Exam Date & Time: 30-Oct-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November 2025 QP CODE : A001

Anatomy Paper 1 [ANA1]

Marks: 100 **Duration: 180 mins.**

MCQ 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 The Costovertebral joint is a (1)

1)	Symphysial joint		2)	Plane Synovial joint		3)	Primary cartilagenous joint		4)	Fibrous joint	

2 Which of the following structure forms the boundary of triangle of Koch? (1)

1)	Opening of inferior vena cava		2)	Opening of superior vena cava		3)	Septal leaflet of tricuspid valve		4)	Anterior leaflet of tricuspid valve	

3 Which of the following is a branch of the posterior division of mandibular nerve? (1)

1)	Buccal		2)	Lingual		3)	Meningeal		4)	Temporal	

4 Superior thyroid artery is a branch of (1)

1)	Internal carotid artery		2)	External carotid artery		3)	Thyrocervical trunk		4)	Subclavian artery	

5 A patient came with history of engorgement of veins on upper half of body, difficulty in breathing and swallowing. Later he was diagnosed with mediastinal syndrome after investigations. Which vessel is compressed in this case? (1)

1)	Superior Vena cava		2)	Interior Vena cava		3)	Thoracic Aorta		4)	Abdominal Aorta	

6 Common interosseous artery is a branch of which artery? (1)

1)	Axillary		2)	Brachial		3)	Radial		4)	Ulnar	

7 Nerve of the second arch is (1)

1)	Mandibular nerve		2)	Facial nerve		3)	Glossopharyngeal nerve		4)	Recurrent laryngeal nerve	

8 A man met with an accident while driving a motorcycle. There was an injury to the middle of the back of arm. He could **NOT** extend his wrist. He was diagnosed as a case of 'wrist drop'. Which nerve is injured in wrist drop? (1)

1)	Axillary		2)	Median		3)	Radial		4)	Ulnar	

9 Localised thickening in the wall of splenic arteriole is (1)

1)	Penicilli		2)	Ellipsoid		3)	Ampulla		4)	Sinusoid	

10 The parents of an infant aged 2 months present with concerns about an abnormal head shape and rapid head growth. The anterior fontanelle was tense and bulged. Downward deviation of the eyes was observed. Imaging studies of the brain revealed ventriculomegaly confirming the diagnosis of Hydrocephalus. Which ventricles are connected by the interventricular foramina of Monro? (1)

1)	Third and fourth		2)	Third and lateral		3)	Lateral and fourth		4)	Right and left lateral	

11 The quadrangular space of arm transmits (1)

1)	Axillary nerve		2)	Axillary artery		3)	Radial nerve		4)	Circumflex scapular artery	

12 Pharyngeal arches are rod-like thickening of (1)

1)	Ectoderm		2)	Mesoderm		3)	Endoderm		4)	Dermatome	

13 Arrector pilorum is a (1)

1)	Skeletal muscle		2)	Smooth muscle		3)	Cardiac muscle		4)	Unipennate muscle	

14 Which of the following structures run in the intersegmental planes of the lungs? (1)

1)	Segmental venules		2)	Bronchial vessels		3)	Pulmonary arteries		4)	Bronchus	

15 The pigment present in cone cells of retina is (1)

1)	Rhodopsin		2)	Conopsin		3)	Iodopsin		4)	Scotopsin	

16 All the following structures form indentations on the oesophagus **EXCEPT** (1)

1)	Aortic arch		2)	Left bronchus		3)	Diaphragm		4)	Left ventricle	

17 A 12-year-old boy while playing in the school suddenly started bleeding from nose. When bleeding did not stop, the student was taken to the nearby dispensary. The doctor packed his nose to stop bleeding. Following arteries are involved in epistaxis **EXCEPT** (1)

1)	Anterior ethmoid		2)	Lesser palatine		3)	Sphenopalatine		4)	Superior labial	

18 The optic nerve fibre layer of retina is formed by axons of which of the following cells? (1)

1)	Glial cells		2)	Rods & cones		3)	Bipolar cells		4)	Ganglion cells	

19 Which of the following structures gives rise to the thalamus? (1)

1)	Myelencephalon		2)	Metencephalon		3)	Diencephalon		4)	Telencephalon	

20 A 55-year-old woman complained of midline nodular swelling on the front of her neck, which moved up and down during swallowing. On physical examination, she had slight tremors on outstretched hands and there was slight bulging of her eyes. She also told that she had lost weight and felt feverish. She was diagnosed as a case of toxic goiter. Which layer of deep cervical fascia helps to move thyroid gland up and down during swallowing? (1)

1)	Pretracheal fascia		2)	Investing layer of deep cervical fascia		3)	Buccopharyngeal fascia		4)	Prevertebral fascia	

Long Essay Question: 10 X 1 = 10

Answer all the questions.

21 A 55 year old female complained to her family physician of hard painless lump in the upper and outer portion of her right breast. The examination of the breast revealed the peau d'orange appearance of the skin, loss of mobility of the breast and retraction of the nipple. The examination of axilla revealed the enlargement of axillary lymph nodes. She was diagnosed as a case of 'breast cancer'.
a) Describe the structure of mammary gland. (10)
b) Mention the anatomical basis of the peau d'orange appearance of skin, retraction of the nipple and loss of mobility of the breast.
c) Describe the lymphatic drainage of mammary gland. (4+3+3)

Short Essay Questions: 11 X 5 = 55

Answer all the questions.

22			Describe the boundaries and contents of sub occipital triangle.	(5)
23			A one year old child was bought with history of delayed developmental milestones with large head. There was a history of Neonatal Intensive Care Unit (NICU) admission for preterm care. On examination head circumference was 52 cm with wide open anterior and posterior fontanelle. CNS examination revealed hypertonia in lower limbs. Neuroimaging revealed dilated ventricles a) What is the diagnosis? b) Explain the floor of 4th ventricle with a neat labelled diagram. (1+4)	(5)
24			Draw and explain the microscopic structure of peripheral nerve (T.S.)	(5)
25			Describe the types of cartilaginous joints with examples.	(5)
26			A man fell from the stairs and he was taken to the hospital. On examination of the patient it was observed that there was loss of normal rounded contour of right shoulder. He had severe pain in the right shoulder. The patient was diagnosed as a case of 'Dislocation of shoulder joint'. a) Why shoulder joint is commonly dislocated? b) Describe the articular surfaces and ligaments of shoulder joint. c) Which nerve is likely to be injured in this case? (1+3+1)	(5)
27			Describe the development of face in brief. Add a note on its congenital anomalies.	(5)
28			Describe the interior of right atrium in detail.	(5)
29			A 7-year-old child is brought to the ENT clinic with complaints of nasal obstruction, mouth breathing and snoring at night. On examination, the physician suspects enlarged adenoids affecting the airway behind the nasal cavity. Where are the adenoids present? Describe the boundaries and features of that region.	(5)
30			A 40 year old woman complained of a swelling in front of her neck, nervousness and loss of weight. Her diagnosis was hyperthyroidism. Partial thyroidectomy was performed and she complained of hoarseness after the operation. a) Explain the coverings of thyroid gland b) Why does she complain of hoarseness after the operation? c) Which gland should be preserved during thyroidectomy? d) Write the relations of thyroid gland. (1+1+1+2)	(5)
31			Describe the origin, insertion, nerve supply and action of Biceps brachii muscle.	(5)
32			During the clinical posting, a junior observes senior talking disrespectfully to a poor patient who cannot afford investigations. The junior feels uncomfortable but fears raising his voice. a) What are the ethical and professional issues here? b) What options do you have as a student in this situation? c) How to report or address the behaviour constructively?	(5)

Short Answer Questions: 3 X 5 = 15

Answer all the questions.

33			Where is dangerous area of Face situated? Why is it called so?	(3)
34			Draw a neat labelled diagram of typical intercostal nerve.	(3)
35			Mention the changes of Spermatogenesis.	(3)
36			Draw diagram of microscopic structure of cardiac muscle.	(3)
37			Mention the features and cause for ape hand deformity.	(3)

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Exam Date & Time: 31-Oct-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November QP CODE: A002

Anatomy Paper 2 [ANA2]

Marks: 100 **Duration: 180 mins.**

MCQ 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 The fibular collateral ligament is the degenerated tendon of (1)

1)	Peroneus longus		2)	Tibialis anterior		3)	Medial head of Gastrocnemius		4)	Lateral head of Gastrocnemius	

2 Down's syndrome is an example of (1)

1)	Monosomy		2)	Trisomy		3)	Triploidy		4)	Polyploidy	

3 A 45-year-old male presents with increased thirst, frequent urination and unexplained weight loss. His blood investigations confirm a diagnosis of Type 2 Diabetes Mellitus. Considering the primary anatomical structure involved in insulin production, which part of the pancreas is predominantly affected in this condition leading to the destruction of beta cells? (1)

1)	Head of Pancreas		2)	Pancreatic duct		3)	Body of the Pancreas		4)	Tail of Pancreas	

4 Uterine tubes are derived from (1)

1)	Mesonephric duct		2)	Ureteric bud		3)	Paramesonephric duct		4)	Primitive urethrae	

5 A 65-year-old man presents with fecal incontinence. On examination, the perineal region is intact, but he has difficulty controlling his bowel movements. The muscle primarily responsible for maintaining fecal continence is (1)

1)	Internal anal sphincter		2)	External anal sphincter		3)	Levator ani muscle		4)	Superficial transverse perineal muscle	

6 Which type of cells line the sinusoids in the red pulp of spleen? (1)

1)	Ependymal cells		2)	Argentaffin cells		3)	Pericytes		4)	Stave cells	

7 Unlocking muscle of the knee joint is (1)

1)	Flexor digitorum longus		2)	Tibialis posterior		3)	Popliteus		4)	Flexor hallucis longus	

8 Chromaffin cells of adrenal medulla are derivatives of (1)

1)	Neural crest cells		2)	Primordial germ cells		3)	Mesenchymal cells		4)	Primitive streak cells	

9 Ligamentum teres is a content of (1)

1)	Coronary ligament		2)	Right triangular ligament		3)	Left triangular ligament		4)	Falciform ligament	

10 Cri-du-chat syndrome results from deletion of the short arm of (1)

1)	Chromosome 13		2)	Chromosome 5		3)	Chromosome 18		4)	Chromosome 4		

11		

Riedel's lobe pertains to (1)

1)	Lung		2)	Gall bladder		3)	Pancreas		4)	Liver		

12		

A 55-year-old alcoholic patient has hematemesis. Endoscopy reveals esophageal varices. What is the underlying anatomical cause? (1)

1)	Portal hypertension		2)	Inferior vena cava obstruction		3)	Hepatic artery thrombosis		4)	Superior mesenteric vein thrombosis	

13		

Inguinal hernia is caused because of persistence of (1)

1)	Processus vaginalis		2)	Cryptorchidism		3)	Ectopic testis		4)	Mullarian ducts		

14		

A 6 month male baby was brought to paediatric OPD where his mother complained that the right scrotum was empty. On physical examination, the doctors found the presence of the testis only in the left half of the scrotum and a small swelling about 1.5 cm in diameter in the inguinal region on the right side. A clinical diagnosis of Cryptorchidism was made. Cryptorchidism means (1)

1)	Duplication of testis		2)	Undescended testis		3)	Absence of testis		4)	Absence of Spermatic cord	

15		

In liver, the 'Space of Disse' is a space (1)

1)	Around the central vein		2)	Around the portal triad		3)	In between the hepatocytes		4)	Between sinusoids and hepatocytes	

16		

Urachus forms the following remnant (1)

1)	Mesonephric duct		2)	Median Umbilical ligament		3)	Lateral umbilical ligament		4)	Meckel's Diverticulum	

17		

Chromosome classification is called as (1)

1)	Colorado classification		2)	Denovo classification		3)	Robert classification		4)	Denver classification	

18		

'Macula densa' are cells of (1)

1)	Bowman's capsule		2)	Collecting duct		3)	Distal convoluted tubule		4)	Proximal convoluted tubule	

19		

A 31-year-old woman is struck by an automobile on the lateral side of her leg just below the knee. Her fibular neck is broken. After her cast is removed, she is found to have a foot drop and an inability to evert the foot. Which nerve is **most** likely injured? (1)

1)	Femoral		2)	Sciatic		3)	Tibial		4)	Deep peroneal nerve	

20		

Papillary ducts of Bellini drain into (1)

1)	Renal pelvis		2)	Major calyx		3)	Renal sinus		4)	Minor calyx	

Long Essay 10 X 1 = 10

Answer all the questions.

21		

A 27-year-old mountaineer was brought to the emergency department with swelling on the lateral part of the right ankle joint. On clinical examination, the doctor found tenderness to touch and inability to put weight on the affected ankle. After clinical and radiological examination, she was diagnosed as a case of ankle sprain. (10)

a) Describe the ankle joint under following headings:

i) Articulating surfaces

ii) Ligaments

iii) Movements

iv) Muscles producing the movements.

b) Write the anatomical basis of ankle sprain. (8+2)

Short Essay Questions 11 X 5 = 55

Answer all the questions.

22			Explain the microscopic structure of Duodenum.	(5)
23			Describe the development of kidneys and add a note on its congenital anomalies.	(5)
24			Describe the boundaries and contents of Ischiorectal fossa.	(5)
25			A 50-year-old male goes to the casualty with the complaints of pain in chest and sweating since two hours. the medical officer makes him wait as he is busy talking to his colleague. While the patient is describing his complains, the doctor keeps on interrupting him and not listening to him properly a) Identify the mistake in patient doctor communication in this scenario. b) How to correct these above mistakes. (2+3)	(5)
26			Describe the boundaries and contents of Inguinal canal. Add a note on Inguinal hernia.	(5)
27			A 19-year-old married girl residing in a tribal area was referred by a primary health worker to the civil hospital with complaints of swelling in her right femoral region. The doctor found cystic swelling below and above the inguinal ligament on physical examination. Blood tests and radio-imaging studies confirmed the diagnosis of psoas abscess a) Specify the boundaries of the femoral triangle and its contents. b) Explain the anatomical basis of the psoas abscess. c) What is the adductor canal? Write its content. (2+1+2)	(5)
28			A 3 year male child was brought to the hospital with clinical features of mental retardation. After detailed history taking, physical examination and investigations, child was diagnosed as a case of Down's syndrome by the pediatrician. a) What is the genotype in this case? b) State the causes of Down's syndrome. c) List the clinical features of Down's syndrome. (1+1+3)	(5)
29			Describe the boundaries and contents of Rectus sheath.	(5)
30			A 55-year-old chronic alcoholic presents with abdominal distension, visible veins around the umbilicus (caput medusae) and splenomegaly. Explain Portosystemic anastomoses and their clinical significance. (3+2)	(5)
31			A 58-year-old female, presents with persistent fatigue, increased thirst and urination, unexplained weight loss and occasional blurred vision. She has a history of gestational diabetes and a family history of Type 2 Diabetes. She is provisionally diagnosed with Diabetes Mellitus. a) Name the location and parts of pancrease. b) Which major structure is closely associated with the head of the pancreas? c) What are the specialized clusters of cells within the pancreas responsible for hormone production called? d) Which specific cell type within these clusters produces insulin? (2+1+1+1)	(5)
32			Write a note on Medial longitudinal arch of foot.	(5)

Short Answer Questions 3 X 5 = 15

Answer all the questions.

33			Draw and label the microscopic structure of Spleen.	(3)
34			Describe the formation and fate of cloaca.	(3)

35			Mention the causes and symptoms of sciatica.	(3)
36			Explain the causes for prolapse of uterus.	(3)
37			Explain the features of Turner's syndrome	(3)

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Exam Date & Time: 03-Nov-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November 2025 QP CODE: A003

Physiology Paper 1 [PHY1]

Marks: 100 **Duration: 180 mins.**

MCQ: 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 A 65 year old man complains of generalised weakness, dyspnoea on exertion since last 6 months. He also complains of orthopnoea. On echocardiography, his ejection fraction was found to be 28%. What is the probable diagnosis? (1)

1)	Right ventricular failure		2)	Left ventricular failure		3)	Obstructive shock		4)	Refractory shock	

2 At a fraternity party a 17-year-old male places a paper bag over his mouth and breathes in and out of the bag. As he continues to breathe into this bag, his rate of breathing continues to increase. Which of the following is responsible for the increased ventilation? (1)

1)	Increased alveolar PO_2		2)	Increased alveolar PCO_2		3)	Decreased arterial PCO_2		4)	Increased pH	

3 Two liters of 0.9% NaCl is administered to a 12 year old boy with moderate isotonic dehydration. What is the expected change in ICF volume after NaCl administration? (1)

1)	No change		2)	Increase by 0.5 liter		3)	Increase by 2 liters		4)	Decrease by 0.5 liter	

4 A young man is found comatose, having taking an unknown number of pills containing salicylates. An arterial blood sample yields the following values: pH = 7.2, HCO_3 = 14 mEq/L and PCO_2 = 40 mm Hg. This patient's acid-base status is described as (1)

1)	Metabolic acidosis		2)	Respiratory acidosis		3)	Metabolic alkalosis		4)	Respiratory alkalosis	

5 A 35 year old man has jaundice. His blood shows reticulocytosis, urinary bilirubin was absent & liver function tests were found to be normal. **Most** likely diagnosis in this case would be (1)

1)	Haemolytic jaundice		2)	Hepatic jaundice		3)	Obstructive jaundice		4)	Physiological jaundice	

6 Gap junctions are present in (1)

1)	Choroid Plexus		2)	Skeletal Muscle		3)	Renal tubular epithelium		4)	Smooth muscle	

7 Mechanism involved in fibrinolytic system is (1)

1)	Heparin		2)	Protein C and protein S		3)	Fibrinogen		4)	Vitamin K	

8 Colloidal osmotic pressure of the plasma is maximally contributed by (1)

1)	Albumin		2)	Globulin		3)	Fibrinogen		4)	Prothrombin	

9 The following test is used to measure GFR (1)

1)	Glucose		2)	Water		3)	Para-aminohippuric acid		4)	Inulin	

	clearance test			clearance test			(PAH) clearance test			clearance test		

10 Increase in the concentration of plasma potassium causes increase in the secretion of (1)

1)	Renin		2)	Aldosterone		3)	Antidiuretic hormone		4)	Angiotensin II		

11 pH of pancreatic secretion is increased by (1)

1)	Gastrin		2)	Secretin		3)	Glucagon		4)	Cholecystokinin		

12 Vomiting center is situated in the (1)

1)	Pons		2)	Hypothalamus		3)	Medulla		4)	Amygdala		

13 The second heart sound is caused by (1)

1)	Closure of AV valves		2)	Closure of Semi lunar valves		3)	First rapid filling phase of ventricle		4)	Second rapid filling phase of ventricle		

14 Gastric emptying is promoted by (1)

1)	Distension of duodenum		2)	Hyperosmolarity of duodenal chyme		3)	Presence of proteins in food		4)	Decreased secretion of cholecystokinin		

15 Tall and peaked 'T' wave is an indicator of (1)

1)	Hyperkalemia		2)	Hypokalemia		3)	Hypercalcemia		4)	Hypocalcemia		

16 Pulmonary J-receptors reflex response produce (1)

1)	Inspiration		2)	Expiration		3)	Apnoea		4)	Apneusis		

17 Type of hypoxia that occurs in obstructive respiratory disease is (1)

1)	Hypoxic		2)	Anaemic		3)	Stagnant		4)	Histotoxic		

18 Haldane effect is (1)

1)	Loading of CO2 to blood causes unloading O2		2)	Loading of O2 to blood causes unloading of CO2		3)	Loading of O2 to blood causes loading of CO2		4)	Decrease in O2 affinity of hemoglobin when pH of blood falls		

19 Maximum work of breathing is to overcome (1)

1)	Viscous resistance		2)	Airway resistance		3)	Elastic resistance		4)	Non-elastic resistance		

20 Membrane integrity of RBC is maintained mainly by (1)

1)	Hemoglobin		2)	Spectrin		3)	G-Protein		4)	Ankyrin		

Long Essay Question: 10 X 1 = 10

Answer all the questions.

21 A 49 year old businessman complains of frequent bouts of acid reflux and indigestion. He experiences burning epigastric pain on empty stomach which is relieved by intake of food or antacids. On physical examination he had epigastric tenderness. A serologic test and 13 C urea breath test were both positive, consistent with H.pylori infection. Endoscopy confirms the presence of a duodenal ulcer. (10)

a) Explain the mechanism of gastric juice secretion.
b) Describe the regulation of gastric juice secretion.
c) Add a note on gastric mucosal barrier and factors causing peptic ulcer. (3+4+3)

Short Essay Questions: 11 X 5 = 55

Answer all the questions.

22			Define BER. What is migratory motor complexes? What is their physiological significance?	(5)
23			A premature baby born in the labor room had difficulty in breathing. Baby was diagnosed to have Infant Respiratory Distress Syndrome. a) Deficiency of which substance is responsible for above condition and why? b) Explain the source composition and functions of this substance. (1+4)	(5)
24			A 25 year old boy was brought to casualty in profuse bleeding condition due to road accident. On examination pulse rate was 150/min. He was pale, cold, sweating and his blood pressure was 80/60mmHg. Duty doctor sutured the wounds and diagnosed it as a case of multiple fracture in shock a) Define shock. b) Describe the different stages of shock (1+4)	(5)
25			A 48-year-old woman complains of polyuria and polydipsia. Her urine contains no glucose. The next morning, she is weak and confused and her urine osmolarity is 80 mOsm/L. A diagnosis of Diabetes Insipidus was made. Describe the role of ADH in concentration and dilution of urine.	(5)
26			A 30 year old male presented to the OPD with malaise, tiredness & weakness. He is a known alcoholic. The laboratory finding are as follows: 1. Peripheral Smear ; showed variation in size & abnormal shape of RBCs 2. RBC Indices MCV=110 fl 3. Reticulocyte count = low 4. Haemoglobin = 6 gm % a) Identify the condition. b) Describe the factors affecting erythropoiesis (1+4)	(5)
27			Describe the properties of cardiac muscle.	(5)
28			Classify cell membrane transport mechanisms. Describe Secondary Active Transport mechanism with example. (2+3)	(5)
29			Explain Oxygen-hemoglobin dissociation curve (ODC) with the help of neat labelled diagram of an adult Hb. Mention the factors shifting the ODC to the left and right. (2+3)	(5)
30			Describe the physiological responses to hypothermia.	(5)
31			Define Immunity. Describe the mechanism of Cell Mediated Immunity. (1+4)	(5)
32			List the rights of patients in healthcare. Explain the difference between empathy and sympathy. (3+2)	(5)

Short Answer Questions: 3 X 5 = 15

Answer all the questions.

33			Give reasons why blood flow to skeletal muscles increases during exercise.	(3)
34			Give reasons why dehydration is more rapid and severe in children.	(3)
35			Reason out why the actual curve deviates from ideal curve on the graph showing relation between the plasma glucose concentration and glucose transport.	(3)
36			Explain why packed cell volume of venous blood is more than the packed cell volume of arterial blood.	(3)
37			Explain why trekkers should **NOT** ascend rapidly to peak of mountains.	(3)

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Exam Date & Time: 04-Nov-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November QP CODE: A004

Physiology Paper 2 [PHY2]

Marks: 100 **Duration: 180 mins.**

MCQ: 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 A 20-year-old healthy male undergoes a fitness assessment. His testosterone levels are within normal range and his secondary sexual characteristics are well developed. Semen analysis shows normal sperm count and motility. Which hormone primarily stimulates the Leydig cells in the testes to produce testosterone? (1)

1)	Follicle-Stimulating Hormone (FSH)		2)	Luteinizing Hormone (LH)		3)	Inhibin		4)	Gonadotropin-Releasing Hormone (GnRH)	

2 The preovulatory LH and FSH surge is caused by a positive effect of (1)

1)	Estradiol		2)	Melatonin		3)	Prolactin		4)	Endorphine	

3 Which of the following triggers the onset of labour? (1)

1)	ACTH in the fetus		2)	ACTH in mother		3)	Oxytocin		4)	Prostaglandins	

4 Oestrogen acts on

1)	Cellular Membrane Receptors		2)	Cytoplasmic Receptors		3)	Nuclear Receptors		4)	Mitochondrial Receptors	

(1)

5 A student doing a sensory test notes that after prolonged exposure to a strong perfume, they stop noticing the smell. Which physiological phenomenon explains this reduced perception of odor? (1)

1)	Lateral inhibition		2)	Neural fatigue		3)	Sensory adaptation in olfactory receptors		4)	Increased action potential frequency	

6 Bending of the hairs away from kinocilium results in (1)

1)	Depolarization		2)	Hyperpolarization		3)	Repolarization		4)	No change	

7 **Most** of the refraction that occurs in the eye occurs at the

1)	Anterior surface of cornea		2)	Posterior surface of cornea		3)	Posterior surface of lens		4)	Anterior surface of the lens	

(1)

8 A student travels across multiple time zones and experiences difficulty sleeping at night and staying awake during the day. Which hormone secreted by the pineal gland regulates circadian rhythms and sleep-wake cycles? (1)

1)	Cortisol		2)	ADH		3)	Oxytocin		4)	Melatonin	

9 Which of the following hormones does **NOT** need a second messenger?

1)	Follicle stimulating hormone		2)	Luteinizing hormone		3)	Glucagon		4)	Oestrogen	

(1)

10 A young man presents with a blood pressure of 174/110 mmHg. He is found to have a high circulating aldosterone but a low circulating cortisol. Glucocorticoid treatment lowers his circulating aldosterone & (1)

lowers his BP to 140/86 mmHg. He probably has an abnormal

1)	17α-hydroxylase		2)	21 β-hydroxylase		3)	Aldosterone synthase		4)	Cholesterol demolase	

11 In the typical reaction of fight or flight there is

1)	Slowing of the heart rate		2)	Fall of blood pressure		3)	Dilatation of the pupils		4)	Relaxation of anal & urethral sphincters	

(1)

12 Cortisol causes all of the following **EXCEPT**

1)	Increase in blood glucose		2)	Anti-inflammatory action		3)	Decrease in blood glucose		4)	Anti-allergic action	

(1)

13 During a practical class, a student tests the patellar tendon reflex on a classmate by tapping below the knee-cap. The leg extends in response. Which of the following **best** describes the neural pathway responsible for this reflex?

1)	Monosynaptic reflex involving only interneurons		2)	Polysynaptic reflex involving motor cortex		3)	Monosynaptic reflex involving sensory and motor neurons only		4)	Reflex arc with cerebellar modulation	

(1)

14 Modality that is lost on opposite side in Brown Sequard Syndrome is

1)	Pain		2)	Fine touch		3)	Proprioception		4)	Tactile discrimination	

(1)

15 REM sleep is characterized by

1)	High-voltage, low-frequency EEG activity		2)	Elevated threshold for arousal by sensory stimuli		3)	Increased tone of skeletal muscles in the neck		4)	Increasing proportion of the total sleep time from infancy to adulthood	

(1)

16 Circadian rhythm is controlled by which nuclei of hypothalamus?

1)	Paraventricular		2)	Ventromedial		3)	Arcuate		4)	Suprachiasmatic	

(1)

17 Decerebrate rigidity can be produced experimentally by a lesion at

1)	Mid-collicular level		2)	Cerebral cortex		3)	Medulla		4)	Cerebellum	

(1)

18 A student slowly lifts a heavy backpack from the floor. Initially, smaller muscles are activated, followed by larger ones. This pattern of recruitment is **best** explained by

1)	Decreased acetylcholine release		2)	The size principle of motor unit recruitment		3)	Inhibition of smaller motor units		4)	Reciprocal inhibition	

(1)

19 Nerve fibers involved in proprioception are

1)	Type A fiber		2)	Type B fiber		3)	Type C fiber		4)	Type D fiber	

(1)

20 A traveling nerve impulse does **NOT** depolarize the area immediately behind it, because

1)	It is hyperpolarized		2)	It is refractory		3)	It is not self-propagating		4)	The condition is always orthodromic	

(1)

Long Essay Question: 10 X 1 = 10

Answer all the questions.

21 A 14-year-old boy is brought to the clinic due to unusually rapid growth. His height is well above the 97th percentile. He has large hands and feet, prominent facial bones and his limbs appear disproportionately long. Laboratory investigations reveal elevated plasma Growth Hormone (GH) and insulin-like growth factor 1 (IGF-1). X-rays show that the epiphyseal growth plates are still open. (10)

a) Describe the normal physiological role of growth hormone in linear growth and metabolism. Name the disorders resulting from excess and low GH hormone secretion.

b) Explain direct and indirect actions of growth hormone.
c) Describe the regulation of GH secretion (3+5+2)

Short Essay Questions: 11 X 5 = 55

Answer all the questions.

22			A 40-year-old male patient, is diagnosed with a condition that affects the function of his neuroglia. His doctor explains that neuroglia play a crucial role in supporting and maintaining the health of neurons. a) Describe the different types of neuroglia and explain the functions of each type. b) What are the consequences of impaired neuroglial function? (4+1)	(5)
23			Describe the sliding filament theory of muscle contraction, including the role of actin and myosin filaments.	(5)
24			A 30 year old man was brought to the emergency department with history high speed motor vehicle accident. He is conscious but motor functions are lost. Doctor mentioned the level of lesion is T10. Describe the stages seen in spinal cord injury.	(5)
25			Describe the mechanism of temperature regulation on exposure to hot & cold environment.	(5)
26			Define synapse. Explain any **four** properties of synapses.	(5)
27			A 25-year-old patient is experiencing difficulty adjusting to changes in lighting and is having trouble seeing in low-light conditions. Explain the physiological mechanisms underlying dark adaptation. Describe how abnormalities in dark adaptation can lead to difficulties with night vision. (3+2)	(5)
28			Describe the Olfactory Pathway.	(5)
29			Discuss whether students benefit from early clinical exposure to have empathetic responses in their training for clinical postings.	(5)
30			A 50-year-old male patient is diagnosed with hypothyroidism and is prescribed levothyroxine (T4) replacement therapy. Explain the physiological mechanisms underlying hypothyroidism. Describe the physiological basis of clinical features in hypothyroidism. (2+3)	(5)
31			Write the pregnancy tests and explain the physiological basis for pregnancy tests.	(5)
32			A 35-year-old female patient is seeking emergency contraception and is considering options. Explain the physiological mechanisms underlying emergency contraception and the regulation of ovulation and implantation.	(5)

Short Answer Questions: 3 X 5 = 15

Answer all the questions.

33			Why reading or doing close work becomes progressively difficult with advancing age?	(3)
34			Explain why cerebellar lesions affect the same side of the body?	(3)
35			Why is the placenta essential for fetal development during pregnancy?	(3)
36			Glucocorticoids have hyperglycemic effect, why?	(3)
37			Why does resting membrane potential of a neuron remains negative despite the positively charged ions inside and outside the cells?	(3)

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Exam Date & Time: 06-Nov-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November 2025 QP CODE: A005

BiochemistryPaper 1 [BIO1]

Marks: 100 **Duration: 180 mins.**

MCQ: 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 Feedback inhibition of enzymes is influenced by the following factor (1)

1)	Enzyme	2)	External factors	3)	End product	4)	Substrate

2 A new born baby has severe abdominal distention and diarrhoea after being breast fed, Urine analysis revealed presense of reducing sugar. What is the defect? (1)

1)	Lactose intolerance	2)	Galactasemia	3)	Hereditary fructose intolerance	4)	Glycosuria

3 A middle-aged obese woman comes with complaints of pain in the right hypochondriac region and passing bulky foul-smelling pale-coloured stools. She was diagnosed as obstructive cholelithiasis. What is the reason for pale bulky stools in this case? (1)

1)	Deficiency of enzymes needed for fat digestion	2)	Deficiency of bile salts needed for fat digestion	3)	Deficiency of phospholipids needed for fat digestion	4)	Deficiency of brush borders of mucosal cells

4 Edema occurs due to lack of albumin in (1)

1)	Obesity	2)	Marasmus	3)	Kwashiorkor	4)	None of the above

5 A 40 year old vegetarian male complains of fatigue, tingling and numbness in his extremities. On examination he was found to have pallor & tachycardia. Peripheral blood smear shows large blood cells. **Most** probable diagnosis is (1)

1)	Vitamin B12 deficiency	2)	Vitamin C deficiency	3)	Niacin deficiency	4)	Thiamine deficiency

6 ATP synthase is marker enzyme for which of the following cell organelle? (1)

1)	Lysosome	2)	Ribosomes	3)	Golgi complex	4)	Mitochondria

7 Following is an example for polyunsaturated fatty acid (1)

1)	Stearic acid	2)	Palmitic acid	3)	Oleic acid	4)	Propionic acid

8 Following is an example of group transferring coenzyme (1)

1)	NAD^+	2)	$NADP^+$	3)	FAD	4)	PLP

9 The phospholipid that produces second messenger in hormonal action is (1)

1)	Phosphatidyl Lecithin	2)	Plasmalogens	3)	Phosphatidyl Inositol	4)	Phosphatidyl Ethanolamine

10 A young women aged 22 year comes for routine health checkup. Height 1.75 meters, weight 120 kgs According to her Body Mass Index, Which of the following category the case belongs to? (1)

1)	Normal		2)	Overweight		3)	Obese		4)	Morbidly Obese	

11 Gluconeogenesis can proceed from all of the following substrates, **EXCEPT** (1)

1)	Lactate		2)	Palmitic acid		3)	Propionyl CoA		4)	Glycerol	

12 Serum lipase level increases in which of the following disease? (1)

1)	Paget's disease		2)	Gaucher's disease		3)	Acute pancreatitis		4)	Myocardial Infarction	

13 β-oxidation of fatty acids occurs in which of the following organelle? (1)

1)	Cytosol		2)	Matrix of the mitochondria		3)	Endoplasmic reticulum		4)	Golgi apparatus	

14 Following is the value of Specific Dynamic Action (SDA) for Proteins (1)

1)	5%		2)	15%		3)	20%		4)	30%	

15 Which of the following is carcinogenic? (1)

1)	Curcumin		2)	Vitamin A		3)	X-rays		4)	Fiber diet	

16 Blood is collected in fluoride oxalate bulb (tube) during the estimation of blood glucose to (1)

1)	Prevent clotting		2)	Preserve glucose		3)	Preserve glucose and prevent clotting		4)	Get quick results	

17 Marker for prostate cancer is (1)

1)	Beta HCG		2)	ALP (Alkaline Phosphatase)		3)	PSA (Prostate Specific Antigen)		4)	Rb gene	

18 A woman was told by her physician to go on a low-fat diet. She decided to continue to consume the same number of calories by increasing her carbohydrate intake while decreasing her fat intake. Which of the following blood lipoprotein levels would be **decreased** as a consequence of her diet? (1)

1)	Chylomicrons		2)	Very Low-Density Lipoproteins		3)	Low Density Lipoproteins		4)	High Density Lipoproteins	

19 By which of the following mechanism an enzyme acts? (1)

1)	Reducing the energy of activation		2)	Increasing the pH		3)	Increasing the energy of activation		4)	Decreasing the pH	

20 Renal threshold for glucose is decreased in which of the following condition? (1)

1)	Diabetes mellitus		2)	Insulinoma		3)	Renal glycosuria		4)	Alimentary glycosuria	

Long Essay Question: 10 X 1 = 10

Answer all the questions.

21 A 50-year-old male patient visited the physician with complains of increased appetite, thirst and high frequency of urination. On clinical examination it was found that he was having diminished pulse in the right foot with gangrene of the right toe. Laboratory investigations were as follows:
i) Fasting Blood Glucose - 526mg/dL
ii) pH - 7.30
iii) Urine Benedict's test - Positive.
iv) Urine Rothera's test - Negative
a) What is the likely diagnosis?
b) Discuss the biochemical basis of signs and symptoms in the present case.
c) List the microvascular and macrovascular complications associated with this condition. (1+5+4) (10)

Short Essay Questions: 11 X 5 = 55

Answer all the questions.

22			A four year old boy is brought with complaints of delayed growth, delayed closure of anterior fontanelle, bowing of legs and pigeon chest. The serum calcium level was found to be low (8 mg%). a) Mention the probable diagnosis along with the deficient vitamin. b) Describe the sources & RDA of the deficient vitamin. c) Briefly describe the biochemical functions of this vitamin. (1+1+3)	(5)
23			A 32-year-old chronic alcoholic comes with history of vague pain in right upper abdomen. His diet has been erratic in timing and quality. Blood investigations revealed elevated triglycerides and ultrasound abdomen showed grade II fatty liver. a) Discuss the biochemical basis of development of fatty liver. b) What are lipotropic factors? Give **two** examples. (3+2)	(5)
24			A general surgeon completes his training in advanced laproscopic surgery so that the time of stay in the hospital is reduced for his patients. Mention the role of Indian Medical Graduate which is highlighted in this scenario. Enlist the other roles of Indian Medical Graduate. (1+4)	(5)
25			Define Mucopolysaccharides. Name any **four** and explain their biological significance. (1+4)	(5)
26			Define Oxidative Phosphorylation. Discuss the chemiosmotic coupling theory. (1+4)	(5)
27			A 25-year-old male presents with complains that his stools are painful to pass and hard in consistency, since he shifted to hostel about 6 months back. Dietary history reveals he is consuming more of bakery products and rice. On examination there is was tenderness in left iliac fossa. Diagnosed as a case of constipation a) What dietary advice is given to the above patient. b) Enumerate soluble and insoluble dietary fibres present in a balanced diet. (2+3)	(5)
28			Outline the steps for synthesis of cholesterol. Discuss the regulation of synthesis of cholesterol. (3.5+1.5)	(5)
29			A post graduate student, had been experiencing occasional discomfort after meals. The discomfort reached a new peak an hour after consuming a cheeseburger and a large chocolate milk shake. She spent much of that night in pain. She had abdominal cramps and diarrhoea. She consulted a doctor the next day. a) What is the probable diagnosis and enzyme defect? b) Explain why there is abdominal cramps and diarrhoea. c) What is the dietary advice given here? (2+2+1)	(5)
30			Classify enzymes based on IUBMB system. Give **two** examples for each enzyme class	(5)
31			Describe the enzyme profile in Myocardial Infarction.	(5)
32			Define Tumor markers. Enumerate **four** tumor markers with the associated malignancy. (1+4)	(5)

Short Answer Questions 3 X 5 = 15

Answer all the questions.

33			Vitamins are very essential for the smooth operation of TCA cycle. Justify.	(3)
34			Statins are used to treat hypercholesterolaemia. Give reason.	(3)
35			Alcohol consumption leads to hypoglycaemia. Give reason.	(3)
36			Methotrexate is used as an anticancer drug and Trimethoprim as an antibiotic. Give reasons.	(3)
37			Streptokinase is used to treat Myocardial Infarction and Pulmonary embolism. Give reason.	(3)

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Exam Date & Time: 07-Nov-2025 (09:30 AM - 12:30 PM)

KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH

MBBS Phase - I Degree Examination
October-November 2025 QP CODE: A006

Biochemistry Paper 2 [BIO2]

Marks: 100 **Duration: 180 mins.**

MCQ 20 X 1 = 20

Answer all the questions. Section Duration: 30 mins

1 The following is the normal haemoglobin derivative found in blood (1)

1)	Carboxyhaemoglobin		2)	Deoxyhaemoglobin		3)	Sulfhemoglobin		4)	Cyanmetahemoglobin	

2 A 2-day-old newborn is being breastfed by his mother. She is told that colostrum has protective components in it. Which of the following is the major antibody responsible for this mucosal immunity in colostrum? (1)

1)	IgG		2)	IgM		3)	IgA		4)	IgE	

3 Chief anion of ECF is (1)

1)	Sodium		2)	Potassium		3)	Hydrogen sulphate		4)	Chloride	

4 Factors favouring Calcium absorption include all **EXCEPT** (1)

1)	Low gastric pH		2)	Lysine		3)	Oxalates		4)	Vitamin D	

5 A 50-year-old man presents with fatigue, arthralgia and bronze skin pigmentation. Laboratory reports show elevated serum iron, transferring saturation >60% and high ferritin. What is the **most** likely diagnosis? (1)

1)	Hemochromatosis		2)	Anemia of chronic disease		3)	Thalassemia major		4)	Sideroblastic anemia	

6 A base substitution that causes regular codon to change into another codon that codes for different amino acid is said to be (1)

1)	Non-sense mutation		2)	Silent mutation		3)	Missense mutation		4)	None of the above	

7 The presence of bilirubin in the urine **without** urobilinogen suggests (1)

1)	Obstructive jaundice		2)	Haemolytic jaundice		3)	Pernicious anemia		4)	Hepatic jaundice	

8 Identify the clinical condition where **most** cases arise from a defect in the genes encoding type I collagen, bones are thin, osteoporotic, often bowed with a thin cortex and deficient trabeculae and extremely prone to fracture (1)

1)	Ehlers-Danlos syndrome		2)	Osteogenesis imperfecta		3)	Marfan's syndrome		4)	Scurvy	

9 A 2-day-old neonate presents with lethargy, vomiting and rapid breathing. Blood tests reveal hyperammonemia . Plasma amino acid analysis shows elevated glutamine and alanine, with very low citrulline levels. Which enzyme in the urea cycle is deficient in this case? (1)

1)	Arginosuccinate synthetase		2)	Arginosuccinate lyase		3)	Ornithine transcarboxylase		4)	Carbamoyl phosphate synthetase I		

10			The following is **NOT** a substrate for transmethylation reaction (1)

1)	Guanido acetic acid		2)	Choline		3)	Nor epinephrine		4)	N-acetyl serotonin	

11			Which one of the following enzymes is associated with salvage pathway of purine nucleotide synthesis? (1)

1)	PRPP synthetase		2)	Cyclohydrolase		3)	HGPRTase		4)	Ribonucleotide reductase	

12			The serum level of which of the following enzyme is elevated in obstructive jaundice? (1)

1)	Pancreatic Lipase		2)	Creatine Kinase		3)	Alkaline phosphatase		4)	Both 1 and 2	

13			Which of the following amino acid when metabolised forms a vitamin? (1)

1)	Tyrosine		2)	Tryptophan		3)	Glutamic acid		4)	Histidine	

14			A 35-year-old male with chronic alcoholism presents with delayed wound healing, hypogeusia (altered taste) and brittle nails. What micronutrient deficiency is likely in this case? (1)

1)	Iron		2)	Vitamin A		3)	Zinc		4)	Vitamin C	

15			Xeroderma pigmentosa occurs due to defect in (1)

1)	Mismatch repair		2)	Base excision repair		3)	Nucleotide excision repair		4)	Double strand break repair	

16			Which of the following acts as a source for sulphate in detoxification reactions? (1)

1)	Sulphuric acid		2)	Hydrogen sulphide		3)	Methionine		4)	Phosphoadenosine phosphosulfate (PAPS)	

17			The promoter elements are present on the (1)

1)	Template strand of DNA		2)	Coding strand of DNA		3)	hnRNA		4)	mRNA	

18			Metabolic alkalosis can occur in (1)

1)	Recurrent vomiting		2)	Pneumonia		3)	Prolonged starvation		4)	Hysterical hyperventilation	

19			The interconnecting bonds that connect nucleotides of RNA or DNA are termed as (1)

1)	N-glycosidic bonds		2)	Phosphoanhydride bonds		3)	3'-5' phosphodiester linkages		4)	Peptide bonds	

20			Failure of post-translational modifications of collagen occurs in deficiency of (1)

1)	Ascorbic acid		2)	Retinol		3)	Thiamine		4)	Calcitriol	

Long Essay Question: 10 X 1 = 10

Answer all the questions.

21			A one and half year-old male child was brought to the casualty following an attack of generalized convulsions. Child was found to have delayed mile stones and mental retardation. A tendency for hypopigmentation of skin associated with eczema and mousy odour of body and urine was observed. Screening of blood and urine for various metabolic disorders showed: Blood phenyl alanine = 20 mg/dL (normal range - 1 mg/dL) Urine ferric chloride test: Transient blue green colour, Guthrie's screening test: Positive. (10) a) Mention the probable diagnosis and the defective enzyme in the above condition. b) Outline the metabolic pathway of the primary compound associated with this disorder. c) List the biochemically important compounds synthesized from the metabolism of primary compound. (2+5+3)

Short Essay Questions: 11 X 5 = 55

Answer all the questions.

22			A 16 year old girl presented to the physician with yellowish discoloration of sclera. She was earlier diagnosed as having sickle cell disease. The following are some biochemical findings in the patient. Total bilirubin: 10 mg/dL (0.2-1 mg/dL) Conjugated bilirubin: 0.5 mg/dL (0.1-0.4 mg/dL) Unconjugated bilirubin: 9.5 mg/dL (0.2-0.7mg/dL) Serum alkaline phosphatase: 40 IU/L(40-125 IU/L) AST: 18 IU/L (8-20 IU/L) ALT: 20 IU/L (13-35 IU/L) Urine: Bile pigments: Negative; Bile salts: Negative; Urobilinogen: +++ (Excess); Faeces-Stercobilinogen: +++ (Positive) a) Mention the type of jaundice the girl is suffering from? b) What is the reason for this type of Jaundice in this case? c) Mention **two** other causes for this type of Jaundice (1+2+2)	(5)
23			Define Trace elements. Name **two** trace elements along with their associated disorder. (1+4)	(5)
24			A 18 year old female patient presents to the emergency department with complaints of dizziness, tingling in her fingers and lightheadedness for the past few hours. She mentions that she had a stressful day due to upcoming exams and has been experiencing episodes of rapid breathing. She denies any chest pain, palpitations or recent illness.There is no history of medication or drug use. Vital Signs: Blood pressure: 110/70 mmHg, Heart rate: 95 bpm, Respiratory rate: 28 breaths per minute. Laboratory Investigations: Arterial Blood Gas (ABG) analysis: - pH: 7.48 - $PaCO_2$: 25 mmHg - HCO_3^-: 22 mEq/L a) Mention the Arterial Blood Gas Disorder. b) Interpret the Arterial Blood Gas findings c) Mention other **two** causes for this condition. (1+2+2)	(5)
25			Define Biotransformation. Discuss the Phase I and Phase II reactions of biotransformation.	(5)
26			Describe the transamination and oxidative deamination with reactions. (2.5+2.5)	(5)
27			A 32-year-old woman presents with fatigue, pallor and occasional dizziness. She mentions heavy menstrual periods. On examination, she has brittle nails and pale conjunctiva. She was asked to get the following investigations and the report is as follows: Haemoglobin: 8 g/dL (13-15 g/dL), Mean Corpuscular Volume (MCV): 72 fL (80-100 fL), Serum ferritin: 10 µg/dL (2-12µg/dL) Total Iron Binding Capacity (TIBC): 550 µg/L (300-400 µg/L), Serum Iron: 35µg/dL (100-150 µg/dL) a) What is the probable diagnosis? b) Mention the causes for this type of Anaemia. c) What could be the cause for increased Total Iron Binding Capacity (TIBC) in this type of Anaemia? (1+2+2)	(5)
28			Outline heme degradation with a neat labelled diagram. Name the key regulatory enzyme. (4+1)	(5)
29			A jewellery store in downtown of a city was burglarized late at night. The thief disabled the security cameras, but forensic team found a bloodstain on a broken glass of display case, hair at window and saliva on half eaten apple. The following material was sent to forensic laboratory for analysis. The police suspect three individuals with prior burglary records. However, no eyewitnesses or camera footage are available to confirm the identity of the thief. a) Name the molecular biology technique commonly used in forensic laboratory to solve such cases. b) Briefly describe the technique used in solving the above case. (2+3)	(5)
30			The risk benefit analysis of a surgical procedure is explained by the Doctor to the Patient. Mention the role of the Indian Medical Graduate which is highlighted in this scenario. Describe any other **two** roles of an Indian medical graduate with examples for each.	(5)
31			A 3 year old boy presents with developmental delay and self-injurious behavior. Upon examination, he exhibits choreoathetoid movements and signs of spasticity. The parents report noticing the child's tendency to bite his lips and fingers, resulting in self-mutilation. Blood examination reveals increased uric acid levels.	(5)

a) What is the probable diagnosis?
b) Outline the pathway affected in this disorder. (1+4)

32			Define Primary Transcript. Describe the post transcriptional modifications of primary transcript to mRNA. (1+4)	(5)

Short Answer Questions: 3 X 5 = 15

Answer all the questions.

33			Justify why is fluoride considered both beneficial and toxic depending on its concentration?	(3)
34			Justify the statement "DNA replication is semiconservative"	(3)
35			Excessive intravenous hypotonic solution infusion leads to cerebral edema. Give reason.	(3)
36			Aspartame, a dipeptide is used as artifical sweetner. Justify.	(3)
37			Justify the use of Allopurinol in the treatment of gout.	(3)

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