

DEPARTMENT OF CHEMICAL PATHOLOGY & IMMUNOLOGY  
FACULTY OF BASIC MEDICAL SCIENCES  
COLLEGE OF HEALTH SCIENCES  
UNIVERSITY OF ILORIN

PART I FINAL MB, BS DEGREE EXAMINATION

PAPER I: MULTIPLE CHOICE QUESTIONS (MCO)

TIME: 45 minutes

ANSWER ALL QUESTIONS: Read each set of instructions carefully. Answer all questions in the answer sheet provided. Do not take away or write anything on the question booklet.

SECTION A (QUESTIONS 1-15): Tick ( ) below the letter in the answer sheet that corresponds to the most correct option for each number. Each correct answer carries One mark and wrong answer carries minus One-fifth (-1/5) mark.

1. The secondary immune response is rapid due to the presence of:
  - a. Mast cells
  - b. Memory cells
  - c. Macrophages
  - d. Null cells
  - e. NK cells
2. The immunoglobulins are:
  - a. Polysaccharides
  - b. Polynucleotides
  - c. Glycolipids
  - d. Glycoproteins
  - e. Lipoprotein
3. T cell immuno-incompetent individuals must not be given:
  - a. Formalin inactivated vaccines
  - b. Heat killed vaccines
  - c. Live attenuated vaccines
  - d. Synthetic vaccines
  - e. Recombinant vaccines
4. Human resource skills of a physician manager include:
  - a. Staff development
  - b. Motivation
  - c. Budget formation
  - d. Communication
  - e. Staff discipline
5. Physiologic hyperbilirubinemia:
  - a. Develops in all normal babies
  - b. Is treated with exchange blood transfusion
  - c. The hyperbilirubinemia is mainly conjugated
  - d. Babies are usually sick and lethargic
  - e. Biochemistry returns to normal after 72 hours
6. Isoenzyme of prostate acid phosphatase include:
  - a. Tartrate label
  - b. Tartrate stable
  - c. Tartrate
  - d. PAS
  - e. Kidney tartrate
7. The thirst mechanism is activated by:
  - a. Hypovolemia
  - b. Increased Plasma Osmolarity
  - c. Low Plasma Osmolarity
  - d. Hypervolemia
  - e. Acid diuresis

Total parenteral nutrition (TPN)

- a. Bypasses gastrointestinal digestion by delivering undigested energy and protein sources directly to the venous systems
- b. Can not be used in patient who has gastro intestinal disorders
- c. Lipid is the major source of energy in TPN solution ~ CHO
- d. Fat overload syndrome is a significant drawback of TPN
- e. Vitamins and trace elements are not routinely added to TPN solution

9. Which of the following is true about therapeutic drug monitoring

- a. It's a multi-disciplinary approach to patient care
- b. One of its aims is to encourage common empirical dose regimens for all patients
- c. One of its aims is to reduce cost of patient care and length of hospital admission
- d. (a) and (c) only
- e. (a) (b) and (c)

10. Gastric residue analysis involves the following

- a. Free HCL TEST
- b. Total acidity
- c. Sham feeding
- d. Occult blood analysis
- e. a and b only

11. Laboratory tests performed in monitoring diabetes mellitus patients are the following except:

- a. Lipid panel
- b. Fructosamine
- c. 1-5-Anhydroglucitol
- d. All of the above
- e. None of the above

12. Mechanisms of action of Bile-acid sequestrants includes

- a. Decrease reabsorption of bile in intestine
- b. Increase secretion of bile in stool
- c. Increase reabsorption of bile in intestine
- d. B and C
- e. A and B

13. In hypothyroidism, one of the following is a possible finding

- a. Hyperventilation
- b. Hypoventilation
- c. Tachycardia
- d. Hypertension
- e. Non of the above

14. Hyperglycemia can present with the following:

- a. Cellular overhydration *dehydration*
- b. Impaired renal function
- c. Volume overload
- d. All of the above
- e. None of the above

15. The following is/are available means of evaluating an electrophoretogram:

- a. Visual inspection.
- b. Densitometry (Scanning).
- c. Elution.
- d. None of the above is correct.
- e. a, b and c are all correct.

SECTION B (Questions 16-45): Indicate whether each of the statements is True (T) or False (F) in the answer sheet. Each correct answer carries One mark and wrong answer carries minus half (-1/2) mark.

16. Immunoglobulin J-chain is associated with

- a. IgD
- b. IgG
- c. IgE
- d. IgA
- e. IgM



17. The following are anaphylatoxins:

- a. C3i
- b. C3b
- c. C3e
- d. C3a
- e. C5b

18. HLA Class II proteins are expressed on:

- a. Dendritic
- b. Macrophages
- c. B lymphocytes
- d. Red blood cells
- e. Somatic cells

19. The release of granule content on mast cell degranulation can lead to:

- a. Eosinophil Chemotaxis *✓ ECF & NCF*
- b. Diarrhea
- c. Urticaria
- d. Asthma symptoms
- e. Platelet aggregation

20. Innate immunocompetence may be assessed by:

- a. Estimation of Complement proteins
- b. Counting neutrophils
- c. Counting lymphocytes
- d. Measuring immunoglobulin levels
- e. Gamma-interferon assay

21. Methods of preventing tissue transplant rejection in man includes:

- a. Host neonatal thymectomy
- b. Host total lymphoid irradiation
- c. Host-donor HLA matching
- d. Use of immunosuppressive drugs by host
- e. Donor neonatal thymectomy

22. The following hormone(s) is/are important in Glucose metabolism

- a. Galactokinase
- b. Glucose-6-Phosphatase
- c. Glucose-6-Phosphate dehydrogenase
- d. Hexokinase
- e. Aldolase

23. Insulin increases

- a. Lipolysis
- b. Lipogenesis
- c. Glucose utilization by the cells
- d. Protein catabolism
- e. All of the above

24. Pre-hepatic causes of jaundice include

- a. Severe falciparum malarial infestation
- b. Dubin-Johnson syndrome
- c. Wilson's syndrome *liver carcinoma*
- d. Septicemia
- e. Effective erythropoiesis

*As for's - hepatocytes*

25. Concerning the functions of the kidney

- a. It controls the elimination of many substances
- b. It produces erythropoietin
- c. It produces renin
- d. It produces 1,25 Dihydroxycholecalciferol
- e. Renal function is calculated from creatinine clearance

26. The following hormones are used as tumour markers except

- a. ACTH
- b. ADH
- c. Human Chorionic Gonadotrophin *chor. tumour marker*
- d. Calcitonin *is not a tumour marker*
- e. PTH

Tumour markers can be classified as

- a. Lipids
- b. Enzymes
- c. Carcinofetal antigen
- d. Carbohydrate Epitopes
- e. Vitamins

hormones  
oncofetal products - Fas  
receptors

Bonobogun  
Caravan

The following are primary bile acids

- a. Cholytamine
- b. Chenodeoxycholyglycine
- c. Lithocholine
- d. Deoxycholine
- e. Cholyglycine

ACTH  
Cortisol  
DHT

The Pigment calculi of the gall bladder found in sickle cell disease is

- a. Calcium bilirubinate
- b. Calcium Phosphate
- c. Calcium Carbonate
- d. Cholesterol
- e. Creatinine

30. Fat soluble vitamins:

- a. Their absorption is aided by bile.
- b. Vitamin A deficiency may not lead to nyctalopia.
- c. They are absorbed mainly through the large intestine.
- d. Vitamin A predominates largely in fresh water fish.
- e. Function of vitamin D is majorly as antioxidant.

small intestine

Calcium homeostasis

31. Water soluble vitamins

- a. They are excreted mainly by the Kidney
- b. Vitamin B<sub>1</sub> deficiency results in scurvy
- c. B<sub>6</sub> deficiency can occur in TB patients
- d. Isolated B<sub>6</sub> deficiency is very common
- e. Pregnant women require less than normal population.

32. Drugs that are routinely measured in therapeutic drug monitoring includes

- a. Antiepileptic drugs
- b. Cardio active drugs
- c. Antibiotics
- d. Analgesics
- e. Topical steroid drugs

33. Consider the following statements about thyroid disorders:

- a. Thyroid disorders are the commonest endocrine problems
- b. No single biochemical test is infallible in all clinical settings
- c. Measurement of the serum TSH concentration is the best screening test for thyroid disorders.
- d. The microsomal antigen is now known to be the enzyme thyroic peroxidase (TPO)...
- e. TRH test is used for assessing primary thyroid disorders.

TSH B. m

34. Concerning Liver enzymes:

- a. Alanine transaminase is present both in the mitochondrial and in the cytoplasm
- b. Aspartate transaminase is present only in the cytoplasm
- c. Plasma levels of AST are usually higher than that of ALT in acute hepatocellular damage
- d. LD5 is the hepatic isoenzyme of lactate dehydrogenase
- e. Gamma glutamyltransferase is sensitive for hepatobiliary diseases

acute

35. The following are found in diabetic ketoacidosis

- a. Increases lipolysis
- b. Decreased plasma free fatty acids
- c. Decreased ketogenesis
- d. Ketonuria
- e. Decreased alkali reserve



36. Induced hypoglycaemia may be

- a. Insulin induced
- b. Fictitious
- c. Sulfonylurea
- d. Excessive consumption of GABA drink
- e. Miscellaneous drugs eg. Aspirin

37. In type IV renal tubular acidosis there is

- a. Aldosterone deficiency
- b. Aldosterone overproduction
- c. Aldosterone resistance
- d. Hyponatraemia
- e. Hyperkalaemia

38. Hypoparathyroidism may be due to

- a. Surgical procedure
- b. Autoimmunity
- c. Magnesium deficiency
- d. Vitamin - D hypervitaminosis *hypercalcaemia*
- e. Congenital

39. Adrenal failure as an endocrine emergency can cause

- a. Hypertension
- b. Hypotension
- c. Stupor
- d. Severe hypokalaemia *hyperkalaemia*
- e. Severe hypernatraemia *hyponatraemia*

40. The following are causes of unexpected hypoglycaemia

- a. Hepatic failure
- b. Renal failure
- c. Sepsis
- d. Steroid hormone administration
- e. Insulinoma

41. Concerning coronary artery disease

- a. The higher the total cholesterol the higher the risk of CAD
- b. The higher the LDL, the higher the risk of CAD
- c. The higher the HDL level, the more protection against CAD
- d. The lower the HDL level, the more protection against CAD
- e. The lower the LDL, the lower the risk of CAD

42. The following drugs are used in the management of dyslipidaemia.

- a. Statins
- b. Nitroglycerin
- c. Nicotinic acid
- d. Fibric acid
- e. Resins or bile acid sequestrants

HDL  
TC

43. The following are examples of acute phase proteins that serve as Scavengers:

- a. C-reactive protein
- b. Clotting factors
- c. Haptoglobin
- d. Ceruloplasmin
- e. Plasminogen

44. The electrophoretogram in Nephrotic syndrome is characterized by:

- a. Increased albumin band
- b. Normal alpha one band
- c. Reduced alpha-two bands *it will be raised*
- d. Reduced beta band
- e. Normal gamma band

45. Disorders of ornithine amino acid metabolism include:

- a. Phenylketonuria
- b. Alkaptonuria
- c. Albinism
- d. Maple syrup disease
- e. Histidinemia

Normal diet is sufficient for most patients  
phenylketonuria, arginase deficiency  
Maple Syrup disease - alkalosis of LH  
Hematuria & ketonuria

Hereditary defect of metabolism

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SECTION A (Questions 1-15): Tick (✓) below the letter in the answer sheet that corresponds to the most correct option for each number. Each correct answer carries One mark and wrong answer carries minus One-fifth (-1/5) mark.

1. Isoenzymes of Alkaline Phosphate include the following except:
  - a. Liver isoform ✓
  - b. Placental isoform ✓
  - c. Bone isoform ✓
  - d. Brain isoform ✓
  - e. Kidney isoform ✓
2. Maple syrup disease:
  - a. Autosomal recessive mode of inheritance
  - b. Characterised by burnt brown sugar smell
  - c. Is a disorder of protein metabolism
  - d. Treated by dietary restriction of thuring and phenylalanine ✓
  - e. Presentation is early in life
3. Concerning 21 Hydroxylase enzyme deficiency:
  - a. It is the least common form of Congenital Adrenal Hyperplasia
  - b. Significant elevation of 17 Hydroxyl progesterone is characteristic ✓
  - c. There is associated disorders of creatinine metabolism
  - d. Absence of dehydroepiandrosterone sulphate
  - e. Elevation of andosterone
4. The following are counterregulatory hormones involved in system glucose bal. nec:
  - a. Insulin
  - b. Epinephrine ✓
  - c. Gastrin
  - d. Secretin
  - e. Prolactin
5. The following is/are available means of evaluating an electropheretogram:
  - a. Visual inspection
  - b. Densitometry (Scanning)
  - c. Elution
  - d. None of the above is correct
  - e. a, b and c are all correct ✓
6. The single most important plasma enzyme for assessing hepatocellular damage is:
  - a. Aspartate transaminase ✓
  - b. Alanine transaminase ✓
  - c. Lactate dehydrogenase
  - d. Gamma-glutamyl transaminase
  - e. Alkaline phosphatase
7. One of the following is an absolute marker of myocardial infarct:
  - a. Creatine kinase
  - b. Lactate dehydrogenase
  - c. Aspartate amino transferase ✓
  - d. Myoglobin
  - e. Troponin



8. The prime inducers of hepatic acute phase protein synthesis include:

- a. Interleukin 1 (IL-1)
- b. Tumor necrosis factor (TNF)
- c. Interleukin-6 (IL-6)
- d. All of the above are correct
- e. None of the above is correct

*Diagnose*

9. The following are causes of polyuria and polydipsia except:

- a. Hypercalcaemia ✓
- b. Hypokalaemia ✓
- c. Diabetes mellitus ✓
- d. Chronic renal failure ✓
- e. Hyponatraemia

$\downarrow HCO_3^-$ ,  $\downarrow pH$ ,  $\uparrow Cl^-$

10. Features of metabolic acidosis include the following except:

- a. Low bicarbonate
- b. Low PCO<sub>2</sub>
- c. High pH
- d. Normal chloride in most cases
- e. There may be increased anion gap

~~High pH, low bicarbonate, low PCO<sub>2</sub>~~

11. The following will cause respiratory alkalosis except:  $C \downarrow PCO_2$

- a. Hypoxia
- b. Pulmonary oedema
- c. Lobar pneumonia
- d. Diarrhea  $\rightarrow$  acidosis  $\rightarrow$  metabolic acidosis
- e. Excessive artificial ventilation

12. The following are features of lactic acidosis except:

- a. Severe dehydration
- b. Low blood pH
- c. Increased anion gap
- d. High plasma lactate
- e. Normal or slightly raised blood glucose

13. The duration of immunity that follows a natural infection is:

- a. Six months
- b. Ten years
- c. Life-long
- d. Dependent on the type of infecting agent
- e. Dependent on the host genotype

14. T-cell immunoincompetent individuals must not be given:

- a. Heat killed vaccines
- b. Live attenuated vaccines
- c. Recombinant vaccines
- d. Synthetic vaccines
- e. Formalin inactivated vaccines

*Diagnose*

15. A high concentration of IgM in cord blood suggests:

- a. Tolerance to IgM
- b. Immaturity depression
- c. Malaria infection
- d. Rubella infection
- e. Intra-uterine infection

SECTION B (Questions 16-45). Indicate whether each of the statements is True (T) or False (F) in the answer sheet. Each correct answer carries One mark and wrong answer carries minus half (-1/2) mark.

16. Indicate whether each of the following statements is true or false:

- a. Cholesterol is continually synthesized by all tissues of the body
- b. Bile acid formation is the major metabolic pathway of cholesterol metabolism
- c. Cholate conjugates are cytotoxic *are carcinogenic*
- d. Bilepathic neonatal hepatitis is a complication of cholesterol metabolism
- e. Pigment stone is more frequent than cholesterol in sickle cell disease

*17/10*

17. Tumor markers can be classified as:
- a. Lipids
  - b. Enzymes
  - c. Oncofetal antigen
  - d. Carbohydrate epitopes
  - e. Vitamins
18. The following are secondary bile acids:
- a. Cholamine
  - b. Chenodeoxycholyglycine
  - c. Lithocholine
  - d. Deoxycholine
  - e. Cholylglycine
19. The pigment calculi of the gall bladder found in sickle cell disease is:
- a. Calcium-bilirubin
  - b. Calcium phosphate
  - c. Calcium carbonate
  - d. Cholesterol
  - e. Creatinine choline
20. The following are the mechanisms of increased energy expenditure in cancer:
- a. Increased resting membrane rate
  - b. Decreased protein synthesis
  - c. Increased gluconeogenesis
  - d. Increased glucose utilisation
  - e. Head and neck tumor
21. The following may cause water diuresis:
- a. Diabetes mellitus
  - b. Hyperaldosteronism
  - c. Mannitol infusion
  - d. Amyloidosis
  - e. Parenteral feeding
22. The following are required for the laboratory diagnosis of hypoglycemia:
- a. High plasma estrogen
  - b. Plasma glucose level above 2.5 mmol/L
  - c. Presence of autonomic symptoms
  - d. Fructosuria
  - e. Relief of symptoms after glucose level is raised
23. The following are useful in differentiating intrinsic renal failure from pre-renal failure:
- a. Urinary osmolality
  - b. Urine sodium
  - c. Fractional excretion of potassium
  - d. Renal failure index
  - e. Urine volume
24. Consider the following statements about thyroid disorders:
- a. Thyroid disorders are the commonest endocrine problems
  - b. No single biochemical test is infallible in all clinical settings
  - c. Measurement of the serum TSH concentration is the best screening test for thyroid disorders
  - d. The microsomal antigen is now known to be the enzyme thyroid peroxidase (TPO)
  - e. TRH test is used for assessing primary thyroid disorders
25. The following are known causes of amenorrhea and infertility:
- a. Anorexia nervosa
  - b. Severe weight loss
  - c. Stress
  - d. Kallmann's syndrome
  - e. Craniopharyngioma
26. Concerning liver enzymes:
- a. Alanine transaminase is present both in the mitochondrial and in the cytoplasm
  - b. Aspartate transaminase is present only in the cytoplasm
  - c. Plasma levels of AST are usually higher than that of ALT in acute hepatocellular damage
  - d. LD5 is the hepatic isoenzyme of lactate dehydrogenase
  - e. Gamma glutamyl transaminase is sensitive for hepato-biliary diseases



27. In reproductive endocrinology:

- T a. Leydig cells produce testosterone
- T b. Sertoli cells function is regulated by Follicle-Stimulating-Hormone
- F c. The secretion of Gonadotropin-releasing hormone is pulsatile in nature
- F d. Albumin is the most important transport protein for testosterone
- T e. Endocrine causes of male infertility are rare

Blank

28. For acute phase protein:

- T a. They are defined as those plasma proteins which increase in concentration by 25% or more in the first 2 days following tissue injury
- T b. The synthesis of acute phase proteins is part of acute phase response
- F c. Viral infection is a potent inducer of acute phase protein synthesis
- F d. Bacterial infections elicit a poor acute phase protein synthesis
- T e. Functions can be attributed to the majority of acute phase proteins

Blank

29. The following are examples of acute phase proteins that serve as scavengers:

- T a. C-reactive protein
- F b. Clotting factors
- T c. Haptoglobin
- T d. Ceruloplasmin
- F e. Plasminogen

Blank

30. The electrophoretogram in nephrotic syndrome is characterized by:

- F a. Increased albumin band
- T b. Normal alpha one band
- F c. Reduced alpha two band
- F d. Reduced beta band
- T e. Normal gamma band

Blank

31. Disorders of aromatic amino acid metabolism include:

- T a. Phenylketonuria
- T b. Alcaptonuria
- T c. Albinism
- T d. Maple syrup diseases
- T e. Histiocytosis

Blank

32. The following hypolipidaemic drugs are anion exchange resin:

- T a. Simvastatin
- T b. Celestip
- F c. Bezafibrate
- F d. Clofibrate
- F e. Nicotinic acid

Blank

33. The following hormones are secreted by the posterior pituitary:

- T a. Prolactin
- F b. Antidiuretic hormone
- F c. Adrenocorticoid trophic hormone
- F d. Oestrogen
- F e. Thyroxine

The following are modifiable risk factors of atherosclerosis:

- F a. Age
- T b. Overweight
- F c. Male sex
- T d. Smoking
- F e. Hyperlipidaemia

Blank

34. The following lipoproteins are found in fasting blood sample:

- F a. Chylomicron
- T b. High density lipoprotein
- F c. Low density lipoprotein
- F d. Intermediate density lipoprotein
- F e. Very low density lipoprotein

Blank

35. The HDL is atheroprotective:

- F a. Because it has plenty of cholesterol
- T b. Because it carries cholesterol from periphery to the liver
- F c. Because it carries enzyme Lecithin Cholesterol acyl transferase (LCAT)
- T d. Because it is a small particle
- F e. Because it has little triglycerides

Albumin

α<sub>1</sub>  
α<sub>2</sub>

β

↑  
↓  
↑  
↓

↑  
↓

↑  
↓

↑  
↓

↑  
↓

↑  
↓

Multiple

↓

37. The following are causes of hyperkalemia  
 F a. Hypothyroidism  
 T b. Hypoparathyroidism  
 T c. Sarcoidosis  
 T d. Malignancy  
 F e. Hypoparathyroidism
38. Protein electrophoresis strip of Nephrotic syndrome will have the following:  
 T a. Decreased albumin fraction  
 F b. Fusion of beta and gamma fractions  
 T c. Increased alpha two fraction  
 F d. Broad beta band  
 F e. All of the above
39. The following statements are true about aldosterone:  
 F a. It is an enzyme  
 b. It is a peptide hormone  
 F c. It enhances secretion of Sodium into renal tubular lumen  
 T d. Level is high in Conn's syndrome  
 T e. It is secreted by the adrenal cortex
40. Pure protein or glycoprotein antigens are:  
 F a. T cell independent  
 T b. T cell dependent  
 F c. Non immunogenic in infants under two years old  
 T d. Inducers of immune response with good memory  
 T e. Highly potent immunogens
41. The following are examples of cytotoxic hypersensitivity:  
 F a. Severe respiratory difficulties of Farmer's lung  
 F b. Post-arc procecal glomerulonephritis  
 F c. Contact dermatitis  
 T d. Autoimmune haemolytic anaemia  
 T e. Transfusion reaction resulting from ABO-incompatibility
42. Paraproteinaemia may be assessed in the laboratory by:  
 a. R-rosetting  
 b. RAI-rosetting  
 c. Zone electrophoresis  
 d. Immunofluorescence  
 e. Quantitation of immunoglobulins
43. The competence of the in vivo immune system may be assessed by:  
 F a. Complement fixation assay  
 F b. Immunoglobulin measurement  
 T c. Cytotoxicity proteins assay  
 F d. Lymphocyte count  
 T e. Neutrophil count
44. The killing of target cells by cytotoxic T lymphocytes (CTL) involves:  
 a. Intimate binding of CTL to target cell  
 b. Recognition of Class I MHC molecules on the target cell  
 c. Recognition of Class II MHC molecules on the target cell  
 d. Expression of Class III MHC molecules on the target cell  
 e. Expression of Class III MHC molecules on CTL
45. Methods of preventing transfusion reaction in man include:  
 F a. Neonatal rhymechomy of host  
 F b. Neonatal rhymechomy of donor  
 T c. HLA matching of host and donor  
 d. Total hist typhoid irradiation  
 T e. Use of immunosuppressive drugs by host

Blair

Blair

Blair

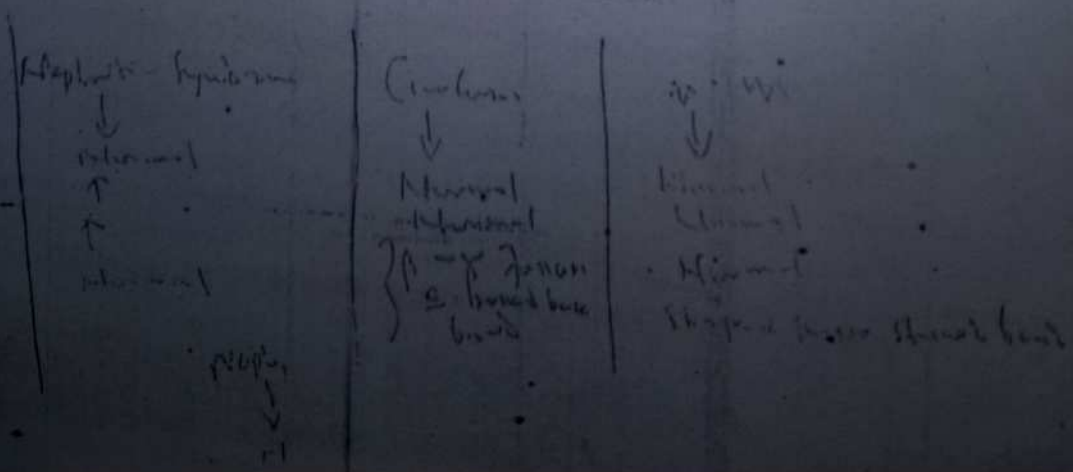
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- d. Low level of serum cortisol  
 e. High serum level of aldosterone
31. Regarding acromegaly  
 a. Hyperglycemia  
 b. Elevated insulin and lipid profile  
 c. Carpal tunnel syndrome  
 d. Testicular atrophy  
 e. All of the above
32. The following are causes of respiratory acidosis  
 a. Hypoventilation  
 b. Hyperventilation  
 c. Cystic fibrosis  
 d. Addison's disease  
 e. Head injury
33. The following are the causes of metabolic acidosis  
 a. Vomiting  
 b. Starvation  
 c. Shock  
 d. Renal failure  
 e. Diabetic ketoacidosis
34. In nephrotic syndrome  
 a. Albumin is reduced  
 b. Alpha-1 is normal or slightly increased  
 c. Alpha-2 is reduced  
 d. There is fusion of beta and gamma bands  
 e. Gamma is markedly raised
35. Concerning electrophoresis  
 a. It is used in the separation of charged and uncharged molecules  
 b. Barbital buffer at pH 8.6 and ionic strength of 0.05 is used  
 c. A and B  
 d. Acrylamide is an important solid medium  
 e. None of the above
36. Regarding renal tubular acidosis  
 a. Type 1 is the failure of the proximal tubules to secrete hydrogen ion  
 b. Type 2 is the failure of the proximal tubular  $\text{HCO}_3^-$  reabsorption  
 c. Type 4 is a mixture of type 2 and 3  
 d. Type 4 is secondary to aldosterone deficiency  
 e. Type 3 is a mixture of type 1 and 2
37. Concerning hyperlipidemia  
 a. Class I is hyperchylomicronemia  
 b. Class IIa is beta disease  
 c. Class III is increased IDL only  
 d. In class IV, there is increased LDL and absence of chylomicron  
 e. Chylomicron is present in class V
38. Regarding hypersensitivity reaction  
 a. Localized type I reaction is called atopy  
 b. Arthur's reaction is a type II hypersensitivity  
 c. Caseous cavitation in TB is type IV reaction  
 d. Histamine has some benefit in hypersensitivity  
 e. Eosinophilia is characteristic of type III reaction
39. Regarding immune response  
 a. Alpha beta-TCR is found in adulthood  
 b. T lymphocytes are antigen presenting cells  
 c. B cells can produce antibodies without helper T cells  
 d. TCR is secreted like immunoglobulins  
 e. Granzymes are important in the process
40. Concerning MHC  
 a. T cells recognise foreign antigen as a long peptide  
 b. HLA complex is located on the Bp C6  
 c. Class I molecules bind peptide derived from exogenous proteins  
 d. Class I molecules presents to CD4 T cells  
 e. Option C is the only correct option