



MULTIPLE CHOICE QUESTIONS (30 MCQs), ALL MCQs MUST BE ANSWERED, (45 MARKS, 1.5 MARKS FOR EACH QUESTION) - CHOOSE THE BEST ANSWER

- 1) A 41 year old patient presented with chronic diarrhea for 3 months. A d-xylose absorption test was ordered to look for:
 - A. Carbohydrate malabsorption due to mucosal disease
 - B. Carbohydrate malabsorption due to chronic pancreatitis
 - C. Fat malabsorption due to mucosal disease
 - D. Fat malabsorption due to chronic pancreatitis
- 2) Which of the following statements about Schilling's test are TRUE:
 - A. Abnormal in pernicious anemia
 - B. Normal in bacterial overgrowth syndrome
 - C. Abnormal in ileal disease
 - D. Normal in chronic pancreatitis
- 3) In which of the following conditions of malabsorption, an intestinal biopsy is diagnostic:
 - A. Celiac disease
 - B. Tropical sprue
 - C. Whipple's disease
 - D. Lactose intolerance
- 4) All of the following about gastrointestinal carcinoid tumours are true, EXCEPT:
 - A. Small intestine and appendix account for almost 60% of all gastrointestinal carcinoid
 - B. Rectum is spared
 - C. The 5 year survival for carcinoid tumors is >60%
 - D. Appendicular carcinoids are more common in females than male
- 5) Features of secretory diarrhea include all of the following, EXCEPT:
 - A. Stool volume > 1L /day
 - B. Normal osmotic anion gap
 - C. Reduces with fasting
 - D. Painless

- 6) Which of the following is TRUE concerning a 68 year old male with type 2 diabetes diagnosed with type IV renal tubal acidosis?
- A. Aminoaciduria would be expected.
 - B. Fludrocortisone treatment is effective
 - C. Increased urinary bicarbonate would be expected.
 - D. Normal renal handling of K^+ and H^+
- 7) Common feature of Gitelman syndrome is:
- A. Hyperkalemia
 - B. Metabolic alkalosis
 - C. Hypermagnesemia
 - D. High calcium excretion
- 8) A 30-years-old man with sickle cell anemia, is seen in the clinic for routine follow up. He currently feels well, but in the past he has had many sickle cell crises that resulted in kidney injury. Which of the following renal abnormalities is most likely to be seen in him?
- A. Inability to acidify urine
 - B. Granular casts
 - C. Inability to concentrate urine
 - D. Salt losing state
- 9) All of the following are characteristic feature of obstructive pulmonary disease, EXCEPT:
- A. Normal Residual Volume
 - B. Decreased FEV1
 - C. Normal Vital Capacity
 - D. Decreased FVC1/FVC
- 10) The abnormal preoperative pulmonary function test in a patient with severe kyphoscoliosis includes:
- A. Reduced RV/TLC
 - B. Reduced FEV1/FVC.
 - C. Reduced FEV 25-75
 - D. Increased FRC

- 11) A 28 years old woman having limited cutaneous scleroderma for the last 10 years complains of shortness of breath for last one month. Her pulmonary functions tests (PFT) are as follows:

PFT	Observed	Predicted
FVC	2.63	2.82
FEV1%	88%	80%
DLCO	5.26	16.3

What is the most likely diagnosis in this case?

- A. Interstitial lung disease
 - B. Pulmonary artery hypertension
 - C. Congestive heart failure
 - D. Bronchiectasis
- 12) Carbon monoxide diffusion capacity decreases in all, EXCEPT:
- A. Emphysema
 - B. Primary pulmonary hypertension
 - C. Alveolar haemorrhage
 - D. Infiltrative lung disease
- 13) Lung functions in emphysema reveal all of the following, except:
- A. Decreased vital capacity
 - B. Increased diffusion capacity for carbon monoxide (DLCO)
 - C. Increased Total Lung capacity
 - D. Decreased FEV1/FVC ratio
- 14) A 29 year old anxious lady presents with a history of progressive breathlessness and exercise intolerance since four months. Her FVC is 90% and FEV1 / FVC is 86%. Oxygen saturation after exercise was observed to drop from 92% to 86%. What is the likely diagnosis:
- A. Primary alveolar hypoventilation
 - B. Primary pulmonary hypertension
 - C. Anxiety disorder
 - D. Interstitial lung disease
- 15) Estrogen inhibit bone resorption by stimulation of:
- A. RANK
 - B. Osteoprotegerin (OPG)
 - C. IL1
 - D. PTH related peptide
- 16) Growth in the length of the long bone occurs at:

- A. Periosteum
 - A. Diaphysis
 - B. Epiphysis
 - C. Epiphysial plate
- 17) What is the process where bone is formed directly without using cartilage as a template?
- A. Intraosseous
 - B. Intramembranous
 - C. Endochondral
 - D. Endosteum
- 18) Which of the following patients absolutely requires platelet transfusion?
- A. A patient who has been taking aspirin for a headache and who is now scheduled for emergent evacuation of his subdural hemorrhage;
 - B. Platelet count less than $100,000/\text{mm}^3$
 - C. A patient with idiopathic thrombocytopenia; platelet count, $10,000/\text{mm}^3$
 - D. A patient with end-stage liver disease who is complaining of easy bruising; platelet count, $50,000 \text{ mm}^3$
- 19) Which of the following statements about idiopathic thrombocytopenic purpura (ITP) is FALSE?
- A. ITP is associated with splenomegaly
 - B. ITP is associated with HIV infection, acute viral illnesses, and some autoimmune diseases
 - C. Patients with platelet counts over $50,000/\mu\text{l}$ do not routinely require treatment
 - D. Treatment is indicated for patients with platelet counts below $20,000$ to $30,000/\mu\text{l}$ or for those whose platelet count is less than $50,000/\mu\text{l}$ and who have risk factors for bleeding (including hypertension, peptic ulcer disease, or a vigorous lifestyle)
- 20) A 44-year-old woman presents with pain and swelling in her left lower extremity. Ultrasound reveals a left superficial femoral deep vein thrombosis (DVT). In the past, she experienced on other episode of DVT, for which she underwent treatment with warfarin for 6 months. She takes no medications except oral contraceptive pills. Her family history is significant in that, last year, a younger sister was diagnosed as having DVT. Which of the following statements is true regarding the treatment of this patient?
- A. She should again be treated with warfarin for 6 months
 - B. She should avoid the use of oral contraceptives
 - C. She should be tested for factor V Leiden after her anticoagulation therapy is terminated
 - D. All family members need to be screened for factor V Leiden

- 21) Which of the following is contained within the alpha granules of platelets?
- A. Serotonin
 - B. Fibrinogen
 - C. Calcium
 - D. Thrombin
- 22) A 15 year old presents with acute onset of bruising. On physical examination the child is lethargic. Full blood count: Hb.: 8.7 g/dl, WBC 5,600/mm³ with a normal differential, and platelet count of 6,000/mm³. Creatinine is 0.8 mg/dL. Reticulocyte count is 10%. Peripheral blood smear shows red cell fragmentation and a few large platelets. What is the appropriate management at this time?
- A. Platelet transfusion
 - B. Intravenous immunoglobulin
 - C. Plasmapheresis
 - D. High-dose corticosteroids
- 23) The following are major regulators of circulating free fatty acids levels EXCEPT:
- A. Insulin
 - B. Sympathetic nervous system
 - C. Growth hormone
 - D. Hypoglycemia
- 24) The sole source of glucose due to glycogenolysis is
- A. The liver
 - B. The kidneys
 - C. Adipose tissue
 - D. All of the above
- 25) Glucose uptake by tissues in the post-absorptive state is regulated by
- A. Insulin
 - B. Tissue demand
 - C. The number of the glucose transporters in specific tissue
 - D. Both B and C
- 26) The following changes occur during prolonged fasting:
- A. Glycerol level increases
 - B. Lactate level decreases
 - C. Amino acid level decreases
 - D. All of the above

- 27) The main immediate action of glucagon to increase plasma glucose level is:
- A. Stimulation of hepatic glycogenolysis.
 - B. Stimulation of renal gluconeogenesis.
 - C. Increasing appetite
 - D. All of the above
- 28) A 40-year-old lady collapsed during an aerobics class and was brought to accident and emergency by ambulance in asystole. She has no past cardiac history of note and has been generally fit and well recently. Which of the following is the most likely cause of her arrest?
- A. Pulmonary embolus.
 - B. Hypertrophic obstructive cardiomyopathy.
 - C. Acute myocardial infarction.
 - D. Pneumothorax.
- 29) A 9 month old infant has a temperature of 39.5°C and is not feeding. The parents attend a local clinic where the physician found an erythema of right tympanic membrane. Treatment of which one of the following is appropriate as simple and safe intervention that may decrease body temperature?
- A. Anti-tumour necrosis factor (TNF) antibody
 - B. Aspirin
 - C. Erythroycin
 - D. Paracetamol
- 30) A patient presents with malaise, cough, and shortness of breath. Vital signs include temperature 40° C, blood pressure 120/74 mmHg, respiratory rate 18 breaths per minute, pulse 70 beats per minute, and oxygen saturation 97%. This presentation could be consistent with:
- A. Streptococcal pneumonia
 - B. Legionella pneumonia
 - C. Influenza-like illness
 - D. Mycoplasma pneumonia

SHORT ESSAY QUESTIONS (9 QUESTIONS), ALL QUESTIONS MUST BE ANSWERED, (45 MARKS, 5 MARKS FOR EACH QUESTION)

1. Hypothermia; causes, complications and management
2. Hypermagnesemia; causes and clinical presentation
3. Enumerate the markers of bone resorption.
4. Mention the mechanism of action of denosumab
5. Mention FIVE causes of acquired thrombophilia
6. Mention FIVE effects of insulin action in the brain.
7. Mention FIVE classes of diuretics and their mechanism of action.
8. Actions of GLP1 in glucose homeostasis
9. Mention FOUR causes of obstructive shock.

GOOD LUCK

Tanta University
Faculty of Medicine
Internal Medicine Department
28/3/2021
Total: 90 marks

Applied Pathology Exam
MD degree of Internal Medicine-Feb 2021
NO. of questions: 2 questions (39 subquestions)
Time allowed: 3 hours
NO. of pages: 8



QUESTION 1 MULTIPLE CHOICE QUESTIONS (30 MCQs), ALL MCQs MUST BE ANSWERED, (45 MARKS, 1.5 MARKS FOR EACH QUESTION)

CHOOSE THE BEST ANSWER

- 1) A lipid analysis from a patient with familial hypercholesterolemia shows elevated LDL and total cholesterol with all other lipid profiles within normal range. Which of the following types of hypercholesterolemia best describes this patient's results?
 - A. Type Ib
 - B. Type IIa
 - C. Type IIb
 - D. Type III

- 2) Atherosclerosis is a disease that involves the build-up of plaques inside arteries. These plaques are composed of atheroma, cholesterol crystals and calcification. What is the first visible appearance of atheroma formation?
 - A. Ulceration
 - B. Thrombus
 - C. Foam cells
 - D. Fatty streak

- 3) A 54-year-old man is evaluated for management of type 2 diabetes mellitus. He was diagnosed with diabetes 4 years ago after being admitted to the hospital with dehydration and weight loss. He was discharged from the hospital on dual oral antidiabetic drugs. He completed diabetes education and nutrition classes and has been adherent with lifestyle modifications. His most recent HbA1c level is 6.7%. Fasting blood glucose level was 210 mg/dL. His physical examination is unremarkable. Regarding the pathophysiology of type 2 DM, which of the following can enhance hepatic gluconeogenesis?
 - A. Hyperglucagonemia
 - B. Hypovolemia
 - C. Hyperkalemia
 - D. Hyponatremia

- 4) Regarding the pathophysiology of type 2 DM, there are multiple intramyocellular defects in insulin action which are mediated by dysfunction of the insulin signaling pathway at the IRS-1 (insulin receptors substrate-1) and mitogen- activated protein (MAP) kinase levels. What is the role of glitazones in this condition?
- A. Stimulate MAP kinase pathways
 - B. Augment insulin signaling through IRS-1, and inhibit MAP Kinase pathways
 - C. Decrease the glucotoxicity
 - D. No role
- 5) A 45-year-old woman is diagnosed with type 2 diabetes mellitus after a routine follow-up for impaired fasting glucose 2 years ago. She has mild systemic hypertensive that is well controlled right now. Her physical examination is unremarkable. Body mass index is 33 kg/m². Which of the following is TRUE regarding obesity in this patient?
- A. Premixed insulin should be started
 - B. Ghrelin is the target for treatment
 - C. Hypothalamic centers for appetite regulation are dysfunctional due to cerebral insulin resistance
 - D. None of the above
- 6) A 63-year-old man with poorly controlled type 2 diabetes mellitus is referred to the dermatology clinic with a history of a darkly pigmented rash under both arms with thickened skin and a rough texture to the skin. He also complains of some thickening of the skin over his palms making him embarrassed to shake anyone's hand. Which of the following cutaneous manifestations is NOT associated with diabetes?
- A. Necrobiosis lipoidica diabetorum.
 - B. Acanthosis nigricans.
 - C. Granuloma annulare.
 - D. Pyoderma gangrenosum.
- 7) A 65-year-old female presents with renal colic and haematuria. She has also been complaining of polyuria and polydipsia. Clinically she looks dehydrated and fatigued. Blood results show a raised calcium, raised parathyroid hormone (PTH) and raised phosphate. Which of the following statements is TRUE with regards to the function of PTH on the kidneys?
- A. Increases release of calcium
 - B. Promotes production of active vitamin D
 - C. Increases calcium and phosphate absorption
 - D. Decreases calcium and increases phosphate absorption

- 8) A 50-year-old man presented with two large areas of skin necrosis on his left thigh. He had been on hemodialysis over the last 5 years for CKD secondary to IgA vasculitis. He had undergone coronary angiography 7 days previously as part of work up of exertional chest pain. On examination, his BMI was 31 kg/m^2 , he had intact pulses throughout his lower extremities. The necrotic areas of skin were superficial, measuring 4 to 5 cm each. Investigations: Serum calcium 2.42 mmol/L (2.2-2.6), serum phosphate 2.1 mmol/L (0.8-1.4). Plasma PTH 85 pg/ml . What is the likely underlying cause of this clinical condition?
- A. Atheroembolic disease from the graft
 - B. Cholesterol emboli
 - C. Calcific Uremic Arteriorolopathy
 - D. Recurrent IgA vasculitis
- 9) A 52-year-old woman presents with fever, chills, night sweats and a productive cough. A sputum suture is positive for acid-fast bacilli and a chest X-ray reveals a right upper lobe cavity with associated consolidation. Which cell is responsible for this lung lesion?
- A. Neutrophil
 - B. Natural killer cells
 - C. Eosinophil
 - D. Macrophage
- 10) All of the following diseases are due to inadequate apoptosis EXCEPT
- A. SLE
 - B. Myasthenia gravis
 - C. Colorectal cancer
 - D. Aplastic anemia
- 11) Septic shock is caused by:
- A. Autophagy
 - B. Excessive apoptosis
 - C. Excessive necroptosis
 - D. None of the above
- 12) All the following are characteristic of pyroptosis EXCEPT:
- A. Recruitment of leukocytes
 - B. Activation of procaspase 1
 - C. Activation of IL1.
 - D. Shrinkage of cells

- 13) A 26 -year-old female diagnosed with lupus 3 years ago, her grandmother is being treated for rheumatoid arthritis, started to complain of bilateral lower limb edema and continuous fatigue. Her doctor asked for some investigation only showed proteinuria, elevated CRP and ESR and final investigation revealed that the patient has lupus nephritis. Regarding polyautoimmunity in autoimmune disease the following is true EXCEPT:
- A. Polyautoimmunity is defined as the presence of one autoimmune disease in a single patient.
 - B. Polyautoimmunity represents the effect of a single genotype on diverse phenotypes.
 - C. Autoimmune thyroid disease and Sjogren Syndrome are the most frequent diseases encountered.
 - D. Factors significantly associated with polyautoimmunity are female gender and familial autoimmunity.
- 14) A 30-year-old female diagnosed with rheumatoid arthritis (RA) 6 years ago, is complaining of persistent pain in his both hands and continuous fatigue. His doctor asked for some investigation only showed elevated CRP and ESR and acute attack of arthritis. His mother is being treated for RA also. Regarding women and autoimmune disease, the following is true EXCEPT:
- A. The more frequent the AD and the later it appears, the more women are affected.
 - B. Women tend to have a different age at onset and different disease activity than men.
 - C. Female gender doesn't appear to be a risk factor for polyautoimmunity
 - D. The most convincing explanation of female biased autoimmunity remains the hormonal theory followed by genetic factors
- 15) A 22-years-old male with negative past medical history started to complain of polyuria, thirst all the time, loss of weight and continuous fatigue. His doctor asked for some investigation only showed elevated fasting and 2 hrs postprandial glucose and final investigation revealed that the patient has type 1 diabetes. He found that his grandmother is being treated for rheumatoid arthritis. The following are examples of antigens released from hidden location in autoimmune disease EXCEPT:
- A. Antibodies directed against the infectious agents starts reacting with normal self Ag.
 - B. Testes, Anti-sperm Ab produced in some men after vasectomy
 - C. Eye (cornea)
 - D. Alveolar basement membrane in goodpasture's syndrome
- 16) A 12-year-old girl develops facial swelling and an erythematous itchy rash shortly after being administered the first dose of the HPV vaccine. On arrival the paramedics note a bilateral expiratory wheeze and blood pressure of 80/50 mmHg.