

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 16-Jan-2026

Time: Three Hours

Max. Marks: 100

ANATOMY – PAPER - I (RS-4, RS-5 & RS-6)

Q.P. CODE: 1020

(QP Contains two pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. A 72-year-old male is admitted to the hospital with complaints of severe chest pain radiating to his left arm. ECG examination provides evidence of significant myocardial infarction of the posterior wall of the Right ventricle. Explain why the pain radiated to left arm in this condition? Describe the external features, interior and blood supply of Right ventricle of the heart.
2. Explain the attachments, nerve supply and actions of extraocular muscles of eyeball

SHORT ESSAYS

8 x 5 = 40 Marks

- 3.1. A 40-year-old patient is diagnosed with breast cancer, and further investigations reveal that the cancer has spread to the lymph nodes located in the axilla. Describe the location, afferent and efferent lymphatics and area of drainage of Axillary lymph nodes
- 4.2. Describe the Elbow joint under the subheadings of type of joint, bones forming, ligaments, movements and muscles causing them
- 5.3. Describe the mediastinal surfaces of Right and Left lung
6. Describe the parts and relations of Thyroid gland. Explain why thyroid swellings move with deglutition
7. Describe the parts and blood supply of Internal Capsule. Add a note on its applied anatomy
8. Describe the formation and fate of Somites
9. Compare and contrast microscopic structure of skeletal and cardiac muscle
10. Describe the boundaries and recesses of Third ventricle

SHORT ANSWERS

10 x 3 = 30 Marks

11. Explain the formation and termination of Cephalic vein
12. List the boundaries and contents of Quadrangular space
13. Draw a neat labelled diagram of Bicuspid valve complex
14. Mention any two atypical features of Axis and any two ligaments attached to it.
15. Explain the formation of carotid sheath and enumerate its contents
16. Mention the blood supply and nerve supply of larynx above and below vocal cords
17. Classify the white matter of cerebrum with examples
18. Classify Cartilaginous joints with examples
19. Differentiate capillaries and sinusoids with examples
20. Classify the intraembryonic mesoderm. List one derivative from each of the subdivision

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) Which of the following two structures are likely to be injured in fracture of midshaft of humerus
A. Radial nerve and Profunda Brachial artery
 B. Musculocutaneous nerve and Anterior circumflex humeral artery
 C. Axillary nerve and posterior circumflex humeral artery
 D. Suprascapular nerve and Suprascapular artery
- 21 ii) Metamorphosis of spermatids to spermatozoa is known as
 A. Spermatocytosis
 B. Spermiogenesis
 C. Mitosis
 D. Meiosis
- 21 iii) What does simple columnar epithelial tissue refer to? Tissue with _____
 A. A single layer of cells whose length is more than width
 B. A single layer of cells whose length, breadth and depth are about the same size.
 C. Several layers of cells, all of the same type.
 D. Several layers of cells but without a basement membrane.
- 21 iv) Which plane of the body divides it into dorsal and ventral regions?
 A. Transverse
 B. Axial
 C. Coronal
 D. Sagittal
- 21 v) Which of the following may compress the esophagus?
 A. Arch of aorta
 B. Right main bronchus
 C. Left vagus nerve
 D. Right brachiocephalic vein
- 22 i) Which of the following list best describes the pathway of tears from the lacrimal glands to the nasal cavity?
 A. Lacrimal ducts . . . lacrimal canaliculi . . . Lacrimal sac . . . Nasolacrimal duct
 B. Lacrimal ducts . . . lacrimal sac . . . lacrimal canaliculi . . . nasolacrimal duct
 C. Lacrimal canaliculi . . . lacrimal ducts . . . Lacrimal sac . . . Nasolacrimal duct
 D. Lacrimal canaliculi . . . lacrimal sac . . . lacrimal ducts . . . nasolacrimal duct
- 22 ii) An epidural hematoma consists of blood from which vessel?
 A. Vertebral artery
 B. Internal carotid artery
 C. Middle meningeal artery
 D. Cerebral veins
- 22 iii) Which of the following cells have centrally placed nucleus
 A. Columnar cell
 B. Skeletal Muscle
 C. Adipose cell
 D. Cuboidal cell
- 22 iv) The meeting point of Coronal and Sagittal suture is known as
 A. Inion
 B. Pterion
 C. Glabella
 D. Bregma
- 22 v) Which of the following arteries accompanies the Phrenic nerve in Middle mediastinum
 A. Pericardiophrenic artery
 B. Musculophrenic artery
 C. Superior Phrenic artery
 D. Inferior Phrenic artery

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MBBS Phase – I (CBME) Degree Examination - 19-Jan-2026

Time: Three Hours

Max. Marks: 100

ANATOMY – PAPER - II (RS-4, RS-5 & RS-6)

Q.P. CODE: 1021

(QP contains two pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. Describe the femoral triangle under the subheadings of boundaries, contents and applied aspects.
2. A 40-year-old patient presents with recurrent episodes of abdominal pain, diarrhea and weight loss. Upon examination, it is found that the patient has inflammation and ulceration in the Rectum.
 - Describe the relations, interior, blood supply and nerve supply of Rectum

SHORT ESSAYS

8 x 5 = 40 Marks

- 3.1. Describe the bones forming, ligaments and relations of ankle joint
- 4.2. Explain the parts, attachments, contents and relations of root of mesentery
- 5.3. Describe the relations of Liver
6. Describe the second part of duodenum in relation to features in the interior, relations and blood supply
7. A 40-year-old patient presents with severe abdominal pain, nausea, and vomiting. Upon examination, it is found that the patient has rebound tenderness and guarding at the Mc Burney's point.
 - a) Which viscera is infected in this patient?
 - b) Explain its parts, positions and blood supply
8. Compare and contrast Autosomal dominant and X linked dominant inheritance
9. Describe the microscopic structure of Ovary
10. Describe the development of Pancreas. Add a note on its developmental anomalies

SHORT ANSWERS

10 x 3 = 30 Marks

11. Mention the structures passing deep to superior and inferior extensor retinacula of foot
12. Draw a neat labelled diagram showing ventral and lateral branches of abdominal aorta
13. **Mention the fate of Pampiniform plexus of veins of testis**
14. List the contents of Deep perineal pouch
15. Name the true ligaments of Uterus
16. Explain Robertsonian translocation with example
17. List the histological differences between ileum and appendix
18. Draw a neat labelled diagram of microscopic structure of fundus of stomach
19. Mention peritoneal derivatives of dorsal and ventral mesogastrium
20. Enumerate the derivatives of mesonephric duct in males and females

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) Which of the following ligaments is attached to fovea of head of femur
 A. Ilio femoral ligament
 B. Pubofemoral ligament
 C. Capsular ligament
 D. Ligamentum Teres
- 21 ii) The long axis of Spleen passes through which of the following Ribs _____
 A. 8th
 B. 9th
 C. 10th
 D. 11th
- 21 iii) Which of the following lobes of the prostate gland is related to internal urethral orifice?
 A. Posterior
 B. Lateral
 C. Anterior
 D. Median
- 21 iv) Which of the following organs is rich in reticular fibres
 A. Stomach
 B. Liver
 C. Ileum
 D. Colon
- 21 v) What is the most likely embryologic explanation for double uterus?
 A. Cryptorchidism
 B. Regression of the pronephros
 C. Complete fusion of the paramesonephric ducts
 D. Incomplete fusion of the paramesonephric ducts
- 22 i) Which of the following is the Karyotype of Turner's syndrome?
 A. 45, X0
 B. 46, X0
 C. 47, XXY
 D. 47, XYY
- 22 ii) Key muscle of the Gluteal region is
 A. Gluteus Maximus
 B. Gluteus medius
 C. Piriformis
 D. Quadratus femoris
- 22 iii) Which of the following arteries is found in right free margin of lesser omentum?
 A. Common hepatic artery
 B. Proper hepatic artery
 C. Superior mesenteric artery
 D. Splenic artery
- 22 iv) Which of the following is the most common position of the uterus?
 A. Ante flexed and retroverted
 B. Retroflexed and anteverted
 C. Ante flexed and anteverted
 D. Retroflexed and retroverted
- 22 v) Von Ebner glands are serous glands that drain into which of the following papillae of tongue
 A. Filiform
 B. Fungiform
 C. Foliate
 D. Circumvallate

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MBBS Phase – I (CBME) Degree Examination - 21-Jan-2026

Time: Three Hours

Max. Marks: 100

PHYSIOLOGY – PAPER - I (RS-4, RS-5 & RS-6)

Q.P. CODE: 1022

(QP contains two pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. Describe intrinsic pathway of coagulation. Classify anticoagulants. Explain the action of Heparin as an anticoagulant. Add a note on Christmas disease
2. A patient with h/o severe vomiting and diarrhea since 2 days was brought to the hospital in unconscious state. On examination, pulse rate was 104/min and thready pulse, skin as pale, BP was 80/56 mmHg.
 - a) What is your diagnosis?
 - b) Define and classify Shock
 - c) Describe the stages of Shock

SHORT ESSAYS

8 x 5 = 40 Marks

3. Classify body fluid compartments. Describe measurement of any one compartment
4. Explain the mechanism of cell mediated immunity.
5. Name the different types of heart blocks and explain in brief.
6. **Describe the role of peripheral chemoreceptors in regulation of respiration**
7. Explain micturition reflex. What is the reason for plateau phase noted in cystometrogram?
8. A patient came with a h/o pain abdomen, loss of appetite, fatigability, yellowish discoloration of skin and passing of clay colored stools.
 - a) What is your diagnosis?
 - b) What is the reason or yellowish discoloration of skin and clay colored stools?
 - c) Enlist the functions of bile salts
9. Describe the phases of cardiac action potential with ionic basis
10. Explain the basis for physiological changes noted at high altitude

SHORT ANSWERS

10 x 3 = 30 Marks

11. Enlist the complications of hemolytic disease of newborn.
12. Explain Reynold's number and its significance.
13. Why intrapleural pressure is negative? Write its normal range.
14. What is Achalasia cardia?
15. State the features of stagnant hypoxia
16. Enlist the actions of Secretin
17. What is aldosterone escape?
18. What is Asphyxia? Name a cause for it.
19. Enlist the factors affecting glomerular filtration rate.
20. What are the components and functions of Enteric nervous system?

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i)21 Obligatory urine volume, considering a maximum urine osmolality of 1200mOsm/L is
- 0.5 L/day
 - 1 L/day
 - 1.5 L/day
 - 2 L/day
- 21 ii)22 Which is the major site of reabsorption of bicarbonate?
- Proximal tubule
 - Descending limb of loop of Henle
 - Ascending limb of loop of Henle
 - Distal tubule
- 21 iii)23 Which neurotransmitter is primarily involved in stimulating acid secretion during the cephalic phase?
- Acetylcholine
 - Dopamine
 - Serotonin
 - Histamine
- 21 iv) Which of the following gases is used to measure the diffusing capacity of the lungs?
- Nitrogen
 - Argon
 - Carbon monoxide
 - Carbon dioxide
- 21 v) Which of the RBC indices best differentiates megaloblastic anemia from iron deficiency anemia?
- Mean corpuscular volume
 - Mean corpuscular hemoglobin
 - Mean corpuscular hemoglobin concentration
 - Mean corpuscular width
- 22 i)21 What is the normal level of albumin in the blood?
- 0.3-0.7 g/dL
 - 3.5-5.5 g/dL
 - 1.5-4.5 g/dL
 - 10-50 g/dL
- 22 ii)21 Which of the following durations is normal for the P-R interval?
- 0.04 to 0.08 s
 - 0.08 to 0.16 s
 - 0.12 to 0.2 s
 - 0.16 to 0.24 s
- 22 iii) Which of the following statements is true of the conducting system of the heart?
- Conduction is slower than through cardiac muscle
 - Prevents delay of impulse from atria to ventricle
 - Excites almost all ventricular muscles together
 - Prevents the heart from beating fast
- 22 iv) Which of the following causes increase in both GFR and renal plasma flow?
- Increased plasma colloid osmotic pressure
 - Dilatation of afferent arterioles
 - Constriction of afferent arterioles
 - Increased tubular pressure
- 22 v) Macula densa in kidney is located in relation to
- Proximal Convoluted Tubule
 - Distal Convoluted Tubule
 - Afferent arteriole
 - Efferent arteriole

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MBBS Phase – I (CBME) Degree Examination - 23-Jan-2026

Time: Three Hours

Max. Marks: 100

PHYSIOLOGY – PAPER - II (RS-4, RS-5 & RS-6)

Q.P. CODE: 1023

(QP contains two pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. What is the normal plasma calcium level? Describe the physiological actions of hormones in calcium homeostasis? Add a note on **Hypocalcemic tetany**?
2. Define muscle tone. With the help of a neat labelled diagram of muscle spindle, describe regulation of muscle length?

SHORT ESSAYS

8 x 5 = 40 Marks

- 3.1. A 50 year old bus driver is not able to perform his professional work. He complains of tremor during rest and not able to initiate a movement. He takes short quick steps while walking. Answer the following questions:
 - a) What is your probable diagnosis?
 - b) Explain the pathophysiology underlying this condition
 - c) What is the most commonly used treatment modality?
4. Describe the mechanism and regulation of biosynthesis of thyroid hormones.
5. Describe the functions of cerebellum.
6. Define accommodation in the eye. Trace the pathway and explain the mechanism of accommodation reflex.
7. Explain the stages and regulation of spermatogenesis
8. Describe the molecular basis of skeletal muscle contraction.
9. Name the hormones influencing growth. Describe the actions of Growth hormone on somatic growth.
10. What is synaptic inhibition? What is its ionic basis? What are the types of synaptic inhibition?

SHORT ANSWERS

10 x 3 = 30 Marks

11. Children suffering from Cretinism have short stature and mental retardation .why?
12. List the differences between alpha and beta EEG waves. Add a note on alpha block.
13. Acupuncture reduces pain. What is the physiological basis?
14. Draw a labelled diagram showing the origin, course and termination of corticospinal pathway
15. Enumerate the functions of middle ear.
16. Explain the basis of phenomenon of phantom limb in amputated individuals
17. Explain the double Bohr effect across placenta?
18. Explain any three functions of blood testis barrier
19. What is the importance of hormones in gender differentiation?
20. Describe the hormonal control of follicular phase of ovarian cycle

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) The amount of tension actually generated by the cross bridge movement of muscle is called
A. Total tension
B. Passive tension
C. Active tension
D. None of the above
- 21 ii) Tropomyosin
A. Helps in fusion of troponin and myosin
B. Causes calcium release
C. Slides over myosin
D. Prevents attachment of actin and myosin
- 21 iii) Motor aphasia refers to defect in
A. Peripheral speech apparatus
B. Verbal expression
C. Auditory comprehension
D. Verbal comprehension
- 21 iv) Which of the following is the major neurotransmitter in nigro-striatal pathway
A. Dopamine
B. Noradrenaline
C. Acetyl choline
D. Serotonin
- 21 v) Which of the following sensations are transmitted by the dorsal column pathway
A. Fine touch, proprioception
B. Pain
C. Temperature
D. Crude touch
- 22 i) The depolarization of hair cell is due to the influx of
A. Sodium ion
B. Potassium ion
C. Calcium ion
D. Magnesium ion
- 22 ii) Bitemporal hemianopia occurs when the lesion is present in the
A. Right optic nerve
B. Temporal retina
C. Optic chiasma
D. Left geniculocalcarine tract
- 22 iii) Which nucleus of thalamus controls visual functions?
A. Medial geniculate body
B. Lateral geniculate body
C. Pulvinar
D. Anterior thalamus
- 22 iv) The dorsal root of spinal cord is sensory and ventral root is motor. This is called
A. Weber- Fechner law
B. Muller's doctrine of nerve energy
C. Bell – Magendie law
D. Law of projection
- 22 v) FSH acts on which of the following
A. Granulosa cell
B. Theca interna
C. Endometrium
D. Myometrium

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MBBS Phase – I (CBME) Degree Examination - 27-Jan-2026

Time: Three Hours

Max. Marks: 100

BIOCHEMISTRY – PAPER I (RS-4, RS-5 & RS-6)**QP Code: 1024****(QP contains three pages)**

Your answers should be specific to the questions asked

Draw neat labeled diagrams wherever necessary

LONG ESSAYS**2 x 10 = 20 Marks**

1. A 60-year-old female presents to the emergency department with acute onset shortness of breath. Symptoms began approximately 2 days before and had progressively worsened with no associated, aggravating, or relieving factors. Past history revealed she had similar symptoms approximately 1 year ago with an acute, chronic obstructive pulmonary disease (COPD) exacerbation requiring hospitalization. Her arterial blood gas analysis report revealed the following: pH 7.25, PCO_2 68, PO_2 48 and HCO_3^- 24 mmol/L.
 - a) What is the acid-base disturbance of the above patient?
 - b) Mention the normal pH of blood.
 - c) Explain the role respiratory mechanism in maintenance of acid-base balance.
 - d) List two other clinical conditions causing such acid-base disturbance.
2. List the types of enzyme inhibition. Differentiate competitive and noncompetitive inhibition with examples. Describe allosteric regulation of enzyme.

SHORT ESSAYS**8 x 5 = 40 Marks**

3. A 47-year-old female came with the complaints of fatigue and bilateral tingling & numbness in her extremities. The symptoms were progressive and was gradually getting worse. Dietary history revealed she was on vegan diet. Neurological examination revealed numbness in all extremities with decreased vibration senses. Provisional diagnosis of Vitamin B12 deficiency was made.
 - a) Mention the RDA and dietary sources of Vitamin B12.
 - b) Enumerate the biochemical functions of Vitamin B12.
 - c) Explain 'folate trap'.
4. A 9-year-old girl presented to Pediatric OPD with frequent experience of muscle pain and cramps. She also complained of weakness in hands and feet. Diet history revealed she was aversion towards milk or milk products. On examination, Trousseau's and Chvostek's signs were positive.
 - a) Name the mineral associated with above condition.
 - b) List the hormones involved in regulating the above mineral and explain how it is regulated.
 - c) Mention the reference range of above mineral in serum.
5. "Gluconeogenesis is not a simple reversal of glycolysis" – Justify it by stating the reactions catalysed by key enzymes of gluconeogenesis.
6. Name the ketone bodies. Write the pathway for ketogenesis. Mention two clinical conditions associated with ketonuria.
7. Define basal metabolic rate (BMR). Mention the factors affecting BMR.
8. Mention the types of diabetes mellitus. Describe the metabolic changes in diabetes mellitus. List two microvascular complications associated with diabetes mellitus.
9. Mention the dietary sources, RDA and biochemical functions of Vitamin E.
10. Define glycogenolysis. Write the reactions of glycogenolysis. State two glycogen storage disorders mentioning the enzyme defect.

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SHORT ANSWERS

10 x 3 = 30 Marks

11. Write the functions of:
 - a) Rough endoplasmic reticulum
 - b) Mitochondria
 - c) Lysosomes
12. State the biochemical defect and clinical features associated with
 - a) Osteogenesis imperfecta
 - b) Ehler Danlos Syndrome
13. Define oligosaccharide. Give two examples of oligosaccharide. Mention their biomedical importance.
14. What are trans-fatty acids and state their adverse effect?
15. What are apolipoproteins? List two apolipoproteins and mention their significance.
16. Mention one inhibitors for the following complexes in electron transport chain:
 - a) Complex I
 - b) Complex II
 - c) Complex IV
17. List two enzymes in which copper is a cofactor. Write the clinical features of the disorder associated with copper excess.
18. Define balanced diet. Write the composition of balanced diet.
19. Define hyponatremia. Mention two clinical conditions associated with hyponatremia.
20. Name the precursor molecule in the synthesis of prostaglandins. Mention four clinical significance of prostaglandins.

Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) An example for physiological uncoupler is
 - A. 2,4 dinitrophenol
 - B. 2,4 dinitrocresol
 - C. Chlorocarbonylcyanide phenylhydrazone
 - D. Thermogenin
- 21 ii) Which of the following food have high glycemic index?
 - A. Potato chips
 - B. Ice-cream
 - C. Legumes
 - D. Milk
- 21 iii) Which vitamin availability reduces the requirement of selenium?
 - A. Vitamin A
 - B. Vitamin D
 - C. Vitamin E
 - D. Vitamin K
- 21 iv) Amphipathic lipids forming spherical vesicles consisting of one or more phospholipid bilayers is
 - A. Micelle
 - B. Liposome
 - C. Emulsion
 - D. Biomembrane
- 21 v) Membrane fluidity is determined by
 - A. Nature of fatty acids
 - B. Glycosylation of integral proteins
 - C. Membrane pumps
 - D. Distribution of peripheral proteins

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- 22 i) Hexose Monophosphate (HMP) Shunt pathway is necessary for all the following **EXCEPT**
- A. Transparency of lens
 - B. RBC membrane integrity
 - C. Reduce methemoglobin level
 - D. Production of 2,3-Bisphosphoglycerate (BPG) for erythrocytes
- 22 ii) Diagnostic enzyme for acute pancreatitis is
- A. Creatine Kinase - MB
 - B. Acid phosphatase
 - C. Aldolase
 - D. Lipase
- 22 iii) Swollen and spongy gums, and poor wound healing are the symptoms associated with deficiency of
- A. Ascorbic acid
 - B. Thiamine
 - C. Niacin
 - D. Biotin
- 22 iv) All of the following causes hyponatremia **EXCEPT**
- A. Cushing's disease
 - B. Addison's disease
 - C. Renal tubular acidosis
 - D. Angiotensin Converting Enzyme (ACE) inhibitors
- 22 v) Hyaluronic acid is seen in
- A. Synovial fluid
 - B. Cartilage
 - C. Cornea
 - D. Bones

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MBBS Phase – I (CBME) Degree Examination - 29-Jan-2026

Time: Three Hours

Max. Marks: 100

BIOCHEMISTRY – PAPER II (RS-4, RS-5 & RS-6)

Q.P. CODE: 1025

(QP contains three pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. A 54 year old male presented with severe pain, redness and swelling of the base of the first metatarsophalangeal joint in the night after a bout of alcohol consumption. The patient was in usual state of health until early in the morning when he woke up with severe pain in his right big toe. The patient denies any trauma to the toe and no previous history of such pain in other joints. On examination he had mild fever. The right big toe was swollen, warm, red and exquisitely tender. His Serum uric acid was 9.7 mg/dL. A diagnosis of gout was made.
 - a) What is gout?
 - b) Which biochemical pathway is affected in this condition?
 - c) Enumerate the causes for gout.
 - d) Explain purine salvage pathway.
2. Describe the steps of catabolism of phenylalanine and tyrosine. Discuss any two inborn errors of metabolism associated with this pathway.

SHORT ESSAYS

8 x 5 = 40 Marks

3. A new born baby presented with yellowish discoloration of skin and conjunctiva after three days of birth. Neonatologist advised phototherapy. The jaundice improved with phototherapy
 - a) What is the type of jaundice baby suffered from?
 - b) How did photo therapy benefit this child?
 - c) Name two causes for congenital jaundice.
4. A 35 year old lady presented to the clinic with lump in right breast. A mammogram performed revealed a breast mass measuring 4 cm with numerous micro calcifications suggestive of breast cancer. The family history revealed that she had a sister who was diagnosed with breast cancer at the age 33 years. She also recalls that one of her aunts had died long ago with great abdominal distension (probably ovarian carcinoma). On physical examination, there was a fixed and non tender mass on right breast measuring 4 cms. Axillary lymph nodes were palpable on right side. Skin was not involved. The biopsy report was intra-ductal carcinoma.
 - a) Name the oncogene associated with cancer breast
 - b) Write the mechanism of activation of proto-oncogene.
 - c) Add a note on other oncogenes.
5. List the plasma proteins with respect to their electrophoretic mobility. Write the functions of albumin.
6. What is polymerase chain reaction? Write four applications of polymerase chain reaction in medicine.
7. Mention the different types of specimens that can be collected from a patient for laboratory investigations. Add a note on preanalytical errors.
8. What are free radicals? Describe free radical scavenger mechanisms.
9. Describe Thyroid function tests with their clinical relevance.
10. Classify porphyrias. Write a note on congenital erythropoietic porphyria.

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SHORT ANSWERS

10 x 3 = 30 Marks

11. Write the post-transcriptional modifications.
12. Define detoxification. Give two examples of detoxification reactions.
13. List the features of genetic code.
14. Write the functions of IgM, IgD, and IgE.
15. What are essential amino acids? Name them.
16. Mention the Specialized products synthesized from tryptophan.
17. Nucleotide analogs are used as anticancer drugs - Justify.
18. What is gene switching? Give two examples
19. Enumerate three tumour markers with their clinical importance.
20. Define clearance test. Mention the indications for Creatinine clearance test.

Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) Proteins may be denatured irreversibly by
 - A. Adding urea
 - B. Bringing to isoelectric pH
 - C. Heat coagulation
 - D. Reduction with mercaptoethanol
- 21 ii) Complex involved in translation is
 - A. Polysome
 - B. Nucleosome
 - C. Spliceosome
 - D. Lysosome
- 21 iii) Which of the following is an example of phase two detoxification?
 - A. Hydrolysis
 - B. Conjugation
 - C. Reduction
 - D. Dealkylation
- 21 iv) The cDNA is prepared by using the enzyme
 - A. RNA polymerase
 - B. DNA polymerase
 - C. Reverse transcriptase
 - D. Restriction endonuclease
- 21 v) Which of the following is a heat stable enzyme?
 - A. Restriction endonuclease
 - B. Reverse transcriptase
 - C. Telomerase
 - D. Thermus thermophilus
- 22 i) Oncogenes are specific sequences in DNA
 - A. That are tumour markers
 - B. That code for reverse transcriptase
 - C. When expressed produce cancer
 - D. Trigger off differentiation process
- 22 ii) Rate limiting enzyme in heme synthesis is
 - A. Heme synthase
 - B. ALA dehydratase
 - C. ALA synthase
 - D. Uroporphyrinogen synthase
- 22 iii) Which of the following is a negative acute phase reactant protein?
 - A. Albumin
 - B. Ceruloplasmin
 - C. C reactive protein

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D. Alpha feto protein

22 iv) The level of creatinine in urine is influenced by

- A. Protein content of the diet
- B. Rate of cellular turn over
- C. Muscle mass
- D. Patency of urinary tract

22 v) Which of the following processes make use of free radical effects?

- A. Cell adhesion
- B. Phagocytosis
- C. Contact inhibition
- D. Transcytosis

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MBBS Phase – I Degree Examination - 15-Apr-2026

Time: Three Hours

Max. Marks: 100 Marks

ANATOMY – PAPER - I (RS3)

Q.P. CODE: 1075

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAYS

2 x 10 = 20 Marks

1. Describe the extra cranial course of facial nerve. Add a note on its applied anatomy.
2. Describe the shoulder joint and discuss the movements of shoulder joint.

SHORT ESSAYS

10 x 5 = 50 Marks

3. Pericardium of heart
4. Notochord
5. Cubital Fossa
6. Microscopic structure of thin skin
7. Transverse section of medulla at the pyramidal decussation
8. Bronchopulmonary segments
9. Azygos vein
10. Maxillary air sinus
11. Interossei of hand
12. Corpus callosum

SHORT ANSWERS

10 x 3 = 30 Marks

13. Enumerate six derivatives of endoderm.
14. Sesamoid bones
15. Cricothyroid muscle
16. Root of lung.
17. Enumerate the extraocular muscles of eyeball.
18. Wrist drop
19. **Enumerate structures attached to styloid process**
20. Enumerate the components of basal ganglia.
21. Buccinator
22. Palmar aponeurosis.

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination – 17-Apr-2026

Time: Three Hours

Max. Marks: 100

ANATOMY – PAPER - II (RS-3)

Q.P. CODE: 1076

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. Boundaries, contents and applied anatomy of Inguinal canal
2. Describe the ligaments, muscles and actions of Hip joint

SHORT ESSAYS

10 x 5 = 50 Marks

3. Lymphatic drainage of Stomach
4. Superior mesenteric artery
5. Development and congenital anomalies of Kidneys
6. Microscopic structure of suprarenal gland
7. Great saphenous vein
8. Karyotyping
9. Male urethra
10. Interior of anal canal
11. Portal vein
12. Vermiform appendix

SHORT ANSWERS

10 x 3 = 30 Marks

13. Sensory supply of dorsum of foot
14. Draw a neat labeled diagram of visceral surface of liver
15. Spermatic cord
16. Klinefelter's syndrome
17. Perineal membrane
18. Obturator nerve
19. Microscopic structure of testis
20. Arterial supply of Pancreas
21. Barr body
22. Parts of large intestine

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 21-Apr-2026

Time: Three Hours

Max. Marks: 100 Marks

PHYSIOLOGY – I (RS3)

Q.P. CODE: 1077

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. **Name the plasma proteins. Describe the functions of plasma proteins. Add a note on effect of Hypoproteinaemia.**
2. **Name the respiratory centres. Explain the neural regulation of respiration. Add a note on Cheyne-Stokes Respiration**

SHORT ESSAYS

10 x 5 = 50 Marks

3. **Diagrammatically represent a normal lead II ECG. Explain the causes for different waves.**
4. Describe the mechanical events during cardiac cycle.
5. Short term regulation of Blood pressure
6. Describe the composition and functions of bile.
7. Describe the micturition reflex.
8. Surfactant
9. Functions of saliva.
10. Humoral Immunity
11. Defecation Reflex
12. Structure and functions of Juxta Glomerular apparatus.

SHORT ANSWERS

10 x 3 = 30 Marks

13. Uniport, Symport and Antiport
14. Rh incompatibility.
15. What is Timed Vital capacity? Give its significance.
16. Pacemaker potential
17. Mention any three renal function tests.
18. Hemophilia.
19. State the law of Gut. Mention its significance.
20. Define Hypoxia. Classify hypoxia.
21. Mention three properties of cardiac muscle and explain one of them.
22. Mention three factors which regulate the cardiac output.

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 25-Apr-2026

Time: Three Hours

Max. Marks: 100 Marks

PHYSIOLOGY – II (RS3)

Q.P. CODE: 1078

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. Describe the mechanism of transmission of impulse across Neuromuscular junction. Add a note on Myasthenia Gravis.
2. Name the hormones of Thyroid gland. Describe the synthesis, transport and regulation of secretion of Thyroid hormone. Add a note on Cretinism.

SHORT ESSAYS

10 x 5 = 50 Marks

3. Actions of oxytocin
4. Heat Loss mechanism to maintain constant body temperature
5. Tests for Ovulation
6. Difference between REM and NREM sleep.
7. Errors of refraction.
8. Muscle spindle
9. Functions of Hypothalamus
10. Describe the visual pathway.
11. Referred pain
12. Spermatogenesis

SHORT ANSWERS

10 x 3 = 30 Marks

13. Renshaw cell inhibition
14. Name the neuroglia. Mention their functions.
15. Sarcomere
16. Phantom limb.
17. All or none law.
18. List three hormones affecting Plasma calcium level and mention the effect on it.
19. Basis for pregnancy tests
20. Draw and label taste pathway
21. Acromegaly
22. Three actions of cortisol.

Rajiv Gandhi University of Health Sciences, Karnataka
First Phase MBBS Degree Examination – 27-Apr-2026

Time: Three Hours

Max. Marks: 50 Marks

BIOCHEMISTRY – PAPER I (RS3)

Q.P. CODE: 1079

Your answers should be specific to the questions asked

Draw neat labeled diagrams wherever necessary

(Note: Both QP Codes 1079 and 1080 are to be, answered within total duration of three hours)

Use separate answer books for section A and Section B

LONG ESSAYS

1 x 10 = 10 Marks

1. **Give the normal blood glucose levels in fasting and post prandial state. Explain the role of hormones in plasma glucose regulation**

SHORT ESSAYS

5 x 5 = 25 Marks

2. Active transport with example
3. Classification of enzymes with example
4. Urea cycle
5. Glucose tolerance test
6. Formation and utilization of ketone bodies

SHORT ANSWERS

5 x 3 = 15 Marks

7. Beri Beri
8. Explain the biochemical defect and clinical manifestations of
a) Niemann-Pick disease b) Refsum's disease c) Alkaptonuria
9. **Name the phase I detoxification reactions.**
10. Scurvy
11. Fluorosis

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MBBS Phase – I Degree Examination - 27-Apr-2026

Time: Three Hours

Max. Marks: 50 Marks

BIOCHEMISTRY – PAPER II (RS3)

Q.P. CODE: 1080

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

(Note: Both QP Codes 1079 and 1080 are to be, answered within total duration of three hours)

(Use separate Answer books for QP Code 1079 & 1080)

LONG ESSAYS

1 x 10 = 10 Marks

1. Describe the phases of activation, initiation, elongation and termination of biosynthesis of proteins.

SHORT ESSAYS

5 x 5 = 25 Marks

2. Liver Function tests.
3. Role of kidney in acid base balance.
4. Immunoglobulins.
5. Dietary fibre.
6. Basal Metabolic Rate

SHORT ANSWERS

5 x 3 = 15 Marks

7. Lesch – Nyhan syndrome
8. Oncogene.
9. Free radicals.
10. Clearance tests
11. t-RNA

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 16-Jan-2026

Time: Three Hours

Max. Marks: 100

ANATOMY – PAPER – I (RS-7)**Q.P. CODE: 5501****(QP Contains Four Pages)**

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAY**1 x 10 = 10 Marks**

- Describe the median nerve under following headings
 - Origin & root value
 - Course & relations
 - Branches & distribution

REASONING QUESTIONS (Short Answer)**5 x 3 = 15 Marks**

- Explain the anatomical basis of Triangle of Koch which is considered as important surgical landmark. Explain its boundaries.
- An eighteen-year old girl developed dizziness and had a fall on sudden rotation of neck. Explain the anatomical basis of carotid sinus and carotid body
- Explain the anatomical reason why triceps brachii escapes complete paralysis in injury to the radial nerve in the spiral groove. Mention the root value and termination of Radial nerve
- Explain the anatomical significance of dural folds. Name the dural folds.
- Explain why a lesion in the Brodmann's area 5 and 7 results in astereognosis.

SHORT NOTES**4 x 5 = 20 Marks**

- Explain the anatomical basis of ligation of vessels during thyroidectomy. Explain the venous drainage of thyroid gland.
- Describe the parts and relations of lateral ventricle. Add a note on its applied aspects
- Describe the pleural recesses. Add a note on its applied aspects.
- Describe the process of Implantation. Add a note on abnormal sites of implantation.

SHORT NOTES**7 x 5 = 35 Marks**

- Describe the pericardial sinuses of heart. Mention the nerve supply and blood supply of pericardial sinuses
- Explain the topographical and functional relations and connections of otic ganglion.
- Compare and contrast the microscopy of hyaline and elastic cartilage with neat labelled diagram.
- Explain the boundaries and contents of posterior triangle of neck.
- Draw a neat labelled diagram of cross section at the level of eighth thoracic vertebra**
- Explain the gross features, relations and nerve supply of submandibular salivary gland
- Explain the role of cadaver as your first teacher.

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MULTIPLE CHOICE QUESTIONS (All scenario based)

20 x 1 = 20 Marks

- 18 A 6-year boy fell from chair and injured his limb. He was brought to the casualty and was diagnosed with dislocation of elbow joint
- 18 (i) What type of joint is this?
- Ball and socket type
 - Condylloid type
 - Hinge type
 - Ellipsoid type
- 18 (ii) On what axis the movement take place
- Vertical axis
 - Transverse axis
 - Anteroposterior axis
 - Multiaxial
- 19 A neurobiologist surgically removes the neural crest in the thoracic region of a chick embryo immediately after closure of the neural tube.
- 19 (i) Which of the following cell types is most likely to be affected?
- Bone cells in the ribs
 - Goblet cells lining the respiratory tract
 - Skeletal muscle cells in the thoracic wall
 - Neurons of sympathetic ganglia
- 19 (ii) Neural crest cells are a unique population of multipotent, migratory cells that emerge during which of the following processes?
- Neurulation
 - Gastrulation
 - Formation of embryoblast
 - Formation of trophoblast
- 20 A 60-year-old female visited Medicine OPD complaining of dizziness. The consultant asked the intern to record the blood pressure, to rule out hypertension.
- 20 (i) The artery used for recording blood pressure is
- Profunda brachii artery
 - Brachial artery.
 - Radial artery
 - Ulnar artery
- 20 (ii) Level of termination of this artery
- Styloid process of radius
 - Head of radius
 - Neck of radius
 - Radial tuberosity
- 21 A man after a Road Traffic Accident had dislocation of right shoulder joint.
- 21 (i) Which of the following is the most common dislocation of shoulder joint?
- Anterior
 - Posterior
 - Superior
 - Inferior
- 21 (ii) All of the following are rotator cuff muscles of shoulder **EXCEPT**.
- Supraspinatus
 - Infraspinatus
 - Teres major
 - Teres minor
- 22 A 45-year male complains of difficulty in swallowing.

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- 22 (i) At what vertebral level pharynx continues as oesophagus
- A. C6
 - B. T1
 - C. C5
 - D. C4
- 22 (ii) Which structure passes between superior and middle constrictor of pharynx
- A. Levator veli palatini
 - B. Auditory tube
 - C. Glossopharyngeal nerve
 - D. Superior laryngeal vessels
- 23 During dental procedure, local anesthesia is given near the mandibular foramen.
- 23 (i) Which of the following nerve is targeted for block?
- A. Facial nerve
 - B. Lingual nerve
 - C. Buccal nerve
 - D. Inferior alveolar nerve
- 23 (ii) The targeted nerve is a branch of which of the following nerve
- A. Anterior division of Mandibular nerve
 - B. Posterior division of Mandibular nerve
 - C. Main trunk of Mandibular nerve
 - D. Maxillary nerve
- 24 A 35-year-old male is brought to the emergency department after an attempted suicidal hanging. Imaging reveals a fracture-dislocation at the craniovertebral junction.
- 24 (i) The probable bone fractured is
- A. Transverse process of atlas
 - B. Odontoid process of axis
 - C. Anterior arch of atlas
 - D. Spinous process of axis
- 24 (ii) Which structure is most directly responsible for the instability of the craniovertebral junction in above fracture
- A. Anterior longitudinal ligament
 - B. Ligamentum flavum
 - C. Posterior longitudinal ligament
 - D. Transverse ligament of the atlas
- 25 A 40-year old male was brought to Emergency OPD with complaints of slurred speech, food accumulating in the mouth and difficulty in swallowing. During examination, on protruding, tongue was found to deviate to one side. A diagnosis of paralysis of tongue muscles was done.
- 25 (i) The nerve supplying the muscles of tongue is
- A. Lingual nerve
 - B. Glossopharyngeal nerve
 - C. Mandibular nerve
 - D. Hypoglossal nerve
- 25 (ii) Safety muscle of the tongue which prevents it from falling back is
- A. Hyoglossus
 - B. Genioglossus

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C. Palatoglossus

D. Styloglossus

26 Following a road traffic accident, a patient had left sided homonymous hemianopia

26 (i) Which of the following structure is injured in the patient?

A. Right optic nerve

B. Left optic nerve

C. Left optic tract

D. Right optic tract

26 (ii) Which of the following structure forms the part of optic pathway?

A. Medial geniculate body

B. Lateral geniculate body

C. Red nucleus

D. Inferior colliculus

27 65-year-old man presents with resting tremor, bradykinesia, rigidity, and a shuffling gait. Neurological examination suggests a classic presentation of Parkinson's disease.

27 (i) **Which part of the midbrain is primarily degenerated in this patient, leading to Parkinsonian symptoms?**

A. Substantia nigra

B. Cerebral peduncle

C. Tectum

D. Tegmentum

27 (ii) **The involved part is made up of deeply pigmented nerve cell which contains**

A. Copper

B. Nickel

C. Neuromelanin and Iron

D. Acetylcholine

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MBBS Phase – I (CBME) Degree Examination - 19-Jan-2026

Time: Three Hours

Max. Marks: 100

ANATOMY – PAPER – II (RS-7)**Q.P. CODE: 5502****(QP Contains Four Pages)**

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAY**1 x 10 = 10 Marks**

1. Describe the hip joint under the following headings
 - a) Type of joint, bones forming the joint & articular surfaces
 - b) Ligaments, relations, movements and muscles involved, blood supply
 - c) Applied anatomy

Reasoning questions (Short Answer)**5 x 3 = 15 Marks**

- 2.1. Explain the anatomical basis of enlargement of superficial inguinal lymph nodes in carcinoma of anal canal
3. Explain the anatomical basis for why extravasated urine does not enter the thigh
- 4.2. Explain any two embryological reasons for atrial septal defect
5. Explain why classic hepatic lobule is hexagonal whereas portal lobule is triangular in shape
6. Classify chromosomes and explain the basis for classification

SHORT NOTES**4 x 5 = 20 Marks**

7. Describe the attachments of muscles supplied by superior gluteal nerve. Explain the anatomical basis of Trendelenburg's sign
8. A 35y old lady came with history of infertility. She is diagnosed with tuberculosis & is on treatment. Investigations revealed fallopian tubal block. Describe the parts, blood supply & applied anatomy of fallopian tube
9. A person was diagnosed with diabetes mellitus. Name the organ involved. Describe the parts, blood supply and applied anatomy of the organ involved
10. Describe the development of face and explain the embryological basis of oblique facial cleft

SHORT NOTES**7 x 5 = 35 Marks**

11. Draw a neat labelled diagram of vertical disposition of peritoneum
12. Describe the microscopic structure of appendix with a neat labelled diagram
13. Describe the origin, course, important relations and branches of internal iliac artery
14. List the constrictions of ureter. Compare and contrast the relations of right and left ureter
15. Describe non-disjunction and its consequences
16. Describe the boundaries & contents of deep perineal pouch
17. Describe verbal and non-verbal communication

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Multiple Choice Questions (All scenario based)**20 x 1 = 20 Marks**

- 18 A Medical college hospital was conducting an eye camp in a rural area. The consultant ophthalmologist wanted to educate and create awareness among the people regarding eye donation
- 18 (i) Transplantation of cornea without rejection is achieved due to
- A. Regular arrangement of fibers
 - B. Absence of blood vessels
 - C. Relative dehydration
 - D. Refractive index of ground substance
- 18 (ii) Anterior lining epithelium of cornea is
- A. Simple squamous epithelium
 - B. Simple cuboidal epithelium
 - C. Stratified cuboidal epithelium
 - D. Stratified squamous epithelium
- 19 One-month old infant was brought to pediatrics OPD with history of labored breathing, bluish skin and lips and poor feeding. On examination it was noted to have asymmetry of chest and reduced breath sounds on one side. After investigations it was diagnosed as unilateral pulmonary hypoplasia
- 19 (i) Lung bud is derived from
- A. Ectoderm
 - B. Endoderm
 - C. Intermediate mesoderm
 - D. Lateral plate mesoderm
- 19 (ii) Surfactant production begins around
- A. 12-14 weeks
 - B. 16-20 weeks
 - C. 24-28 weeks
 - D. 32-36 weeks
- 20 A 75-year-old male with chronic cough visits surgical OPD with history of swelling in the right groin, which increases in size on coughing and decreases on lying down. After examination, it was confirmed that he had direct inguinal hernia.
- 20 (i) Following are features of direct inguinal hernia **EXCEPT**
- A. Predisposing factor is weakness of anterior abdominal wall muscles
 - B. Lies outside the spermatic cord
 - C. Neck of hernial sac is lateral to inferior epigastric artery
 - D. Comes out via the superficial inguinal ring
- 20 (ii) Posterior wall of inguinal canal is strengthened by
- A. Conjoint tendon
 - B. External oblique aponeurosis
 - C. Inguinal ligament
 - D. Lacunar ligament
- 21 A 20-year-old male visited Medicine OPD with history of headache, profuse sweating and palpitation. On examination he was found to have hypertension. After investigations, he was diagnosed as having pheochromocytoma, a tumor of suprarenal medulla
- 21 (i) Pheochromocytoma causes excessive secretion of following into the blood stream
- A. Catecholamines
 - B. Mineralocorticoids.
 - C. Sex steroids
 - D. Glucocorticoids
- 21 (ii) Left suprarenal vein drains into

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- A. Inferior vena cava
 - B. Renal vein
 - C. Inferior mesenteric vein
 - D. Superior mesenteric vein
- 22 During a routine abdominal ultrasound in a female aged 20 years, it was found that both the kidneys were **NOT** in normal position and were located lower down in the posterior abdominal wall. It was diagnosed as a case of non-ascent of kidney
- 22 (i) Following congenital renal anomaly can result in non-ascent of kidney
- A. Malrotated kidney
 - B. Congenital polycystic kidney
 - C. Lobulated kidney
 - D. Horseshoe kidney
- 22 (ii) In this condition, the ascent of kidney is arrested by
- A. Median sacral artery
 - B. Inferior mesenteric artery
 - C. Superior mesenteric artery
 - D. Gonadal artery
- 23 A 65-year-old man complained of pain in both legs when taking long walks. He also told that he experiences difficulty in erection. The arteriography of the abdominal aorta revealed blockage in the region of its bifurcation
- 23 (i) Select the **INCORRECT** statement about the abdominal aorta:
- A. It extends from T12–L4 vertebrae
 - B. It lies to the right of the inferior vena cava
 - C. It is crossed anteriorly by the pancreas
 - D. Its dorsal aspect gives origin to the median sacral artery
- 23 (ii) Which of the following is the ventral branch of abdominal aorta
- A. Inferior phrenic
 - B. Renal
 - C. Coeliac
 - D. Gonadal
- 24 A 25-year-old woman twists her right lower limb in a ski accident. She has right knee swelling, tenderness, and excessive anterior mobility with the knee flexed. The patient has sustained an external force to the knee.
- 24 (i) Unlocking muscle of the knee joint is
- A. Semimembranosus
 - B. Popliteus
 - C. Semitendinosus
 - D. Gastrocnemius
- 24 (ii) Anteroposterior stability of the knee joint is maintained by:
- A. Oblique popliteal ligament
 - B. Arcuate ligament
 - C. Cruciate ligaments
 - D. Collateral ligaments
- 25 A 55-year-old businessman while jogging, felt a sudden pain in his right lower calf. On examination, the upper part of the right calf was swollen, and a gap was apparent between the swelling and the heel. Diagnosis of "ruptured tendocalcaneus" was made
- 25 (i) The muscle "triceps surae" is formed by:
- A. Popliteus and soleus
 - B. Soleus and gastrocnemius
 - C. Plantaris and gastrocnemius
 - D. Flexor digitorum longus and flexor hallucis longus
- 25 (ii) Which muscle is regarded as the 'peripheral heart'?

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- A. Soleus
- B. Gastrocnemius
- C. Tibialis posterior
- D. Flexor digitorum longus

26 A 67-year-old man was admitted in hospital with history of pain in the perineum, with difficulty, urgency, and frequency in micturition. Per-rectal examination revealed an enlargement of the prostate. Investigations revealed carcinoma of prostate

26 (i) Following are lobes of prostate **EXCEPT**

- A. Anterior lobe
- B. Posterior lobe
- C. Lateral lobe
- D. Inferior lobe

26 (ii) Following structures opens into the prostatic urethra **EXCEPT?**

- A. Ejaculatory ducts
- B. Bulbourethral glands
- C. Prostatic utricle
- D. Prostatic glands

27 A 35-year-old female visits gynecology OPD after 3 months after her 3rd delivery with complaints of urinary frequency, urgency and stress incontinence. The consultant told her that it was due to weakened pelvic diaphragm

27 (i) Pelvic diaphragm is formed by

- A. Coccygeus & Obturator externus
- B. Levator ani & Coccygeus
- C. Piriformis & Coccygeus
- D. Coccygeus & Obturator internus

27 (ii) Following ligament is a morphological remnant of coccygeus muscle

- A. Sacrospinous
- B. Sacrotuberous
- C. Ischiofemoral
- D. Iliofemoral

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MBBS Phase – I (CBME) Degree Examination - 21-Jan-2026

Time: Three Hours**Max. Marks: 100****PHYSIOLOGY – PAPER – I (RS-7)****Q.P. CODE: 5503****(QP Contains Four Pages)**

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAY**1 x 10 = 10 Marks**

1. Define cardiac output. Give the formula for cardiac index & mention the normal value. Describe the various factors maintaining cardiac output.

REASONING QUESTIONS (Short Answer)**5 x 3 = 15 Marks**

2. Why erythroblastosis fetalis is common in 2nd born infant born to a Rh negative mother?
3. Explain why there is Increased incidence of tuberculosis in the apex of the lung.
4. Explain the physiological basis for renal splay.
5. Describe the basis for triple response.
6. Why there is alternate apnoea and hyperpnea in cheyne stokes breathing?

SHORT NOTES**4 x 5 = 20 Marks**

7. Explain the pathophysiology of peptic ulcer disease. Add a note on treatment of peptic ulcer disease.
8. Define Blood pressure. Explain the role of CNS ischemic response in regulating blood pressure.
9. Describe the complications of blood transfusion.
10. Explain the steps of phagocytosis.

SHORT NOTES**7 x 5 = 35 Marks**

11. Describe briefly the mechanical events of cardiac cycle.
12. Describe the different steps of erythropoiesis and its regulation.
13. Explain Oxygen Dissociation Curve with a neat labelled diagram. Mention the factor which shifts the curve to right.
14. Describe the counter current multiplier in the kidney.
15. Explain the types of small intestinal movements.
16. Describe chemical regulation of respiration.
17. What are the different ways illness can impact a patient 's life beyond physical symptoms?

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Multiple Choice Questions (All scenario based)

20 x 1 = 20 Marks

- 18 A woman aged 30 years complains of general fatigue, breathlessness on exertion, giddiness and palpitation. On examination, patient had pallor of skin and mucous membrane, glossitis and koilonychia. Investigations revealed: Hemoglobin: 6gm/dl, RBC count: 3 million cells/cu mm of blood, MCHC: 28%, MCV: 60 cumm3, Eosinophilia. Stool examination: Hookworm ova present
- 18 (i) Identify the condition
- Bronchial Asthma
 - Iron deficiency Anemia
 - Jaundice
 - Aplastic Anemia
- 18 (ii) What type of blood picture is seen in the above condition?
- Normocytic normochromic
 - Microcytic normochromic
 - Microcytic hypochromic
 - Macrocytic normochromic
- 19 A 40-year old businessmen visit the OPD with chief complaints of severe nausea and pain in epigastric region which used to increase after taking food. Past history reveals frequent intake of pain killers for headache. The ECG recording was normal
- 19 (i) What is the probable condition?
- Pleuritis
 - Chronic gastritis
 - Pneumonia
 - Myocardial Infraction
- 19 (ii) Which cells secretes HCl?
- Pareital cells
 - Chief cells
 - D- cells
 - Alpha cells
- 20 A 56-year old man with a history of smoking presents to **his** primary care physician with shortness of breath and cough for several days. **His** symptoms began 3 days ago with rhinorrhea. **He** reports a chronic morning cough productive of white sputum, which has increased over the past 2 days
- 20 (i) What is the probable condition?
- COPD
 - Pneumoconiosis
 - Interstitial lung disease
 - Pericarditis
- 20 (ii) What is the common method used to assess the severity of the above condition?
- Pulmonary function Test
 - Blood pressure monitoring
 - Heart** rate variability
 - ECHO
- 21 A duty nurse has mistakenly started A+ blood transfusion to a patient with B+ group which she realizes after patient complained of uneasiness and feverish feeling.
- 21 (i) Identify the condition
- Rh incompatibility
 - ABO incompatibility
 - Jaundice
 - Aplastic Anemia

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- 21 (ii) Blood groups were discovered by
- William Harvey
 - Louis Pasteur
 - Duffy
 - Karl Landsteiner
- 22 A 65-year old male presents to the clinic with complaints of dizziness and light headedness, particularly when standing up. His heart rate is irregular and on examination, it is found to be slow. An ECG shows an abnormally prolonged PR interval.
- 22 (i) This finding is most consistent with?
- First degree AV Block
 - Second Degree AV Block, Mobitz Type I
 - Second Degree AV Block, Mobitz Type II
 - Third Degree AV Block
- 22 (ii) What could happen if there was no AV nodal delay:
- The ventricles would contract before the atria have a chance to empty
 - The heart rate would be slower
 - The blood would not be pumped efficiently
 - Both A and C
- 23 A 50-year male visited OPD with complaints of weight loss, weakness and fatiguability for more than 6 months. On clinical examination he had marked splenomegaly, mild hepatomegaly. Total leucocyte count (TLC) was 1.2 lakhs per cubic mm of blood. Examination of peripheral blood smear revealed more number of myelocytes and metamyelocytes with many neutrophils.
- 23 (i) What is the most probable condition?
- Hepatitis
 - Leukemia
 - Gilbert's Syndrome
 - Hemolytic Jaundice
- 23 (ii) Eosinophilia is seen in all **EXCEPT**
- Bronchial asthma
 - Worm infestation
 - Cushing's syndrome
 - Urticaria
- 24 A patient having uncontrolled diabetes with urinary tract infection not responding to conventional antibiotic therapy was brought to the hospital in an unconscious state.
- 24 (i) What is the probable condition?
- Anaphylactic shock
 - Septic shock
 - Hypovolemic shock
 - Obstructive shock
- 24 (ii) All are the short term regulation of blood pressure **EXCEPT:**
- Baroreceptor reflex
 - Chemical regulation
 - Renal Mechanism
 - CNS ischemic response
- 25 A 65-year old male was brought to the hospital with following features. He was a hypertensive and a diabetic on irregular treatment. He had signs and symptoms of pedal edema, fatigue, vomiting and loss of appetite. On examination, his urea and creatinine levels were very high.

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- 25 (i) What is the probable diagnosis?
- A. Urinary tract infection
 - B. Polycystic kidney
 - C. Renal failure
 - D. Neurogenic bladder
- 25 (ii) The following is an abnormal constituents of urine
- A. Urea
 - B. Uric acid
 - C. Creatinine
 - D. Proteins
- 26 A 28-year old diabetic mother delivered the child through cesarean section at 32 weeks of gestation. The newborn baby had difficulty in breathing. The respiratory rate was 80 breaths/min. There was a grunting sound during expiration. The baby also had central cyanosis.
- 26 (i) What is the possible condition?
- A. Hyaline membrane disease
 - B. Congenital heart disease
 - C. Bacterial Pneumonia
 - D. Pneumothorax
- 26 (ii) Pulmonary surfactant is produced by
- A. Type I alveolar cells
 - B. Type II alveolar cells
 - C. Mast cells
 - D. APUD cells
- 27 A 65-year old male had recent stroke presents with urinary frequency, urgency and dribbling. He also reports difficulty in initiating urination and feels he can't fully empty his bladder. The bladder capacity is decreased and the muscle of bladder is hypertrophied
- 27 (i) what is the probable diagnosis?
- A. Urinary tract infection
 - B. Automatic bladder
 - C. Neurogenic bladder
 - D. Bladder tumor
- 27 (ii) Voluntary control of bladder is possible because of contraction of
- A. Abdominal muscles
 - B. Perineal muscles and external sphincter
 - C. Pelvic floor muscles
 - D. Detrusor muscles

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MBBS Phase – I (CBME) Degree Examination - 23-Jan-2026

Time: Three Hours

Max. Marks: 100

PHYSIOLOGY – PAPER – II (RS-7)

Q.P. CODE: 5504

(QP Contains Four Pages)

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAY

1 x 10 = 10 Marks

1. Explain the connections and functions of cerebellum. Add a note on clinical symptoms seen in cerebellar lesions.

REASONING QUESTIONS (Short Answer)

5 x 3 = 15 Marks

2. Explain the physiological basis for polyphagia, polydipsia and polyuria in diabetes mellitus.
3. Explain the physiological basis of rigor mortis.
4. Describe the mechanism of Renshaw cell inhibition.
5. How intrauterine devices acts as contraceptive method in females?
6. Explain basis for olfactory adaptation.

SHORT NOTES

4 x 5 = 20 Marks

7. Draw neuro-muscular junction. Add a note on pathophysiology of myasthenia gravis.
8. Explain the basis of clinical features of Parkinsonism.
9. Explain the anti-inflammatory and immunosuppressive actions of cortisol. Add a note on Cushing's syndrome
10. Describe the thermoregulatory mechanism on exposure to hot environment.

SHORT NOTES

7 x 5 = 35 Marks

11. Explain the properties of receptors.
12. Explain the functions of middle ear
13. Describe the physiological actions of thyroid hormone.
14. Explain the Pain pathway. Add a note on gate control theory.
15. Describe the changes that occur in the uterine endometrium during the menstrual cycle with the hormonal basis.
16. Name the hormones which affect serum calcium level. Describe their mode of action.
17. Discuss how attitude helps to build rapport with the patient.

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MULTIPLE CHOICE QUESTIONS (All scenario based)

20 x 1 = 20 Marks

- 18 A 68-year old man presents with sudden onset of difficulty speaking. He can understand what is being said to him., but his speech is slow, effortful and limited to short phrases. He is also experiencing weakness on his right side.
- 18 (i) What type of aphasia is the above patient suffering from?
- Wernicke's aphasia
 - Brocca's aphasia
 - Global aphasia
 - None of the above
- 18 (ii) What is the Broadmann's area affected in Wernicke's aphasia?
- Area 44
 - Area 17
 - Area 22
 - Area 39
- 19 A 52-year old female comes to gynecology OPD with complaints of flushing of face, restlessness and heat intolerance. She also has vaginal dryness, night sweats and weight gain.
- 19 (i) what is the probable condition?
- Polycystic ovary syndrome
 - Cushing syndrome
 - Fibroids
 - Postmenopausal syndrome
- 19 (ii) The first to happen in puberty in female is
- Pubarche
 - Thelarche
 - Menarche
 - Axillary hair
- 20 A 12-year old girl came with recurrent carpopedal spasms of both hands and feet since 2 months. Her BP is normal, but Trousseau's sign is positive. On testing she has hypocalcemia, hyperphosphatemia and elevated serum alkaline **phosphatase**.
- 20 (i) What is the probable condition?
- Hyperthyroidism
 - Diabetes mellitus
 - Hypocalcemic tetany
 - Acute pancreatitis
- 20 (ii) Which of the following hormones does not regulate serum calcium level?
- PTH
 - Calcitonin
 - Adrenaline
 - 1, 25 - dihydroxy cholecalciferol
- 21 A metal factory worker suffers from noise induced hearing loss.
- 21 (i) Which of the following structure are affected?
- Crista ampullaris

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- B. Macula
- C. Cupola
- D. Outer hair cells

21 (ii) The depolarization of hair cells is due to influx of:

- A. Sodium ion
- B. Potassium ion
- C. Calcium ion
- D. Magnesium ion

22 A lady comes to OPD with complaints of decreased night vision. She also has dry skin. On examination her conjunctiva is dry and there is a small, foamy grayish patch on it

22 (i) What is the probable condition?

- A. Vitamin B12 deficiency
- B. Vitamin A deficiency
- C. Vitamin C deficiency
- D. Vitamin B6 deficiency

22 (ii) Which visual pigment is deficient in this condition

- A. Iodopsin**
- B. Rhodopsin**
- C. Melanin**
- D. Opsin**

23 A 6-month old child was brought by his parents with complaints of empty scrotal sac. He was only 1.8 kg at birth and had empty scrotal sac at that time also. The doctor that time assured them to wait for 4 months and asked to report back if the problem continues

23 (i) What is the probable condition?

- A. Varicocele
- B. Cryptorchidism
- C. Inguinal hernia
- D. Torsion of testis

23 (ii) Sertoli cells secrete

- A. Testosterone
- B. FSH
- C. Androstenedione
- D. Inhibin

24 A 30-year old man comes to the emergency with complaints of vomiting, weakness and burning pain in his chest. On examination his vitals were normal. On endoscopy, a diagnosis of achalasia cardia was given. He was treated with botulinum injection

24 (i) Botulinum was injected at lower esophageal sphincter (LES) because:

- A. Of its stimulatory effect at LES
- B. Of its paralytic effect
- C. Increased vesicle release from presynaptic neuron
- D. Increased calcium influx

24 (ii) All of the following are true for presynaptic nerve terminal **EXCEPT:**

- A. It loses its myelin sheath
- B. The vesicles cluster around active zones
- C. Contains plenty of mitochondria

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D. Has numerous voltage gated Na⁺ channels

- 25 A 40-year old man came to OPD with complaints of headache, excessive sweating, sleep apnea and slight changes in his jaw and forehead. He also tells you his feet and hands have become big and his vision has become blurry. On examination a mass was found in his sella area of brain.

25 (i) What is the probable diagnosis?

- A. Pituitary dwarfism
- B. Acromegaly
- C. Cretinism
- D. Gigantism

25 (ii) The hormone responsible for above condition can be

- A. Glucocorticoids
- B. Vasopressin
- C. Growth hormone
- D. Thyroid hormone

- 26 A patient presents with muscle weakness and fatigue, especially after exercise. Blood test reveal low potassium levels.

26 (i) Which of the following is the most likely cause of muscle weakness and fatigue in a patient with low potassium levels?

- A. Increased muscle fiber diameter
- B. Impaired action potential propagation
- C. Increased muscle glycogen storage
- D. Enhanced muscle protein synthesis

26 (ii) What is the role of sodium - potassium pump in muscle cells?

- A. To generate ATP for muscle contraction
- B. To maintain the proper ion gradients across the cell membrane
- C. To synthesize muscle proteins
- D. To convert glucose to lactate

- 27 A 35-year old man came to the OPD with complaints of feeling extremely thirsty, even after taking adequate amount of fluid whole day. He said frequency of urination has increased, and often gets up at night to urinate

27 (i) What is the most likely diagnosis based on patient's symptoms?

- A. Diabetes mellitus
- B. Addison's disease
- C. Diabetes insipidus
- D. Cushing syndrome

27 (ii) Strongest stimulator for ADH secretion is:

- A. Hyperosmolarity
- B. Hyponatremia
- C. Hypotension
- D. Hypovolemia

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MBBS Phase – I (CBME) Degree Examination - 27-Jan-2026

Time: Three Hours

Max. Marks: 100

BIOCHEMISTRY – PAPER – I (RS-7)

Q.P. CODE: 5505

(QP Contains Four Pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAY

1 x 10 = 10 Marks

1. Describe the steps of Beta-Oxidation of Palmitic acid with energetics. Add a note on its regulation

REASONING QUESTIONS (Short Answer)

5 x 3 = 15 Marks

- 2.1. Kussmaul's Breathing is seen in Metabolic acidosis. Justify.
3. a. Premature babies with low L/S ratio are known to develop respiratory distress syndrome. Justify
b. Lysosomes are called Suicidal bags. Give reason
- 4.2. Vitamin B12 is always used with Folic acid in treatment of Macrocytic anaemia - Give reasons.
5. Sodium glucose transport is called secondary active transport. Justify.
6. Dietary fibres are included in balanced diet. Give reasons.

SHORT NOTES

4 x 5 = 20 Marks

7. Enumerate the biomarkers used in diagnosis of Myocardial infarction. Discuss the pattern of elevation of various enzymes in Myocardial infarction
8. Discuss the Nutritional Causes of Anaemia. Add a note on Absorption, Transport and storage of Iron
9. A patient comes to physician's clinic with chief complaints of swelling of gums, petechial hemorrhages with easy bruisability since 3 months
 - a) What is the deficient water soluble vitamin?
 - b) Explain the biochemical functions of deficient vitamin.
 - c) Describe the deficiency manifestations of the vitamin
10. Discuss the biochemical and clinical significance of HMP shunt pathway.

SHORT NOTES

7 x 5 = 35 Marks

11. Compare and contrast between competitive and non-competitive enzyme inhibition with suitable examples.
12. Describe Oxidative phosphorylation. Add a note on its inhibitors
13. Explain different types of protein-energy malnutrition.
14. What are homopolysaccharides? Give examples. Explain their importance
15. Explain the respiratory regulation for Acid-Base balance.
16. What are poly unsaturated fatty acids? Give examples. Mention their significance
17. Enumerate the advantages of Physician being a Life-long learner.

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MULTIPLE CHOICE QUESTIONS (All scenario based)**20 x 1 = 20 Marks**

- 18 An adult lady came to OPD with complaints of fever and abdominal pain (right hypochondrial region) since 3 days. Patients gives history of passing high colored urine with normal color of stools. On examination, yellowish discoloration of skin and sclera are noticed.
- 18 (i) All the following enzyme levels will help in the diagnosis of above case **EXCEPT**
- A. Alanine Transaminase
 - B. Aspartate Transaminase
 - C. Acid Phosphatase
 - D. Alkaline Phosphatase
- 18 (ii) Which the following enzymes is likely to be increased significantly in the above case?
- A. Alanine Transaminase
 - B. Acid Phosphatase
 - C. Alkaline Phosphatase
 - D. Amylase
- 19 A 25-year-old went for trekking and he developed headache, dizziness, breathing difficulty sometime after reaching the peak. ABG data is as follows. Blood pH – 7.54, pCO₂ – 20 mm Hg, plasma bicarbonate– 26 mEq/L
- 19 (i) What is the Acid -base disorder in the above case?
- A. Metabolic Acidosis
 - B. Metabolic alkalosis
 - C. Respiratory Acidosis
 - D. Respiratory Alkalosis
- 19 (ii) What is the compensatory Mechanism?
- A. Hyperventilation
 - B. Hypoventilation
 - C. Reabsorption of bicarbonate ion
 - D. Excretion of bicarbonate ion
- 20 A 16-year-old lady came with history of imbalance while walking, weakness in both lower limbs since 5 months. She has difficulty in combing hair and buttoning clothes. On examination, she had ataxic gait.
- 20 (i) What is the deficient vitamin in the above case?
- A. Vitamin A
 - B. Vitamin B1
 - C. Vitamin B6
 - D. Vitamin C
- 20 (ii) The biochemical function of the deficient vitamin in the above case is:
- A. Acetylation
 - B. Gamma carboxylation
 - C. Oxidative decarboxylation
 - D. Transamination
- 21 A 5-year-old boy residing at kolar came to dentist with complaints of yellowish discoloration of teeth. On examination dentist observed mottling and stratification of teeth.
- 21 (i) Abnormality of which of the following nutrient causes the above condition?
- A. Calcium
 - B. Copper

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- C. Iodine
- D. Fluorine

- 21 (ii) The biochemical function of the abnormal nutrient is:
- A. Protects Gums
 - B. Formation of teeth
 - C. Protects enamel
 - D. Mineralization of teeth
- 22 7-month-old child was brought to the OPD with failure to thrive and bilateral opacities in the eye. On examination the child was found to have bilateral cataract, hepatomegaly and mental retardation
- 22 (i) What is the probable diagnosis for the above case?
- A. Galactosemia
 - B. Pompe's disease
 - C. Niemann-pick disease
 - D. Von-Gierke's disease
- 22 (ii) Which is the enzyme deficient in the above condition?
- A. Galactose-1-phosphate pyrophosphorylase
 - B. Galactose-1-phosphate uridyl transferase
 - C. Glucose-6-phosphatase
 - D. Liver phosphorylase
- 23 A 40-year-old person came with complaints of weight loss inspite of repeated eating, increased frequency of urination and recurrent infections. Provisional diagnosis of Diabetes mellitus is made.
- 23 (i) What is the diagnostic criteria for Diabetes mellitus?
- A. FBS >100 mg/dL
 - B. PPBS >200 mg/dL
 - C. HbA1c >5.4 %
 - D. All of the above
- 23 (ii) Which of these investigations is not used for monitoring of Diabetes mellitus patient?
- A. FBS
 - B. PPBS
 - C. HbA1c
 - D. OGTT
- 24 A 14-year-old boy came with complaints of generalized weakness, epileptic seizures and abdominal pain. On examination was found to have hepatomegaly and Kayser Fleischer ring around cornea.
- 24 (i) What is the biochemical defect?
- A. Decreased copper in diet
 - B. Decreased absorption of copper
 - C. Decreased copper binding protein
 - D. Increased excretion of copper
- 24 (ii) The penicillamine used in the treatment acts by
- A. Increasing absorption of copper
 - B. Increasing binding of copper

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- C. Increasing transport of copper
- D. Increasing excretion of copper

25 A 7-month-old child fell while crawling and presented with swollen leg. X-ray of affected leg showed fracture of femur. The bones were found to be thin. Past history revealed that by then child has had multiple fractures.

25 (i) What is the disorder of extracellular matrix in the above case?

- A. Ehlers-Danlos syndrome
- B. Marfans syndrome
- C. Osteogenesis imperfecta
- D. Menkes disease

25 (ii) The condition is caused is due to defect in _____

- A. Collagen type I
- B. Collagen type III
- C. Elastin type II
- D. Fibrillin Type I

26 A young boy met with a road traffic accident and lost the lot of blood due to injury. Renin angiotensin system plays a major role in the maintenance of fluid balance.

26 (i) All the following Factors stimulate the renin release **EXCEPT**:

- A. Angiotensin II
- B. Decreased blood pressure
- C. Salt depletion
- D. Prostaglandins

26 (ii) Which of the following is the action of Angiotensin converting enzyme (ACE)?

- A. Converts angiotensinogen to angiotensin I
- B. Converts angiotensin I to angiotensin II
- C. Converts angiotensin II to angiotensin III
- D. Converts angiotensin III to angiotensin II

27 A 8 month old girl was brought to the clinic in an irritable state. Weight was much lower than expected, mid arm circumference was low for age. The mother had stopped breast feeding at the age of 5 months and was now giving diluted formula milk. There was no evidence of swelling or abdominal distension.

27 (i) Which of the following is true for the above nutritional disorder?

- A. Essential fatty acid deficiency
- B. Primary protein deficiency
- C. Primary calorie deficiency
- D. Both calorie and protein deficiency

27 (ii) Which of the following is the biochemical laboratory finding will be observed in above nutritional disorder?

- A. Normal serum albumin and increased serum cortisol levels
- B. Increased serum albumin and serum cortisol levels
- C. Decreased both serum albumin and serum cortisol levels
- D. Increased serum albumin and normal serum cortisol levels

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MBBS Phase – I (CBME) Degree Examination - 29-Jan-2026

Time: Three Hours

Max. Marks: 100

BIOCHEMISTRY – PAPER – II (RS-7)

Q.P. CODE: 5506

(QP Contains Four Pages)

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAY

1 x 10 = 10 Marks

1. Describe the metabolic fate and functions of Methionine and Cysteine. Add a note on the diseases associated

REASONING QUESTIONS (Short Answer)

5 x 3 = 15 Marks

2. Why Adenosine deaminase deficiency causes lymphocytopenia?
3. Justify the statement "When lactose concentration increases, the lac operon is induced"
- 4.1. Why does Peroxidation of PUFA leads to loss of membrane function?
5. Why Urine colour appears pink to red in porphyria cutanea tarda?
6. Why do individuals with IgA deficiency often present with recurrent respiratory and gastrointestinal infections?

SHORT NOTES

4 x 5 = 20 Marks

7. A 38-year-old chronic **alcoholic** male presents with abdominal pain and jaundice. His lab results show, ALT: 150 IU/L, AST: 200 IU/L, ALP: 250 IU/L, GGT: 440 IU/L, Total bilirubin: 8 mg/dl, direct bilirubin: 6 mg/dl.
 - a) What is the probable diagnosis?
 - b) Interpret the laboratory investigation?
 - c) How is bilirubin transported in blood?
8. A 58-year-old male with sepsis presents with serum Urea: 120 mg/dl, creatinine: 2.3 mg/dL, urine output: 450 mL/day.
 - a) What is the probable diagnosis?
 - b) Mention the other causes for this organ failure.
 - c) Differentiate creatinine vs urea clearance
9. What are the causes for Hypothyroidism? Enumerate thyroid function tests
10. Enumerate the applications of Recombinant DNA technology

SHORT NOTES

7 x 5 = 35 Marks

11. Explain the structure of DNA with a neatly labelled diagram
12. Define Genetic code. Explain the characteristic features of Genetic code
13. Explain structural and functional relationship of proteins
14. What are Acute phase proteins? Give examples and mention their clinical significance
15. Define Xenobiotics. Explain the phases of detoxification
16. Explain the pathway of Uric acid synthesis
17. Identify and discuss the physician's role and responsibility to society that he/she serves

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MULTIPLE CHOICE QUESTIONS (All scenario based)**20 x 1 = 20 Marks**

- 18 A 1-year-old female infant was brought to the OPD with complaints of weakness, lethargy and decreased growth. On examination she was anemic, and urine contained elevated levels of orotic acid
- 18 (i) Administration of which of the following alleviates the symptoms?
- A. Adenine
 - B. Guanine
 - C. Thymidine
 - D. Uridine
- 18 (ii) which laboratory test differentiates deficiency of uridine monophosphate synthase from ornithine transcarbamoylase deficiency
- A. Blood ammonia
 - B. Serum creatinine
 - C. Uric acid
 - D. Electrolytes
- 19 A 10-year-old girl is brought by her parents to the family doctor. She has many freckles on her face, neck arms and hands. Parents reported she is unusually sensitive to sunlight. Two basal cell carcinomas are also identified on her face.
- 19 (i) What is the probable diagnosis?
- A. Hereditary nonpolyposis colon cancer
 - B. Xeroderma pigmentosum
 - C. Ataxia telangiectasia
 - D. Riboflavin deficiency
- 19 (ii) Which of the following is likely to be defective in this patient?
- A. Repair of double strand breaks by error prone homologous recombination
 - B. Removal of mismatched bases from 3' end by methyl directed process.
 - C. Removal of pyrimidine dimers from DNA by nucleotide excision repair
 - D. Removal of Uracil from DNA by base excision repair
- 20 A 2-week-old infant is diagnosed with an urea cycle defect. Enzymatic analysis showed no activity for Ornithine transcarbamoylase. Molecular analysis revealed that the mRNA product of the gene for OTC was identical to that of a control
- 20 (i) Which of the techniques was most likely used to analyse mRNA?
- A. Northern Blot
 - B. Western Blot
 - C. Southern Blot
 - D. Eastern blot
- 20 (ii) Which phase of Central dogma was affected in this patient?
- A. Replication
 - B. Transcription
 - C. Translation
 - D. None of the above
- 21 A 40-year old female presented to the clinic with lump in right breast. A mammogram performed revealed a breast mass with numerous macrocalcifications suggestive of breast cancer.
- 21 (i) What cancer gene might be associated?
- A. BRCA gene
 - B. P53
 - C. FAP
 - D. RB

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- 21 (ii) What is the tumour marker associated with breast cancer?
- A. PSA
 - B. CA-125
 - C. AFP
 - D. HER-2 neu
- 22 A 50-year-old man presented with painful blisters on the backs of his hands. He was a golf instructor and indicated that the blisters had erupted shortly after the golfing season began. The patient's urine was reddish orange. A 24-hour urine collection showed elevated uroporphyrin
- 22 (i) The most likely diagnosis is:
- A. Congenital erythropoietic porphyria
 - B. Acute intermittent porphyria.
 - C. Hereditary coproporphyria.
 - D. Porphyria cutanea tarda
- 22 (ii) The enzyme deficient in this porphyria is
- A. UPG III co Synthase
 - B. UPG decarboxylase
 - C. CPG III Oxidase
 - D. PBG deaminase
- 23 An adolescent girl presents with subluxation of lens and mental retardation. On examination she is tall and thin with elongated limbs. Mild scoliosis was present with pectus excavatum and genu valgum. One of her sisters had similar complaints.
- 23 (i) What is the likely disorder?
- A. Homocystinuria
 - B. Cystinuria
 - C. Albinism
 - D. MSUD
- 23 (ii) What is the enzyme deficient in this disorder?
- A. Cystathionine Beta Synthase
 - B. Cystathionase
 - C. Methionine Adenosyl transferase
 - D. None of the above
- 24 A 32-year old woman presented to surgery OPD with complaints of pain abdomen with irregular menstrual cycles. She also had history of sudden weight loss. Ultrasound abdomen shows mass in the ovaries. She was diagnosed to have carcinoma of ovaries.
- 24 (i) Cancer is mainly caused by
- A. Uncontrolled meiosis
 - B. Uncontrolled mitosis.
 - C. Cell rupture
 - D. Loss of immunity
- 24 (ii) Cancer causing oncogenes are not expressed because of the presence of
- A. Protooncogenes
 - B. Tumor promoters
 - C. Tumour suppressor genes
 - D. Jumping genes
- 25 A first year MBBS student after her biochemistry free radicals lecture class decided to include Aqueous phase antioxidant in her daily diet.
- 25 (i) The antioxidant is
- A. Vitamin E
 - B. Vitamin A
 - C. Vitamin D
 - D. Vitamin C

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- 25 (ii) Chain breaking Anti-oxidant is
- A. Vitamin E
 - B. Vitamin A
 - C. Vitamin D
 - D. Vitamin C
- 26 A 55-year old female presented to dermatology OPD with complaints of swelling of lips, rashes all over the body and facial puffiness. She gives history of having food from outside the previous night. She was diagnosed to have Urticaria. She was advised for serum investigations.
- 26 (i) Which of the following Immunoglobulins will be elevated
- A. IgA
 - B. IgM
 - C. IgE
 - D. IgG
- 26 (ii) One of following is true about the elevated Immunoglobulin in the above condition
- A. Contributes to 75-80% of total Ig
 - B. Macroglobulins
 - C. Secretory antibodies.
 - D. Have the property to fix on mast cells
- 27 A person came with a complaint of wrong results of his blood sugar level. The technologist approached consultant biochemist for the same.
- 27 (i) What did the biochemist check **EXCEPT**?
- A. Daily Internal QC
 - B. Values of blood sugar in the analyser
 - C. LJ chart
 - D. External Quality control
- 27 (ii) The sample for blood sugar analysis should be collected in
- A. EDTA vacutainer
 - B. Heparin vacutainer
 - C. Sodium fluoride vacutainer
 - D. Citrate vacutainer
