Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 03-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - I (RS-4)
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. Describe the lateral wall of nose under the following headings
   a) Features b) Blood supply c) Nerve supply d) Applied anatomy
2. A two year old child was brought to the emergency department with history of swallowing of plastic bead.
   a) Which is the likely bronchopulmonary segment lodging this foreign body
   b) Define a bronchopulmonary segment
   c) Mention the Bronchopulmonary segments of both lungs
   d) Explain the features and relations of medial surface of left lung

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

3. Describe the microscopic structure of transverse section of bone with a neat labelled diagram
4. Define twinning. Mention its types and their embryological basis
5. Draw a neat labelled diagram of transverse section of Pons at the level of facial colliculus
6. Describe the attachments, nerve supply and action of serratus anterior. Define winging of scapula
7. Describe the origin, course, branches and clinical significance of brachial artery
8. A 30 year old male with numbness and weakness in the thenar aspect of palm attended OPD. On examination paper holding test was positive
   a) Name the nerve involved and its root value.
   b) Draw a labelled diagram showing the area of distribution of sensory loss.
   c) List the muscles affected.
9. Trace the vertical disposition and modifications of general investing layer of deep cervical fascia
10. Write the anatomical classification of cerebellum with its functions. Name the Deep nuclei of cerebellum.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Classify **cartilaginous joints** with examples
12. Differentiate pneumatic and sesamoid bone with examples
13. Draw a neat labelled diagram of **Graafian** follicle
14. List the structures related to the neck of 1st rib
15. Mention the branches of right coronary artery
16. Name the dangerous layer of scalp and its clinical importance
17. List the muscles of soft plate
18. Mention the general, special sensory and motor nerve supply of anterior 2/3rd of tongue
19. List the structures piercing the clavipectoral fascia.
20. Mention the parts of Basal ganglia.

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Choroid plexus of fourth ventricle is derived from
- A. Basilar artery
- B. Posterior inferior cerebellar artery
- C. Superior cerebellar artery
- D. Posterior cerebral artery

21 ii) Which of the following muscles is supplied by glossopharyngeal nerve
- A. Stylopharyngeus
- B. Styloglossus
- C. Stylohyoid
- D. Sternohyoid

21 iii) Atypical ribs are
- A. 1, 9, 10,11, 12
- B. 1, 2, 3, 11, 12
- C. 1, 2, 10, 11, 12
- D. 8, 9, 10, 11, 12

21 iv) How many bronchial arteries supply the right lung?
- A. 1
- B. 2
- C. 3
- D. 4

21 v) Perichondrium is absent in which of the following cartilage
- A. Elastic
- B. Hyaline
- C. Fibrous
- D. All of the above

22 i) Mandibular nerve supplies all of following **EXCEPT**
- A. Mylohyoid
- B. Medial Pterygoid
- C. Lateral Pterygoid
- D. Stylohyoid

22 ii) Motor fibres to the muscles of pharynx and larynx arise from
- A. Dorsal nucleus of vagus
- B. Nucleus of tractus solitarius
- C. Nucleus ambiguus
- D. Mesencephalic nucleus of trigeminal nerve

22 iii) Axillary sheath is derived from
- A. Pretracheal fascia
- B. Pharyngobasilar fascia
- C. Prevertebral fascia
- D. Investing layer of deep cervical fascia

22 iv) All are the end results of fertilization **EXCEPT**
- A. Restoration of diploid number of chromosomes
- B. Determination of sex of embryo
- C. Completion of 2nd meiotic division of female gamete
- D. Completion of 2nd meiotic division of male gamete

22 v) End artery is present in which of the following organs
- A. Intestine
- B. Stomach
- C. Spleen
- D. Testis

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 07-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - II (RS-4)
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 interior, blood supply and applied aspects of anal canal

2. Describe the components and factors maintaining the medial and lateral longitudinal arches of foot. Add a note on its clinical significance.

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

3. Describe the supports of uterus
4. Describe the boundaries and contents of ischiorectal fossa
5. Describe the microscopic structure of suprarenal gland with a neat labelled diagram
6. Describe the development of testes. Add a note on descent of testes
7. Mention the sites of portocaval anastomosis. Explain the anatomical basis of haematemesis and caput medusa in portal hypertension
8. Compare and contrast autosomal dominant and autosomal recessive inheritance
9. Describe the coverings and relations of both kidneys
10. A 60 year old male came to OPD with complaints of loss of weight and pain in the abdomen, since eight months. On evaluation he was diagnosed with carcinoma of stomach
    a) Mention the commonest route of spread of carcinoma
    b) Describe blood supply and lymphatic drainage of stomach

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Mention the formation and drainage of pampiniform plexus of veins
12. Mention the boundaries of trigone of bladder
13. List the derivatives of mesonephric duct in males
14. List the peritoneal ligaments of spleen and their contents
15. Name the muscles of second layer of sole
16. Draw a neat labelled diagram of microscopic structure of duodenum
17. List the branches of femoral nerve
18. Mention the structures crossed by mesentery
19. Draw a neat labelled diagram of microscopic structure of fallopian tube
20. Mention the location and clinical significance of Mc. Burney's point

Rajiv Gandhi University of Health Sciences, Karnataka

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) The artery to ductus deferens arises from
- A. Cremasteric artery
- B. Superior vesical artery
- C. Testicular artery
- D. Deep external pudendal artery

21 ii) Colle's fascia is a continuation of
- A. Scarpa's fascia
- B. Camper's fascia
- C. Fascia lata
- D. Fascia Gerota

21 iii) Meissner's plexus is located in which plane
- A. Mucosal
- B. Submucosal
- C. Intra muscular
- D. subserosal

21 iv) Cardio oesophageal junction of stomach is located at the level
- A. 9^{th} thoracic
- B. 10^{th} thoracic
- C. 11^{th} thoracic
- D. 12^{st} thoracic

21 v) The muscle attached to tuberosity of Navicular bone is
- A. Peroneus longus
- B. Tibialis anterior
- C. Tibialis posterior
- D. Extensor hallucis longus

22 i) The accessory obturator artery is a branch of
- A. Superior epigastric artery
- B. Internal iliac artery
- C. External iliac artery
- D. Inferior epigastric artery

22 ii) The nutrient artery to fibula is a branch of
- A. Anterior tibial artery
- B. Posterior tibial artery
- C. Popliteal artery
- D. Peroneal artery

22 iii) Remnant of left umbilical vein is
- A. Ligamentum venosum
- B. Median umbilical ligament
- C. Ligamentum teres hepatis
- D. Medial umbilical ligament

22 iv) Oblique popliteal ligament is pierced by
- A. Superior lateral genicular vessels
- B. Inferior lateral genicular vessels
- C. Inferior medial genicular vessels
- D. Middle genicular vessels

22 v) Trisomy 18 is
- A. Down's syndrome
- B. Patau syndrome
- C. Edward syndrome
- D. Turner syndrome

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MBBS Phase – I Degree Examination - 03-Feb-2023

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 Tongue under following headings:
   a) External Features b) Muscles c) Nerve supply d) Lymphatic Drainage e) Applied Anatomy

2. Describe shoulder joint under following headings:
   a) Type and articular surfaces b) Ligaments c) Relations d) Applied anatomy

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Spermatogenesis.
4. Muscles of mastication.
5. Cubital Fossa
6. Development of Placenta
7. **Dural folds**
8. Microscopic Structure of transverse section of compact bone.
9. Superior Mediastinum
10. Waldeyer's ring
11. Draw neat labeled **diagram of a cross-**section of spinal cord at thoracic level
12. Bronchopulmonary segments.

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Supinators of Forearm
14. Draw neat labeled diagram of mediastinal surface of left lung
15. Notochord
16. Name layers of skin
17. Name components of Lacrimal apparatus
18. Major openings in the diaphragm.
19. Blood supply of long bone
20. Maxillary air sinus
21. Openings in right atrium
22. Musculocutaneous nerve

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MBBS Phase – I (CBME) Degree Examination - 03-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - I (RS-4)
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. Describe the lateral wall of nose under the following headings

   a) Features b) Blood supply c) Nerve supply d) Applied anatomy
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   a) Which is the likely bronchopulmonary segment lodging this foreign body
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9. Trace the vertical disposition and modifications of general investing layer of deep cervical fascia
10. 1. Write the anatomical classification of cerebellum with its functions. Name the Deep nuclei of cerebellum.
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12. Differentiate pneumatic and sesamoid bone with examples
13. Draw a neat labelled diagram of **Graafian** follicle
14. List the structures related to the neck of 1st rib
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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 07-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - II (RS3)
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. Describe the femoral triangle under the following headings: a) Boundaries b) Contents c) Applied aspect
2. Describe the gross anatomy of Utreus in detail. Add a note on its applied anatomy.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Development of interatrial septum.
4. Microscopic structure of duodenum.
5. Rectus sheath.
6. Portal Vein.
7. Prenatal diagnosis.
8. Adductor canal.
9. Development of pancreas.
10. Microscopic structure of kidney.
11. Down's syndrome.
12. Lymphatic drainage of stomach.

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Coverings of testis
14. Branches of popliteal artery.
15. Name the components of extra hepatic biliary apparatus.
16. Pouch of Douglas.
17. Inguinal hernia.
18. Perineal membrane.
19. Cutaneous innervation of dorsum of foot.
20. Contents of broad ligament.
21. Cardinal features of large intestine.
22. Blood supply of suprarenal gland.

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 09-Feb-2023

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. Define Blood Pressure. Explain the regulation of Blood Pressure.
2. Describe Oxygen Transport. What is Bohr effect?

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Describe intrinsic mechanism of coagulation.
4. Describe the respiratory centres.
5. Functions of Bile.
6. Features of coronary circulation
7. Non-respiratory functions of lung
8. Intestinal movements
9. Renal handling of sodium
10. Describe the conducting system of the heart.
11. Anticoagulants
12. Artificial respiration

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Chloride shift.
14. Facilitated diffusion
15. Sino atrial node.
16. Cystometrogram
17. Peptic ulcer.
18. Filtration fraction
19. Timed vital capacity
20. Artificial kidney.
21. Define GFR. Mention its normal value.
22. Differences between first and second heart sounds.

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MBBS Phase – I (CBME) Degree Examination - 09-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - I (RS-4)
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. Discuss the cardiorespiratory changes seen in a person doing moderate isotonic exercise

   Or

   Define Blood Pressure. List the factors regulating blood pressure. Add a note on long term regulation of blood pressure

2. Explain the mechanism of HCL secretion in gastric juice and discuss the factors regulating it

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

3. Explain the pressure changes in the lung during normal respiration
4. Explain the organization of body fluids compartments. Mention one method to measure extra cellular fluid volume and total body water
5. Discuss the factors regulating glomerular filtration
6. A 20-year-old male was brought to the casualty following a road traffic accident. On examination his extremities were found to be cold and clammy, heart rate 102/min and blood pressure 70/50 mm of Hg

   a) Explain the physiological basis of cold clammy extremities
   b) Classify shock and state Marey's law

7. Explain the intrinsic mechanism of coagulation
8. Explain the Bohr effect and Haldane effect
9. Discuss the mechanism of fat digestion and absorption in gastrointestinal tract
10. Describe the buffer systems present in renal tubules

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Mention the physiological basis of increased ventilation perfusion ratio in apex of lung
12. Classify anaemia on the basis of morphology with examples
13. Mention the causes for the waves of Jugular venous pulse
14. List different layers of respiratory membrane
15. Explain the basis of using phototherapy for physiological jaundice
16. Explain the basis of megaloblastic anemia seen after gastrectomy

17. Enumerate the function of platelets

18. Explain Laplace law with reference to urinary bladder

19. List the properties of cardiac muscle

20. Explain the mechanism of action of loop diuretics

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Cephalic phase of gastric juice secretion is controlled mainly by
- A. Neural factors
- B. Hormonal factors
- C. Gastric distension
- D. Presence of proteins in stomach

21 ii) Atrial systole coincides with ventricular
- A. Isometric contraction
- B. Rapid ejection phase
- C. Last rapid filling phase
- D. Isometric relaxation

21 iii) Descending limb of loop of Henle is permeable to all **EXCEPT**
- A. Water
- B. Sodium
- C. Urea
- D. Glucose

21 iv) PCO2 of alveolar air in mm of Hg
- A. 104
- B. 46
- C. 40
- D. 27

21 v) Maximum velocity of conduction in the cardiac musculature is seen in
- A. SA node
- B. Av node
- C. Bundle of His
- D. Purkinje fibers

22 i) Edema can develop due to
- A. Decrease in capillary hydrostatic pressure
- B. Increase in interstitial fluid hydrostatic pressure
- C. Decrease in capillary oncotic pressure
- D. Decrease in interstitial fluid colloid osmotic pressure

22 ii) The plasma level at which a substance first appears in urine is
- A. Renal threshold
- B. Renal clearance
- C. Tubular maximum
- D. Filtered load

22 iii) Chief cells of gastric gland secrete
- A. Hydrochloric acid
- B. Mucous
- C. Pepsinogen
- D. Intrinsic factor

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22 iv) Decompression sickness is due to
- A. Increased partial pressure of nitrogen in alveolar air
- B. Bubbling of CO2 in tissues
- C. Decreased PO2 in atmospheric air
- D. Nitrogen bubbles in body fluids

22 v) Warfarin acts as an anticoagulant by decreasing
- A. Calcium content in blood
- B. Active form of vitamin K
- C. Thrombin level
- D. Platelet aggregation

MBBS Phase – I Degree Examination - 11-Feb-2023

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. Define menstrual cycle. Explain the various phases with help of diagram. What is amenorrhea?

2. Describe the structure, connections and functions of cerebellum. Mention the signs of cerebellar lesion.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Brown sequard syndrome
4. Myoneural junction
5. Differences between REM and NREM sleep.
6. Functions of middle ear
7. Stretch reflex
8. Color blindness
9. Describe the nerve action potential.
10. Hyperthyroidism.
11. Actions of growth hormone
12. Taste pathway

SHORT ANSWERS **10 x 3 = 30 Marks**

13. What is dark adaptation and light adaptation?
14. LH Surge
15. Mention the site and uses of lumbar puncture.
16. List the compensatory changes that occur on exposure to high temperature.
17. List the hormones secreted from anterior pituitary gland.
18. What is Aldosterone escape?
19. Strength duration curve
20. Types of smooth muscles
21. Draw a labelled diagram of sarcomere.

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MBBS Phase – I (CBME) Degree Examination - 14-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – PAPER I (RS-4)
QP Code: 1024
(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 medical student who had an exam on the next day did not eat anything the previous night. Next day morning, he had severe headache and giddiness before exam. His fasting plasma glucose was 48 mg/dl.
   a) Interpret the plasma glucose value
   b) Name the metabolic pathways which maintain blood glucose in fasting state
   c) Explain the metabolic pathway that synthesise glucose from pyruvate

2. Mention the active form of Vitamin D. Describe the synthesis, biochemical functions and RDA of Vitamin D.

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

3. A 48-year-old man diagnosed with myocardial infarction (MI) had an altered lipid profile with elevated total cholesterol and LDL cholesterol.
   a) Write the biological reference interval of LDL cholesterol.
   b) Explain the formation of LDL cholesterol.
   c) Reason out why LDL cholesterol is atherogenic.
4. A 70-year-old man suffered an attack of pneumonia. He found it difficult to breathe and was losing consciousness. His Arterial Blood Gas (ABG) report was as follows: pH=7.1, pCO2 = 52 mmHg, Plasma Bicarbonate (HCO_3^-) = 25 meq/L.
   a) Interpret the ABG report.
   b) Write the compensatory mechanism in the above acid-base disorder.
5. Mention biological reference interval for serum calcium. Describe any four functions of calcium.
6. Define Isoenzymes. Mention the Isoenzymes of creatine phosphokinase (CPK) and write their significance.
7. Define Basal Metabolic Rate (BMR). Enumerate the factors affecting BMR.
8. Explain the metabolic adaptations in well-fed state.
9. Explain competitive inhibition of enzymes with two examples.
10. Explain the functions of peroxisomes and describe their role in fatty acid oxidation.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. What is fatty liver? Mention any two lipotropic factors.
12. What is hyponatremia? List two causes of hyponatremia.
13. Component of oral rehydration solution (ORS) has sodium chloride and glucose. What is purpose of adding glucose in ORS?
14. Mention any three site specific inhibitors of electron transport chain.
15. Name the enzyme defect in von Gierke's disease. Write the biochemical alterations in von Gierke's disease.
16. What is the cause of pellagra? Write the clinical manifestations of pellagra.
17. A diabetic patient was advised not to take polished rice but to take brown rice. Explain the reasons for the same.
18. Mention three homopolysccharides of glucose and write their biological importance.

19. Write the biochemical defect in Ehler Danlos Syndrome and Osteogenesis imperfecta.
20. Write the biochemical cause of respiratory distress syndrome in premature babies.

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Hexokinase belongs to which class of enzymes?
- A. Oxidoreductase
- B. Transferase
- C. Hydrolase
- D. Lyase

21 ii) Which of the following vitamins is used in the electron transport chain?
- A. Riboflavin
- B. Pantothenic acid
- C. Pyridoxine
- D. Biotin

21 iii) Glucose and fructosare monosaccharide units of
- A. Lactose
- B. Maltose
- C. Sucrose
- D. Isomaltose

21 iv) The sugar component of cerebroside is
- A. Galactose
- B. Lactose
- C. Fructose
- D. Ribose

21 v) The normal Anion gap is
- A. 4-8 mmol/L
- B. 10-14 mmol/L
- C. 16-20 mmol/L
- D. 22-26 mmol/L

22 i) Limiting amino acid in the protein gelatin is
- A. Lysine
- B. Threonine
- C. Tryptophan
- D. Methionine

22 ii) Which coenzyme is responsible for carboxylation reactions
- A. Biocytin
- B. FAD
- C. NAD
- D. TPP

22 iii) Hormone insulin activates which of the following pathway
- A. Glycogenolysis
- B. Gluconeogenesis
- C. Glycolysis
- D. Lipolysis

22 iv) In Wilson's disease copper accumulates in all of the following tissues **EXCEPT**
- A. Eyes
- B. Spleen
- C. Brain
- D. Liver

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22 v) The marker enzyme for microsomes is
- A. ATP synthase
- B. Cathepsin
- C. Glucose-6-phosphatase
- D. Lactate dehydrogenase

MBBS Phase – I (CBME) Degree Examination - 16-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – PAPER II (RS-4)
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 10 year old boy was brought to the hospital for self-multilating behaviour and delayed development. His serum uric acid level was 15 mg/dl. A provisional diagnosis of Lesch Nyhan syndrome was made.
   a) Write the biological reference interval for serum uric acid level.
   b) Name the enzyme defect and the pathway affected in the above disorder.
   c) Which tissues are dependent on this pathway?
   d) Enumerate the other causes of hyperuricemia
   e) What is the role of allopurinol in the treatment of hyperuricemia?

2. Describe the steps of DNA replication in prokaryotes. List the difference between prokaryotic and eukaryotic DNA replication.

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

3. a) A 15 year old tribal boy was admitted with complaints of fatigue, recurrent fever and pain in arms and legs. His peripheral blood smear shows sickled erythrocytes and a hemoglobin concentration of 6 gm%.

   a) Name the molecular defect in this disorder.
   b) Explain the mechanism of sickling.
   c) What is the cause of anemia in this condition?

4. d) An intravenous drug user was found to have developed jaundice. Laboratory investigations revealed hepatitis B infection. His total serum bilirubin was 10.2 mg/dl.

   a) What type of jaundice is seen in above case?
   b) Explain van den Bergh test and write its interpretation in the above case.

5. Describe the steps in this polymerase chain reaction (PCR). Name the type of PCR used in the diagnosis of Covid 19.

6. Name any three products derived from tyrosine. Describe the metabolic pathway leading to the formation of any one of the product from tyrosine.

7. Draw the structure of immunoglobulin G and label it. Enumerate its functions.

8. What is lipid peroxidation? Explain the role of antioxidants in scavenging reactive oxygen species.

9. Write the steps in the formation of creatine and glutathione from glycine.

10. Describe the glomerular function tests.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Name three tumor markers and mention their significance.

12. What is the enzyme defect in maple syrup urine disease? What are its characteristic features?

13. List the adrenal function tests. Mention one disorder associated with abnormal adrenal function.

14. Enlist three biologically important peptides and write their functions.

15. What are xenobiotics? Write two detoxification reactions by conjugation.

16. Name three biologically important nucleotides and mention their importance.

17. Mention three advantages of automation in clinical biochemistry laboratory.

18. Enlist three post-translational modifications with suitable examples.

19. Mention normal albumin/globulin (A/G) ratio. Write two conditions where A/G ratio is altered.

20. What is restriction fragment length polymorphism (RFLP). Mention two clinical applications of RFLP.

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) All the following are glucogenic amino acids **EXCEPT**
- A. Valine
- B. Phenylalanine
- C. Glycine
- D. Leucine

21 ii) N_3 of purine ring is donated by
- A. Asparate
- B. Glycine
- C. Glutamine
- D. Ammonia

21 iii) Which of the following enzymes is responsible for immortality of cancer cells?
- A. Telomerase
- B. RNA polymerase I
- C. DNA polymerase
- D. Helicase

21 iv) In which of the following conditions is serum direct bilirubin elevated
- A. Physiological jaundice in the newborn
- B. Crigler – Najjar syndrome
- C. Gilbert's syndrome
- D. Gall stones

21 v) Enzyme defect in acute intermittent porphyria is
- A. ALA synthase
- B. ALA dehydratase
- C. PBG deaminase
- D. Uroporphyrinogen decarboxylase

22 i) Closeness of a result to the true value is termed as
- A. Precision
- B. Accuracy
- C. Sensitivity
- D. Specificity

22 ii) Reference interval for pH of urine is
- A. 3.5 to 4.5
- B. 5.5 to 6.5
- C. 7.5 to 8.5
- D. 9.5 to 10.5

22 iii) Southern blotting technique is used for detection of
- A. DNA
- B. RNA
- C. Protein
- D. Lipoprotein

22 iv) Which of the following is an example for acute phase protein?
- A. Prothrombin
- B. C-reactive protein
- C. Lipoprotein A
- D. Thyroxine binding globulin (TBG)

22 v) Epidermal growth factor (EGF) is produced by
- A. Platelets
- B. Monocytes
- C. Endothelial cells
- D. Fibroblasts

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MBBS Phase – I (CBME) Degree Examination - 25-Apr-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - I (RS-4)
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. Describe the ulnar nerve under the following headings
   a) Root value
   b) Course and relations in hand
   c) Branches in hand
   d) Applied anatomy

2. A 20 year old young adult gets hit by a cricket ball on the left eye. He complained of double vision. On examination, lateral squint was observed.
   a) Mention the muscle affected in lateral squint.
   b) Describe the attachment, nerve supply and actions of all the extraocular muscles of eyeball.

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

3. Describe the microscopic structure of serous salivary gland with a neat labelled diagram.
4. Describe the formation and fate of Notochord.
5. Describe the interior of right atrium.
6. Define a bronchopulmonary segment. Enumerate the bronchopulmonary segments of both lungs. Add a note on applied anatomy
7. Describe the origin, insertion, nerve supply and actions of Triceps brachii.
8. Describe the origin, course and branches of Facial artery.
9. Describe the boundaries and recesses of third ventricle.
10. Describe the parts, relations and connections of corpus callosum.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Enumerate the paranasal air sinuses.
12. Define implantation. Mention any two abnormal sites of implantation.
13. List the structures piercing clavipectoral fascia.
14. Classify fibrous joints with examples.
15. Mention the vertebral levels of major openings of diaphragm. Enumerate the structure passing through them.
16. List three differences between cartilage and Bone.
17. List any six events occurring at sternal angle.
18. Mention the blood supply of Thyroid gland.
19. List out the components of Waldeyer's ring.
20. Enumerate the deep cerebellar nuclei

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Which of the following is a content of upper triangular space?
- A. Radial nerve
- B. Axillary nerve
- C. Suprascapular artery
- D. Circumflex scapular artery

21 ii) Lower limit of pleura at mid-axillary line is at the level of
- A. T_6
- B. T_8
- C. T_{10}
- D. T_{12}

21 iii) Oculomotor nuclear complex is present in
- A. Midbrain
- B. Pons
- C. Medulla oblongata
- D. Spinal cord

21 iv) Which of the following structures traverses the whole length of mediastinum
- A. Recurrent laryngeal nerve
- B. Trachea
- C. Brachiocephalic vein
- D. Sympathetic trunk

21 v) The three barriers that sperm has to penetrate before fertilization include all the following **EXCEPT**
- A. Acrosomal cap
- B. Vitelline membrane
- C. Corona radiata
- D. Zona pellucida

22 i) Which of the parasympathetic ganglion does **NOT** have a secretomotor root
- A. Ciliary
- B. Otic
- C. Pterygopalatine
- D. Submandibular

22 ii) Which of the following is called the Lymph node of tongue
- A. Post auricular
- B. Jugulo omohyoid
- C. Jugulo digastric
- D. Pre auricular

22 iii) Falx cerebri is related to which of the following dural venous sinuses
- A. Superior and inferior sagittal sinus
- B. Superior and Inferior petrosal sinus
- C. Transverse and sigmoid sinus
- D. Anterior and posterior intercavernous sinus

22 iv) Which of the following is a microscopic feature of cardiac muscle
- A. Eccentric nucleus
- B. Fusiform shaped
- C. Intercalated disc
- D. No branching

22 v) The first bone to start ossifying is
- A. Mandible
- B. Femur
- C. Clavicle
- D. Humerus

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MBBS Phase – I (CBME) Degree Examination - 27-Apr-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - II (RS-4)
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 uterus under following headings:
   a) Parts and position b) Relations c) Supports d) Applied anatomy

2. Describe hip joint under following headings:
   a) Type of joint and articular surfaces b) Ligaments c) Movements and muscles causing them d) Applied anatomy

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

3. Describe the microscopic structure of testis with a neat labelled diagram
4. Describe the development of pancreas
5. Define Karyotyping. Group chromosomes according to Denver's classification
6. Describe the boundaries and contents of superficial perineal pouch
7. A 60 year old patient came with a history of loss of appetite and loss of weight, since 8 months. He also complains of pain abdomen and bloating sensation. On evaluation he was diagnosed with carcinoma of stomach
   a) Explain the mode of spread of carcinoma
   b) Draw neat labelled diagram of lymphatic drainage of stomach
   c) Add a note on arterial supply of stomach
8. Describe the borders, surfaces and relations of right and left kidneys
9. Describe the parts, relations, blood supply and functions of gall bladder
10. Describe the origin, course and branches of inferior mesenteric artery

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Mention the muscles causing inversion and eversion of foot
12. Enumerate the boundaries of Epiploic foramen
13. List the contents of pudendal canal
14. Mention the derivatives of paramesonephric duct
15. Mention any six tributaries of inferior vena cava
16. List the contents of spermatic cord
17. Mention the attachments of superior and inferior extensor retinaculum of foot
18. Draw a neat labelled diagram of microscopic structure of urinary bladder
19. Enumerate any three differences between of microscopic structure of duodenum and Ileum
20. Differentiate Pectinate line and Hilton's line

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Muscle causing unlocking of knee joint is
- A. Pectineus
- B. Popliteus
- C. Peroneus longus
- D. Piriformis

21 ii) Medial compartment of thigh is supplied by
- A. Femoral nerve
- B. Obturator nerve
- C. Sciatic nerve
- D. Tibial nerve

21 iii) Lateral circumflex femoral artery is a branch of
- A. Femoral artery
- B. Profunda femoris artery
- C. Inferior gluteal artery
- D. Popliteal artery

21 iv) Ligamentum teres hepatis is a remnant of
- A. Urachus
- B. Umbilical artery
- C. Umbilical vein
- D. Ductus venosus

21 v) External oblique arises from outer surfaces of lower 8 ribs just adjacent to the origin of
- A. Serratus anterior
- B. Internal oblique
- C. Transversus abdominis
- D. Rectus abdominis

22 i) The lining epithelium of epididymis is
- A. Simple columnar
- B. Simple cuboidal
- C. Pseudo stratified columnar
- D. Stratified columnar

22 ii) The karyotype of Klinefelter's syndrome is
- A. 47 XXX
- B. 47 YYY
- C. 47 XXY
- D. 47 XYY

22 iii) Space of Retzius is related to
- A. Urinary bladder
- B. Uterus
- C. Ovary
- D. Rectum

22 iv) The root value of pelvic splanchnic nerves
- A. S_1, S_2, S_3
- B. S_2, S_3, S_4
- C. S_3, S_4, S_5

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D. L_5, S_1, S_2

22 v) Inferior pancreatico duodenal vein drains into
A. Left gastric vein
B. Right gastroepiploic vein
C. Splenic vein
D. Superior mesenteric vein

MBBS Phase – I (CBME) Degree Examination - 29-Apr-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - I (RS-4)
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. Define cardiac output. Explain in detail the factors regulating cardiac output. Add a note Fick's principle

2. Enumerate different types of chemo receptors. Explain their role in chemical regulation of respiration. Add a note on breath holding

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

3. Explain the intrinsic mechanism of blood clotting
4. Discuss the characteristic features of coronary circulation
5. Explain the counter current multiplier system in kidney
6. Discuss the mechanism of cell mediated immunity
7. A male aged 55 years was brought to emergency department with history of retro sternal pain since morning, pain in epigastrium radiating to left shoulder, profuse sweating. He is a known diabetic and hypertensive on irregular treatment
   a) What is the probable diagnosis?
   b) What are the expected ECG changes in this condition?
   c) Why is the subendocardium more prone to Ischaemia?
8. With a neat labelled diagram, explain the different lung volumes and capacities
9. Discuss the functions of exocrine pancreatic juice and its regulation
10. Explain the micturition reflex and its higher control

SHORT ANSWERS **10 x 3 = 30 Marks**

11. What is ejection fraction? Mention its clinical significance
12. Explain the significance of Timed Vital Capacity
13. Explain the physiological basis of anaemia in kidney disease
14. List the functions of saliva
15. Explain the genesis of resting membrane potential
16. Explain type I hypersensitivity reaction

17. Explain the physiological basis of lactose intolerance

18. Enumerate the functions of lymph

19. What is respiratory acidosis? Mention one condition causing it

20. Explain the pathophysiology of peptic ulcer

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) The pacemaker potential is due to:
- A. Fast Na^+ channel
- B. Na^+ entry through funny channels
- C. Slow Ca^{++} efflux
- D. Rapid repolarization

21 ii) True regarding endothelin-1 is all **EXCEPT**
- A. Broncho dilatation
- B. Vasoconstriction
- C. Decreased GFR
- D. Local regulation

21 iii) Measurement of anatomic dead space is by:
- A. O_2 breath test
- B. Helium dilution test
- C. N_2 breath test
- D. pCO_2

21 iv) Oxygen therapy is least useful in:
- A. Anaemia
- B. ARDS
- C. Alveolar damage
- D. COPD

21 v) In renal disease albumin appears in urine because:
- A. Of its high concentration in plasma
- B. Negative charges in the glomerular wall are dissipated
- C. High albumin: globulin ratio
- D. Tubular epithelial cells are sensitive to albumin

22 i) Which of the following does not form a filtration barrier in nephrons:
- A. Podocytes
- B. Mesangium
- C. Endothelial cell
- D. Basement membrane

22 ii) Clathrin is used in:
- A. Receptor mediated endocytosis
- B. Exocytosis
- C. Cell to cell adhesion
- D. Plasma membrane

22 iii) Major regulator of inter digestive myo-electric complexes:
- A. VIP
- B. GIP
- C. Motilin
- D. Neurotensin

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22 iv) Equilibrium potential for an ion is calculated by using:
- A. Gibbs – Donnan equilibrium
- B. Nernst equation
- C. Goldman equation
- D. Donnan equilibrium

22 v) Glycosylated haemoglobin is known to be a good indicator of :
- A. Blood cholesterol levels
- B. Blood triglyceride levels
- C. Plasma protein levels
- D. Blood glucose levels

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MBBS Phase – I (CBME) Degree Examination - 02-May-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - II (RS-4)
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. List the nuclei of hypothalamus. Explain the functions of hypothalamus
2. What is normal serum calcium level? Describe the hormonal regulation of serum calcium. Add a note on Tetany

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

3. Explain the transmission of impulse across the neuromuscular junction with the help of a diagram
4. Explain the physiological changes that occur in the body when exposed to high temperature
5. Name the errors of refraction. Explain its correction with the help of a diagram
6. Describe stretch reflex and explain its importance
7. Describe the functions of Basal ganglia
8. Enumerate the clinical features of Cushing's syndrome
9. Describe the uterine changes during menstrual cycle
10. A newly wed couple comes to the clinic for advice regarding contraception
    a) What forms of contraception would the doctor advice them?
    b) What are the other forms of contraception in females and explain their physiological basis?

SHORT ANSWERS **10 x 3 = 30 Marks**

11. List the important tests for the assessment of thyroid function
12. What is a motor unit and write about recruitment of motor unit

13. Explain Wallerian degeneration
14. Draw a neat labelled diagram of organ of corti
15. List the features of decerebrate rigidity
16. Explain reflex arc with the help of a diagram
17. Draw a neat labelled diagram of taste buds. Name the primary taste sensations
18. What is Babinski' sign? Explain its clinical significance
19. List the clinical features of Upper motor neuron lesion
20. What is Klinefelter syndrome?

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Nucleus Gracilis and Nucleus Cuneatus are second order neurons for
- A. Dorsal columns
- B. Dorsal lateral tract
- C. Ventral Spinothalamic tract
- D. Lateral Spinothalamic tract

21 ii) Nicotinic A-ch receptors are found on the
- A. Pre synaptic membrane
- B. Post synaptic membrane
- C. Motor end plate
- D. Palisades

21 iii) Somatostatin is produced in the
- A. Hypothalamus
- B. Anterior pituitary
- C. Fundus of stomach
- D. Alpha cells of pancreas

21 iv) Cortisol can cause all of the following except
- A. Inflammation to be suppressed
- B. Fat to be used for energy
- C. Lysosomal membranes to become unstable
- D. The blood glucose concentration to increase

21 v) All are placental hormones **EXCEPT**
- A. HCS
- B. HCG
- C. Inhibin
- D. Progesterone

22 i) What is the neurotransmitter secreted by neuron of substantia nigra
- A. Acetylcholine
- B. Dopamine
- C. Histamine
- D. Gamma amino butyric acid

22 ii) Sustentacular cells in taste buds are
- A. Gustatory receptors
- B. Taste receptors
- C. Supporting cells
- D. Taste cells

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22 iii) The organ of corti is located on the
- A. Basilar membrane
- B. Reissner's membrane
- C. Tectorial membrane
- D. Reticular lamina

22 iv) Theca cells are derived from
- A. Zona pellucida
- B. Germinal epithelium
- C. Stromal cells
- D. Granulosa cells

22 v) Most common site of lesion to the pyramidal tracts
- A. Internal capsule
- B. Midbrain
- C. Pons
- D. Medulla

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MBBS Phase – I (CBME) Degree Examination - 04-May-2023

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – PAPER I (RS-4)
QP Code: 1024
(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 10-year-old boy was admitted to a hospital with a diagnosis of malaria. He was started on primaquine and antipyretics. Within one day he was found to have developed hemolytic anemia.
    a) Name the pathway affected in the above case and write the enzyme defect in the pathway.
    b) Name the compounds formed in this pathway and write their importance.
    c) What is the relation between primaquine and hemolytic anemia?
2. Describe cholesterol biosynthesis up to the formation of mevalonate. Explain the regulation of cholesterol biosynthesis. Mention two causes of Hypercholesterolemia.

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

3. An 8-year-old girl presented with difficulty in vision during night time. Vitamin A deficiency was suspected following examination.
    a) Write the provitamin form of Vitamin A
    b) Explain Wald's visual cycle
4. A 20-year-old pregnant woman presented with history of fatigue. Her peripheral blood smear showed microcytic hypochromic anemia.
    a) Which mineral deficiency leads to this type of anemia?
    b) Explain the absorption, transport and storage of this mineral.
5. Describe the role of dietary fibre in nutrition.
6. State chemiosmotic theory and illustrate the process of oxidative phosphorylation.
7. Define metabolic acidosis. Enumerate the causes for metabolic acidosis. Write the compensatory mechanism in metabolic acidosis.
8. Describe the role of any five plasma enzymes in the diagnosis of disease.
9. Explain niacin under the following headings:
    a) Dietary sources
    b) Co-enzyme forms
    c) Deficiency manifestation
10. Explain the metabolic changes in starvation.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Write the composition and functions of collagen.
12. Enumerate the biomarkers used in the diagnosis of myocardial infarction (MI). Which biomarker is considered specific for MI and why?
13. Name three functions of the vitamin whose deficiency causes scurvy.
14. Name three mucopolysaccharides and write their functions.
15. Name three phospholipids and write their biological importance.
16. Mention two causes of hypokalemia. Write biological reference interval for serum potassium.
17. Define Km. Explain its importance with an example.
18. Mention the role of carnitine in β-oxidation.
19. Write biological importance of selenium.
20. Define active transport. Give two examples for active transport.

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) All the following lipids are present in the cell membranes **EXCEPT**
- A. Lecithin
- B. Cholesterol
- C. Sphingomyelin
- D. Triacylglycerol

21 ii) Which of the following derivative of monosaccharide is used to reduce raised intra-cranial pressure?
- A. Sorbitol
- B. Dulcitol
- C. Ribitol
- D. Mannitol

21 iii) Enzymes which are synthesized in an inactive form are called
- A. Apoenzyme
- B. Proenzymes
- C. Coenzyme
- D. Isozyme

21 iv) The product of glycolysis in erythrocytes is
- A. Lactate
- B. Pyruvate
- C. Urate
- D. Acetate

21 v) The vitamin that acts as a coenzyme for transketolase activity is
- A. Pyridoxine
- B. Thiamine
- C. Biotin
- D. Folate

22 i) Normal biological reference interval for serum sodium is
- A. 96-105 meq/L
- B. 116-135 meq/L
- C. 136-145 meq/L
- D. 156-165 meq/L

22 ii) Number of calories given by one gram of carbohydrate is
- A. 2
- B. 4
- C. 6
- D. 9

22 iii) Nitrogenous base ethanolamine is present in
- A. Phosphatidyl inositol
- B. Plasmalogen
- C. Cephalin
- D. Lecithin

22 iv) The ratio of bicarbonate to carbonic acid in bicarbonate buffer system is
- A. 20:1
- B. 10:1
- C. 4:1
- D. 1:1

22 v) Which of the following **does not** increase the absorption of calcium?
- A. Vitamin D
- B. Absence of bile salts
- C. Basic amino acids
- D. Acidity

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MBBS Phase – I (CBME) Degree Examination - 06-May-2023

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – PAPER II (RS-4)
Q.P. CODE: 1025
(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 patient who was suffering with pain abdomen and passing clay coloured stools came to medical OPD for treatment. On examination there was yellowish discoloration of sclera. Following investigations a diagnosis of obstructive jaundice was made.
    a. Explain the formation and fate of bilirubin
    b. Name two causes of obstructive jaundice
    c. Write the serum and urinary findings in obstructive jaundice

2. What is semiconservative replication? In which phase of cell cycle replication takes place? Describe replication in prokaryotes with neatly labelled diagram.

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

3. A 7 year old boy presented with oedema and passing frothy urine. Investigation revealed severe proteinuria.
    a. What is the normal plasma level of total proteins and albumin?
    b. Name two other disorders associated with hypoalbuminemia
    c. Mention the functions of albumin.

4. A child was rushed to the emergency ward with altered sensorium. On examination, the child was found to be in semi comatose stage. Investigations revealed high blood ammonia levels and the case was suspected to be urea cycle disorder.
    a. Explain urea cycle
    b. Mention any two disorders of urea cycle with its enzyme defect

5. Explain tertiary structure of proteins. List the forces maintaining tertiary structure.
6. What is polymerase chain reaction (PCR)? Describe the steps involved in PCR.
7. Enumerate five transmethylation reactions and mention their significance.
8. Describe the structure of immunoglobulins. Name any two classes of immunoglobulins and write their functions.
9. What are nucleotides? Name any four biological important nucleotides and write their importance.
10. List various reactive oxygen species. Describe the damages produced by reactive oxygen species.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Name blotting techniques. Write the applications of each technique.
12. Draw purine ring and indicate the sources of carbon and nitrogen in the purine ring.
13. What are proto-oncogenes? How are they activated?
14. Mention the vectors used in Recombinant DNA technology and write their importance.
15. Write van den Bergh test and its interpretation in Hepatic Jaundice.
16. What are growth factors? Give two examples.
17. Write three detoxification reactions by conjugation mechanism.
18. Mention the advantages of automation in clinical biochemistry laboratory.
19. Write three reactions of purine salvage pathway.
20. What are Thalasemias? What are the defects in Alpha and Beta Thalasemias?

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Drug which inhibits xanthine oxidase is
- A. Allopurinol
- B. Aspirin
- C. Colchicine
- D. Probenicid

21 ii) Hypoalbuminemia is **not seen in**
- A. Chronic liver disease
- B. Nephrotic syndrome
- C. Hemoconcentration
- D. Protein energy malnutrition

21 iii) Which of the following is an inhibitor of RNA synthesis?
- A. Rifampicin
- B. Ciprofloxacin
- C. Novobiocin
- D. Adraiamycin

21 iv) Which of the following is an example for sulphur containing amino acid?
- A. Phenylalanine
- B. Glycine
- C. Threonine
- D. Cysteine

21 v) Which of the following is purely Ketogenic amino acid?
- A. Proline
- B. Glycine
- C. Alanine
- D. Leucine

22 i) In DNA number of hydrogen bonds between Guanine and Cytosine is
- A. One
- B. Two
- C. Three
- D. Four

22 ii) Tumor marker for colorectal cancer is
- A. Carcinoembryonic antigen (CEA)
- B. Alpha-fetoprotein
- C. Calcitonin
- D. β - HCG

22 iii) Nitrogen atoms of urea are derived from ammonia and
- A. Aspartic acid
- B. Alanine
- C. Histidine
- D. Valine

22 iv) Normal value of plasma osmolality is
- A. 185 to 200 milliosm/kg
- B. 285 to 300 milliosm/kg
- C. 385 to 400 milliosm/kg
- D. 485 to 500 milliosm/kg

22 v) Reproducibility of results is best described as:
- A. Sensitivity
- B. Specificity
- C. Precision
- D. Accuracy

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MBBS Phase – II (CBME) Degree Examination - 16-May-2023

Time: Three Hours **Max. Marks: 100 Marks**

PATHOLOGY – PAPER I (RS-4)
Q.P. CODE: 1026
(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. 60 year old male presented with complaints of pedal edema and exertional **dyspnoea**. On investigation his Hemoglobin was 3.5 g/dl and he had raised brain natriuretic peptide. Blood pressure was 90/50 mm of Hg and heart rate was 60 bpm. He is not a diabetic or hypertensive. He was diagnosed with congestive heart failure.

   a) List the types of edema
   b) Identify the type of edema in the above clinical history
   c) Describe the pathophysiology, clinical features and consequences of this condition

2. 30 year old male on pure vegetarian diet presents with **restlessness**, fatigue, dizziness, tingling and numbness in his legs. On routine blood evaluation his hemoglobin was found to be 7gms/dl and MCV of 110 fl. Patient was also found to have reticulocytopenia
   a. What is the most probable diagnosis?
   b. Describe the etiology, pathogenesis, peripheral smear and bone **marrow** findings of Megaloblastic anemia.

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

3. Differences between necrosis and apoptosis.
4. Vascular changes in Acute inflammation.
5. Chemical Carcinogenesis.
6. Discuss different methods of blood grouping.
7. Chronic **Myeloid** Leukaemia.
8. Thalassemia major.
9. Discuss various stains for amyloid.
10. Classification of Hodgkin’s lymphoma.

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Metaplasia.
12. Arthus reaction.
13. Ghon’s complex.
14. Tuberculoid leprosy.
15. Exfoliative cytology.
16. Define chemotaxis. Name two chemotactic agents
17. Stages of E.S.R
18. Auer rods.
19. Fate of thrombus
20. Causes of proteinuria.

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10 x 1 = 10 Marks

Multiple Choice Questions

21 i) Vasoactive amines play an important role in vascular events of inflammation. Histamine causes all **EXCEPT**
- A. Smooth muscle contraction
- B. Decreased vascular permeability
- C. Increased permeability
- D. Increased secretions

21 ii) Which of the following is an example for labile cells
- A. Bone marrow
- B. Hepatocytes
- C. Neurons
- D. Fibroblasts

21 iii) Caspases are involved in
- A. Acute inflammation
- B. Chronic inflammation
- C. Apoptosis
- D. Regeneration

21 iv) 24 year old male sustains multiple fratures of long bone in a road traffic accident. Which of the following stains is used to detect fat embolism
- A. Oil-red-O
- B. Best carmine
- C. PAS
- D. Von Kossa

21 v) Starry sky appearances is seen in
- A. Large cell lymphoma
- B. Hodgkin's lymphoma
- C. Burkitt lymphoma
- D. T – cell lymphoma

22 i) ESR is increased markedly in
- A. Dengue fever
- B. Tuberculosis
- C. Malaria
- D. Typhoid

22 ii) Pernicious anemia is due to
- A. Iron deficiency
- B. Intrinsic factory deficiency
- C. Sickling of RBCs
- D. Red cell membrane deficiency

22 iii) Peripheral smear is reported as poikilocytosis in a patient with long standing anemia. Poikilocytosis refers to
- A. Different shapes of RBCs
- B. Different sizes of RBCs
- C. Inclusions in RBCs
- D. Increase in RBCs

22 iv) Hemophilia is a
- A. B12 deficiency anemia
- B. Type of leukemia
- C. Hemolytic anemia
- D. Bleeding disorder

22 v) Gamna Gandy bodies are seen in
- A. Spleen
- B. Liver
- C. Oral cavity
- D. RBCs

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 07-Jul-2023

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 external and internal features of right atrium and write a note on its development.
2. Give Origin, insertion, nerve supply and action of Extra ocular muscles.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Deltoid muscle
4. Draw a labeled diagram of transverse section of medulla oblongata at the level of Sensory Decussation.
5. Histology of thin skin
6. Classification of joints
7. Lateral wall of nasal cavity
8. Ulnar nerve
9. Broca's motor speech area.
10. Palmar aponeurosis
11. Middle ear
12. Thoracic duct

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Enumerate six derivatives of ectoderm.
14. Branches of external carotid artery
15. Styloid process.
16. First rib
17. Falx cerebri.
18. Brachial artery
19. Draw neat labeled diagram of Histology of Palatine Tonsil
20. Blood supply of long bone
21. Supinators of forearm.
22. Enumerate the layers of scalp.

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 10-Jul-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - II (RS3)
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. Describe the Knee joint under the following headings: a) Type and articular surfaces b) Ligaments and relations c) movements and Muscles producing d) Applied anatomy

2. Describe the formation, course, termination, relations and tributaries of portal vein. Add a note on sites of Porto-systemic anastomosis and clinical anatomy.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Development of pancreas.
4. Prenatal diagnosis.
5. Medial longitudinal arch of foot.
6. Microscopic structure of gallbladder.
7. Lesser sac.
8. Development of Uterus.
9. Ischiorectal fossa.
10. Turner’s syndrome.
11. Internal iliac artery.
12. Microscopic structure of Kidney.

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Bare area of Liver.
14. Differences between male and female bony pelvis.
15. Stomach arterial supply.
16. Foot drop.
17. Contents of inguinal canal.
18. Mc. Burney’s point.
19. Ligaments of spleen.
20. Posterior relations of the right and left Kidneys.
21. **Profunda femoris artery posterior relations**
22. Transpyloric plane.

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MBBS Phase – I Degree Examination - 12-Jul-2023

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. Describe the composition, functions and regulation of gastric secretion.
2. Describe the neural regulation of respiration.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Describe the conducting system of heart.
4. Explain active transport across cell membranes.
5. Classify hypoxia. Explain its types.
6. Define Glomerular Filtration Rate. What are the factors regulating GFR?
7. Describe the composition and functions of saliva.
8. Juxtaglomerular apparatus
9. Mechanism of formation and functions of lymph
10. Composition and functions of bile.
11. Define Cyanosis and describe the types.
12. Oxygen transport

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Gastrocolic reflex
14. Inulin clearance
15. Polycythemia
16. Draw neat labelled diagram of ECG
17. Ventilation perfusion ratio
18. Hemophilia
19. Einthoven’s law
20. Erythroblastosis fetalis
21. Gap junctions.
22. Landsteiner’s law

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MBBS Phase - I Degree Examination – 14-Jul-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY - II (RS3)
QP 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 regulation of serum calcium. Add a note on Hyperparathyroidism.
2. Describe the structure of neuromuscular junction and its impulse transmission.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Spermatogenesis and factors regulating it
4. Organ of corti.
5. Functions of estrogen
6. Structure and function of muscle spindle
7. Referred pain and its theories
8. Differences between REM and NREM sleep
9. Hyperthyroidism.
10. Milk ejection reflex
11. Strength duration curve.
12. Functional of basal ganglia.

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Blind spot
14. Actions of oxytocin
15. Copper-T
16. Motor unit
17. Klinefelter syndrome
18. Hypothermia
19. Sarcomere.
20. Differences between conduction and nerve deafness
21. Myopia.
22. Aphasia

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MBBS Phase – I Degree Examination - 17-Jul-2023

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 QP Code 1079 & 1080)

LONG ESSAYS **1 x 10 = 10 Marks**

1. What are Lipoproteins? How are they classified? How is Chylomicrons metabolized?

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Define Enzyme Inhibition. Discuss the Competitive Inhibition with examples.
3. What are Mucopolysaccharides? Write their biomedical significance.
4. Briefly explain how Acetyl CoA is completely oxidized via Kreb's cycle.
5. Urea cycle.
6. Formation and utilization of ketone bodies.

SHORT ANSWERS **5 x 3 = 15 Marks**

7. Beri Beri.
8. Phenylketonuria
9. State three biochemical changes that occur during Starvation.
10. Detoxification by Conjugation.
11. Name the diagnostic enzymes for Myocardial Infarction and Liver dysfunction.

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First Phase MBBS Degree Examination – 17-Jul-2023

Time: Three Hours **Max. Marks: 50 Marks**

BIOCHEMISTRY – PAPER II (RS3)
QP 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 section A and Section B

LONG ESSAYS **1 x 10 = 10 Marks**

1. What is the normal pH of blood? Discuss the role of kidneys in the maintenance of acid-base balance.

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Describe transcription process. Add a note on its regulation.
3. (BMR). Basal Metabolic Rate (BMR)
4. Dietary fibre.
5. Gout.
6. Metabolic acidosis.

SHORT ANSWERS **5 x 3 = 15 Marks**

7. Oncogenes
8. Clearance test.
9. Free radicals
10. (PCR) Polymerase Chain Reaction (PCR)
11. Lac operon

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MBBS (Phase - II) Degree Examination – 17-Jul-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHARMACOLOGY – PAPER I (RS3)
Q.P. CODE: 1085

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

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

1. Classify Antihypertensive drugs. Write the mechanism of action, uses and side effects of Angiotensin Converting Enzyme inhibitors.

2. Enumerate the various routes of drug administration giving one example for each. Write four advantages and four disadvantages of Intravenous route.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Atropine
4. Loop diuretics
5. Teratogenicity
6. Diazepam
7. Therapeutic uses of Anticholinesterases
8. Sodium valproate
9. Lignocaine
10. Nitrates
11. Warfarin
12. Competitive neuromuscular blockers

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Treatment of methyl alcohol poisoning
14. Define drug synergism; give two examples
15. Mention three drugs obtained from plant sources
16. Pharmacogenetics
17. Define Prodrug; give two examples
18. Mention three drugs used in glaucoma
19. Mention three drugs used for Pre-anaesthetic medication
20. Name three hypolipidemic drugs
21. Name three antiplatelet drugs
22. Mention three drugs used for treating Schizophrenia

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MBBS (Phase - II) Degree Examination – 19-Jul-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHARMACOLOGY – PAPER II (RS3)
Q.P. CODE: 1086

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

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

1. Classify Glucocorticoids. Enumerate the adverse effects and uses of Glucocorticoids.

2. Classify drugs used in Tuberculosis. Discuss the mechanism of action, uses and adverse effects of Rifampicin.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Ranitidine
4. Albendazole
5. Metronidazole
6. Insulin preparations
7. Inhaled glucocorticoids
8. Methotrexate
9. Thyroxine
10. Ondansetron
11. British Anti Lewisite (BAL)
12. Prostaglandin analogues

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Mention three drugs used in prophylaxis of Migraine
14. Mention three drugs used in Typhoid fever
15. Mention three common toxicities of aminoglycoside antibiotics
16. Mention three Macrolide antibiotics
17. Mention three Chelating agents
18. Explain why tetracyclines are contraindicated in pregnancy
19. Mention three antiviral drugs
20. Name three Prokinetic drugs
21. Cotrimoxazole
22. Mention three Tocolytics

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MBBS PHASE II Degree Examination – 21-Jul-2023

Time: Three Hours **Max. Marks: 100 Marks**

FORENSIC MEDICINE (RS3)
QP Code: 1087

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

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

1. Classify Poisons, Signs and Symptoms of Organophosphate **poisoining**. Treatment of Organophosphate poisoning.
2. Classify **asphyxial** deaths. Write in detail about **types** of Drowning, Post Mortem findings and its Medico-Legal Importance.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Mummification.
4. Dying declaration.
5. DNA finger printing.
6. Types of skull fractures.
7. Masochism.
8. Plumbism.
9. Symptoms, signs, postmortem appearance **and** treatment of Datura poisoning.
10. Medical Termination of Pregnancy Act 1971.
11. Causes of Impotency.
12. Mc Naughten rule.

SHORT ANSWERS **10 x 3 = 30 Marks**

13. Battered **baby** syndrome.
14. Adultery.
15. Pugilistic attitude.
16. Grievous hurt.
17. Illusion.
18. Summons.
19. Res Ipsa Loquitur.
20. corpus delicti
21. Hallucinations.
22. Tache noir.

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MBBS Phase – I (CBME) Degree Examination - 16-Nov-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - I (RS-4)
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. Describe Cavernous sinus under the following headings:
   a. Relations
   b. Contents
   c. Tributaries
   d. Applied Aspects

2. Describe right atrium under following headings:
   a. External features
   b. Internal features
   c. Blood supply
   d. Mention the anatomical basis for thrombus formation in right atrium

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

3. Describe the relations of anterior and inferior horns of lateral ventricle.
4. Describe the microscopic structure of lymph node with a diagram.
5. Describe the attachment, nerve supply and action of deltoid muscle. Add a note on applied anatomy
6. Describe the boundaries and contents of cubital fossa.
7. Describe the anatomical classification of Cerebellum. Add a note on blood supply.
8. A 28 year old female complains of pain and numbness in the thenar eminence of the right palm.
   a) Name the nerve affected in this condition.
   b) Describe the distribution of this nerve in the hand.
9. Enumerate the contents middle ear. Describe the features on the medial wall of middle ear
10. Classify and describe the chorionic villi

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Mention the spinal level of formation of Cauda equina. List the nerve roots affected in Cauda equina syndrome
12. Mention the arteries forming superficial palmar arch and name the branches from it.
13. Draw a neat labelled diagram of hilum of right lung.
14. State the embryological basis of monozygotic twins.
15. Define sesamoid bone with two examples.
16. Name the structures passing through superior orbital fissure.
17. Mention the ligaments of temporo mandibular joint.
18. Classify neuroglial cells.
19. Name the branches of 3rd part of maxillary artery.
20. Mention the nerve supply and action of external intercostal muscle.

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Which structure does not pierce the clavipectoral fascia?
- A. Cephalic vein
- B. Lateral pectoral nerve
- C. Lateral thoracic artery
- D. Thoracoacromial artery

21 ii) Which of the following is a derivative of notochord
- A. Vertebral artery
- B. Suboccipital venous plexus
- C. Internal vertebral venous plexus
- D. Intervertebral disc

21 iii) Which of the following obeys Hilton's Law
- A. Radial nerve
- B. ulnar nerve
- C. Axillary nerve
- D. Musculocutaneous nerve

21 iv) Aorta passes through diaphragm at the level of T12, it is accompanied by
- A. Thoracic duct
- B. Azygos vein
- C. Hemiazygos vein
- D. Both A & B

21 v) Sinoatrial node is situated
- A. Near the opening of inferior vena cava
- B. Within the interatrial septum
- C. At the opening of coronary sinus
- D. Near the opening of superior vena cava

22 i) Which of the following is an example for hyaline cartilage
- A. Pinna of the ear
- B. Tip of the nose
- C. Eustachian tube
- D. Epiglottis

22 ii) Which of the following is attached to styloid process
- A. Stylopharyngeus
- B. Salpingopharyngeus
- C. Palatopharyngeus
- D. Both A & B

22 iii) The general sensory nerve supply to the anterior 2/3rd of the tongue is by …….
- A. Lingual nerve
- B. Chorda tympani nerve
- C. Glossopharyngeal nerve
- D. Vagus nerve

22 iv) The deep facial vein drains into …….
- A. Suboccipital venous plexus
- B. Internal jugular vein
- C. Pterygoid venous plexus
- D. External jugular vein

22 v) Circle of Willis is formed by all of the following **EXCEPT**
- A. Posterior cerebellar artery
- B. Posterior cerebral artery
- C. Anterior communicating artery
- D. Posterior communicating artery

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MBBS Phase – I (CBME) Degree Examination - 18-Nov-2023

Time: Three Hours **Max. Marks: 100 Marks**

ANATOMY – PAPER - II (RS-4)
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. A 68 year old female presented with increased frequency of micturition and polydypsia. On examination she was diagnosed with diabetes mellitus
   a) Name the organ which secretes insulin
   b) Mention its parts, relations and blood supply of the involved organ

2. Describe the origin, course, relations, branches and clinical significance of Popliteal artery

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

3. Describe the interior of Anal canal
4. Describe the boundaries and contents of deep perineal pouch
5. Describe the microscopic structure of duodenum with a neat labelled diagram
6. Describe the process of rotation of mid-gut
7. Describe the boundaries and contents of inguinal canal
8. Describe the clinical features and genetic basis of Klinefelter's syndrome
9. Describe the parts, internal features and nerve supply of urinary bladder
10. Describe the presenting parts, blood supply and development of gall bladder

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Draw a neat labelled diagram of peritoneal reflection of female pelvis
12. Enumerate the branches of anterior division of internal iliac artery
13. List any three organs developed in ventral mesogastrium
14. Draw a neat labelled diagram of anterior relations of both kidneys
15. Mention the nerve supply and action of peroneus longus
16. Draw a neat labelled diagram of microscopic structure of ovary
17. Mention the formation and termination of short saphenous vein
18. Mention the boundaries of foramen of Winslow
19. Enumerate the types of caecum
20. Compare and contrast the microscopic structure of ureter and vas deferens

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Which of the following muscles forms floor of femoral triangle
- A. Adductor brevis
- B. Adductor longus
- C. Adductor magnus
- D. All of the above

21 ii) Epithelium of fallopian tube is
- A. Simple ciliated columnar
- B. Stratified columnar
- C. Simple squamous
- D. Pseudo stratified ciliated columnar

21 iii) Translocation between long arms of chromosomes 22 and 9 is
- A. Philadelphia chromosome
- B. Angelman's syndrome
- C. XYY syndrome
- D. Burkitt's lymphoma

21 iv) All are derivatives of Mullerian duct **EXCEPT**
- A. Ovary
- B. Fallopian tube
- C. Uterus
- D. Vagina

21 v) Which artery supplies deep structures of sole?
- A. Posterior tibial artery
- B. Dorsalis pedis artery
- C. Anterior tibial artery
- D. Lateral plantar artery

22 i) The artery that traverses across Ischioanal fossa is
- A. Inferior rectal artery
- B. Superior rectal artery
- C. Middle rectal artery
- D. Perineal artery

22 ii) Origin of femoral nerve is from
- A. Dorsal rami of L 2, 3, 4
- B. Ventral rami of L 2,3,4
- C. Dorsal rami of L 3,4,5
- D. Ventral rami of L 3, 4, 5

22 iii) Suprarenal gland **DOES NOT** receive blood supply from
- A. Gonadal artery
- B. Inferior phrenic artery
- C. Renal artery
- D. Abdominal aorta

22 iv) Piriformis is supplied by
- A. Superior gluteal nerve
- B. Interior gluteal nerve
- C. Dorsal rami of S1 S2
- D. Ventral rami of S1 S2

22 v) All are features of large intestine **EXCEPT**
- A. Taenia coli
- B. Appendices epiploicae
- C. Haustrations
- D. Plicae circularis

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MBBS Phase – I (CBME) Degree Examination - 20-Nov-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - I (RS-4)
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. Define Shock. Discuss about the different stages of shock with compensatory mechanisms. Add a note on refractory shock
2. Define Hypoxia. Describe in detail the cause and characteristic features of different types of Hypoxia

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

3. Explain briefly fibrinolytic mechanism and its significance
4. Discuss in detail the regulation of heart rate. Add a note on sinus arrhythmia
5. Describe briefly the mechanism of Na^+ reabsorption from different segments of renal tubules
6. Explain the functions of different types of WBC and mention the steps in phagocytosis
7. A 40 year old traffic policeman came to hospital with sudden difficulty in breathing. He was a chronic smoker. On examination, he has dyspnoea and his expiration was found to be prolonged. Rhonchi were heard all over the chest wall. Spirometry reveals a decrease in FEV1 and PEFR

    a) What is the probable diagnosis?
    b) What are the triggering factors for this condition?
    c) What will be the findings of dynamic lung flow parameters in this condition?

8. Describe the lung volumes and capacities with a neat labelled diagram
9. Explain the source and functions of any five GI hormones
10. Distinguish between water and osmotic diuresis. Explain the mode of action of different diuretics

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Draw and explain Jugular Venous Pulse
12. List the difference between first and second heart sounds
13. Enumerate the blood picture in vit B12 and iron deficiency anemia
14. Explain the mechanism of fat absorption in small intestine
15. Explain facilitated diffusion
16. What is major and minor cross matching?
17. Explain the pharyngeal stage of deglutition
18. List the functions of plasma proteins
19. Explain the significance of Tubulo-glomerular feed back mechanism
20. List the factors regulating gastric emptying

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Korotkoff sounds are produced due to
- A. Turbulence of blood flow
- B. Laminar blood flow
- C. Closure of AV valves
- D. Closure of semi lunar valves

21 ii) Vast majority of obese individuals have increased levels of:
- A. Adiponectin
- B. Leptin
- C. Ghrelin
- D. Cortisol

21 iii) T wave in ECG is produced due to
- A. Atrial depolarization
- B. Ventricular depolarization
- C. Atrial repolarization
- D. Ventricular repolarization

21 iv) Normal cardiac output is
- A. 70 to 80 ml/min
- B. 5 to 6 ml/min
- C. 5 to 6 lit/min
- D. 5 to 6 dl/min

21 v) Compensating mechanisms involved at high altitude is
- A. Hyperventilation
- B. Hypoventilation
- C. Respiratory acidosis
- D. Decreased RBC count

22 i) Most osmotically active intracellular cation is
- A. K^+
- B. Na^+
- C. Mg^{+2}
- D. Protein

22 ii) Ficks law gives the rate of transport in case of:
- A. Simple diffusion
- B. Facilitated diffusion
- C. Non-ionic diffusion
- D. Secondary active transport

22 iii) Clotting time is prolonged in all conditions except:
- A. Haemophilia
- B. Thrombocytopenia
- C. Vitamin K deficiency
- D. Afibrinogenemia

22 iv) The facultative reabsorption of water takes place in
- A. PCT
- B. DCT and CT
- C. Loop of Henle
- D. Bowman's capsule

22 v) What is implied, if a drug has more renal clearance than the GFR?
- A. Drug is reabsorbed in the tubules
- B. Drug is secreted in the tubules
- C. Drug is excreted in bile
- D. Drug is neither secreted, nor reabsorbed

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MBBS Phase – I (CBME) Degree Examination - 22-Nov-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - II (RS-4)
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. Explain the dorsal column pathway with the help of a diagram. Describe its functions
2. Describe the maternal changes during pregnancy. Add a note on the functions of placenta

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

3. Explain degeneration and regeneration of nerve fibers
4. Explain the hormonal regulation of blood calcium levels
5. Define brain death. List the features of brain death
6. A 60 yrs old man experiences sudden onset of inability to move right upper and lower limbs. Decrease in tone of muscles was noted by the examining doctor
   a) What will happen to the muscle power and reflex on the right side?
   b) Explain how muscle tone is regulated at spinal level
7. Explain the pain pathway with the help of a neat labelled diagram
8. Explain light and dark adaptation
9. Explain the different phases of action potential **in a nerve fibre** and its ionic basis
10. Describe the functions of basal ganglia

SHORT ANSWERS **10 x 3 = 30 Marks**

11. List the functions of sertoli cells
12. Draw a neat labelled diagram of a Sarcomere
13. Graphically represent the hormonal changes in a normal menstrual cycle
14. What is Aphasia? List the types of aphasia
15. List the responses of body to hot environment
16. Trace the taste pathway
17. Explain the physiological basis of polyphagia in diabetes mellitus
18. What is impedance matching?
19. List the functions of cerebrospinal fluid
20. List the features of Acromegaly

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) The human ear is most sensitive to frequencies (in Hz) of
- A. 20-1000
- B. 1000-5000
- C. 5000-10000
- D. 10000-20000

21 ii) Most rapidly adapting receptors are
- A. Pacinian corpuscles
- B. Hair receptors
- C. Muscle spindle
- D. Joint capsule receptors

21 iii) Synaptic transmission exhibits all except
- A. Junctional delay
- B. Fatigue
- C. Modulation
- D. Bidirectional transmission

21 iv) The approximate period for which the ovum remains viable after ovulation under physiological conditions is
- A. 12 hrs
- B. 1 day
- C. 3 days
- D. 5 days

21 v) The receptor for thyroid hormones is located in
- A. Cell membrane
- B. Mitochondria
- C. Nucleus
- D. Extra cellular fluid

22 i) Presbyopia is caused by lens
- A. Opacity
- B. Hardening
- C. Fluidity
- D. Laxity

22 ii) LH surge in response to increase estrogen is an example of
- A. Positive feedback
- B. Negative feedback
- C. Reflex inhibition
- D. Short loop feedback

22 iii) Menstrual phase of endometrial cycle
- A. Is due to regression of corpus luteum
- B. Is followed by secretory changes in endometrium
- C. Starts about 18 days after ovulation
- D. Occurs under influence of progesterone

22 iv) Slow muscle fibers
- A. Are plenty in white muscle
- B. Have high glycolytic capacity
- C. Have slow myosin Atpase activity
- D. Oxidative capacity is low

22 v) During accommodation for near vision
- E. Eyes converge
- F. More light enters
- G. Curvature of lens decreases
- H. Iris diaphragm relaxes

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MBBS Phase – I (CBME) Degree Examination - 24-Nov-2023

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – PAPER I (RS-4)
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 50 year old man was operated for intestinal obstruction and had continuous gastric aspiration for 3 days. The following are the laboratory findings when the surgeon came for the review.

Investigation	Patient value	Biological reference range
Blood pH	7.55	7.35-7.45
Plasma Bicarbonate	45mmol/L	20-30mmol/L
PCO2	60mmol/L	35-45mmol/L
Na	140meq/L	136-145mmol/L
K	2.5meq/L	3.5-5meq/L

   a. Name the acid base disorder in above case
   b. Describe renal regulation of acid base balance
   c. Mention one more cause for above acid base disorder
   d. What is anion gap? Mention its reference interval

2. How is palmitic acid activated and transported to mitochondria? Describe its oxidation in mitochondria. How many ATP's are generated when one palmitic acid is completely oxidized?

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

3. A known diabetic patient with uncontrolled diabetes was advised change in medication, exercise and dietary modifications.
   a. Define Glycemic index.
   b. Give two examples of food items that have high and low glycemic index.
   c. Why low glycemic index diet is advised for diabetic patients?

4. A chronic alcoholic patient presented with skin lesion on exposed areas of the body. He also complained of frequent episodes of passing loose stools and memory impairement. A provisional diagnosis of pellagra was made.
   a. Name the vitamin deficiency causing pellagra.
   b. Mention its coenzyme forms
   c. Write three reactions which require them as coenzyme.

5. Explain the biochemical role of vitamin E. What is its inter-relationship with selenium?

6. Explain fluid mosaic model of cell membrane.

7. Name five Homo-polysaccharides. Write their composition and their biological importance.

8. Explain malate-aspartate shuttle and glycerol-phosphate shuttle pathway.

9. Name the tissues in which HMP pathway is operating. Describe the significance of the pathway.

10. Define and describe Allosteric regulation of enzymes. Give one example each for Allosteric activator and inhibitor.

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SHORT ANSWERS **10 x 3 = 30 Marks**

11. Write the enzyme deficiency in Galactosemia? What are the manifestations? Which diet is to be avoided in managing the condition?
12. What is the significance of estimation of isoenzymes of alkaline phosphatase?
13. What is fluorosis? Write its clinical features.
14. Enumerate three functions of phosphorous.
15. Enumerate the conditions causing appearance of reducing sugars in urine.
16. Mention any three phospholipids and write their functions.
17. Name three hormone secreted from adipose tissue and mention their functions.
18. Explain the role of antidiuretic hormone (ADH) in water balance. Mention the disorder associated with water balance.
19. What is Marasmus? Write two clinical features of Marasmus.
20. Write the composition and functions of collagen.

Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Renal threshold for glucose is
- A. 90 mg/dl
- B. 120 mg/dl
- C. 150 mg/dl
- D. 180 mg/dl

21 ii) Which of the following is a ketone body
- A. β - Hydroxybutyrate
- B. Acyl-dihydroxycetone phosphate
- C. L-methylmalonyl CoA
- D. 2,3 diacylglycerol

21 iii) Which of the following enzyme require copper as cofactor?
- A. Enolase
- B. Xanthine oxidase
- C. ALA dehydratase
- D. Tyrosinase

21 iv) Which of the following nutrient can be derived from gut bacteria?
- A. Vitamin K
- B. Niacin
- C. Pyridoxine
- D. Cobalamin

21 v) Which of the following is an example of odd chain fatty acid?
- A. Butyric acid
- B. Lauric acid
- C. Propionic acid
- D. Palmitic acid

22 i) Methinione is deficient in
- A. Cereals
- B. Maize
- C. Pulses
- D. Tapioca

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22 ii) Which is functional enzyme in plasma?

A. Plasminogen
B. Amylase
C. Enolase
D. Alkaline phosphatase

22 iii) Which of the following hormones **does not** have any effect on ECF volume?

A. Antidiuretic hormone
B. Aldosterone
C. Calcitriol
D. Renin

22 iv) In compensated metabolic alkalosis

A. Respiratory centre is stimulated
B. p CO2 increases
C. p O2 is elevated
D. Urine becomes acidic

22 v) Which of the following enzyme activity is decreased in starvation?

A. Glucokinase
B. Fructose – 1,6, Bisphosphatase
C. Carnitine acyl transferase
D. Pyruvate carboxylase

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