2 marks)
- Outline relevant investigations to confirm diagnosis for this patient (7 marks)

Hemat

- 3
- Define haemolytic red cell disorders. (2 marks)
 - Outline the laboratory investigations of a patient with haemolytic red cell. (10 marks)
 - With the aid of a diagram outline the pathway of the Coagulation System. (12 marks)

4. A 58 year old male patient presented at the medical clinic and the attending physician suspected diabetes mellitus. Answer the following questions:

Clin Chem

- List five signs and symptoms the patient might be having. (2.5 marks)
- List the biochemical tests in sequential order the physician will order to make a diagnosis of diabetes mellitus. (6 marks)
- List three (3) complications of diabetes mellitus. (1.5 marks)
- What is the most likely type of diabetes mellitus is in this patient. (2 marks)

*clin
chem*

5. a) ✓i) List the hormones produced in the anterior pituitary. (2.5 marks)
- ii) For each hormone listed above, give its overall function. (5 marks)
- iii) List five endocrinopathies arising from the hyper functioning anterior pituitary. (5 marks)
- b) i) Discuss causes of acute renal failure. (6 marks)
- ii) Describe biochemical investigations in this condition. (6½ marks)