KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH, BELAGAVI.
(Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956)
Accredited 'A' Grade by NAAC (2nd Cycle) **Placed in 'A' Category by MHRD (GoI)**

MBBS PHASE – I
(CBME)
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

ANATOMY
PAPER – I

Q.P. Code: A001

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number **Marks**

1. M.C.Q. **20 X 1 = 20**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Describe the temporo-mandibular joint under the following headings: (4+4+2)
a) Articular surfaces with ligaments b) Movements c) Applied anatomy.

3. Describe the breast under the following headings: (6+2+2)
a) Gross feature b) Blood supply c) Applied anatomy.

SHORT ESSAY QUESTIONS: **9 X 5 = 45**

4. Describe the development of diaphragm and its congenital anomalies.
5. Describe the blood supply of heart in brief.
6. Describe the mediastinal relations of right lung with diagram.
7. Enumerate the branches of maxillary artery.
8. Describe the sulci and gyri of superolateral surface of Cerebrum.
9. Anastomosis around elbow joint.
10. Explain the microscopic structure of retina.
11. Classify the bones with examples.
12. A young woman with 32 weeks of pregnancy, complained of funny taste, followed by asymmetry of the face and difficulty in closing the right eye.
    a. What is the probable diagnosis? (1)
    b. Name the cranial nerve involved. (1)
    c. Name the muscles of face. (3)

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

13. Name the parts of thoracic vertebra.
14. Name the major openings in the diaphragm.
15. Name the neural tube defects and its causes.
16. Draw the diagram of cut section at the level of superior colliculi of mid brain.
17. Draw diagram of microscopic structure of lymph node.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase-I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Anatomy Paper-I, QP Code: A001**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Sternal angle is seen at the level of
   (A) Upper border of manubrium (B) Second costal cartilage
   (C) Fourth rib (D) Just above xyphoid process

2. All of the following are the features of interior of right atrium **EXCEPT**
   (A) Crista terminals (B) Fossa ovalis
   (C) Musculi pectinati (D) Moderator band

3. Trabeculae carneae of right ventricle are seen in all the following forms **EXCEPT**
   (A) Ridges (B) Bridges
   (C) Papillary muscles (D) Chordae tendineae

4. Permanent over distension of alveoli is known as
   (A) Empyema (B) Emphysema
   (C) Pneumothorax (D) Dyspnoea

5. Diaphragma sellae is related to
   (A) Pitutary gland (B) Thyroid gland
   (C) Adrenal gland (D) Parathyroid gland

6. Maxillary sinus opens into
   (A) Spheno ethmoidal recess (B) Superior meatus
   (C) Middle meatus (D) Inferior meatus

7. Superior thyroid artery is a branch of
   (A) Internal carotid artery (B) External carotid artery
   (C) Thyrocervical trunk (D) Subclavian artery

8. The two lateral ventricles are almost completely separated by
   (A) Falx cerebri (B) Corpus callosum
   (C) Septum pellucidum (D) Thalamus

9. CSF is produced by
   (A) Cells of Hypothalamus (B) Pial cells
   (C) Subarachnoid cells (D) Ependymal cells of choroid plexus

10. Biceps brachii is a powerful
    (A) Supinator (B) Pronator
    (C) Extensor (D) None of the above

11. Abduction of shoulder joint is initiated by
    (A) Supraspinatous (B) Deltoid
    (C) Serratus anterior (D) Both a and b

12. The process of conversion of a spermatid to spermatozoon is called
    (A) Spermatogenesis (B) Capacitation
    (C) Spermiogenesis (D) Fertilization

13. Fallot's Tetrology has all along with overriding of aorta all the following congenital defects **EXCEPT**
    (A) Interatrial septal defect (B) Ventricular septal defect
    (C) Hypertrophy of right ventricle (D) Pulmonary stenosis

14. Components of connecting stalk are all the following **EXCEPT**
    (A) Allandoic diverticulum (B) Vitellointestinal duct
    (C) Septum transversum (D) Umbilical cord

15. Mast cells synthesize
    (A) Antibodies (B) Lipids
    (C) Histamine (D) Collagen fibres

16. All of the following are parts of neurohypophysis **EXCEPT**
    (A) Pars posterior (B) Pars intermedia
    (C) Median eminence (D) Infundibular stem

17. Smallest duct of salivary gland is
    (A) Striated (B) Intercalated
    (C) Interlobular (D) Intralobular

18. All of the following are the examples of synovial joint **EXCEPT**
    (A) Pivot (B) Saddle
    (C) Syndesmosis (D) Ellipsoid

19. Thickest layer in an artery is
    (A) Tunica intima (B) Tunica media
    (C) Tunica adventitia (D) All layers are equally thick

20. Lymphoid follicles are absent in
    (A) Spleen (B) Lymph node
    (C) Thymus (D) Palatine tonsil

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MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

ANATOMY
PAPER – I

Q.P. Code: 1001

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**25 X 1 = 25**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Describe the heart under following headings: a) External features b) Blood supply c) Applied Anatomy. (4 + 4 + 2)
3. Describe the brachial plexus in detail. Add a note on its applied anatomy. (8 + 2)

SHORT ESSAY QUESTIONS: **8 X 5 = 40**

4. Describe the steps of spermatogenesis.
5. Describe the bronchopulmonary segments of right lung.
6. Describe the layers of Scalp and its applied anatomy.
7. Describe the blood supply of Thyroid gland.
8. Draw the labeled diagram of Circle of Willis with its branches.
9. Boundaries and contents of Cuboidal fossa.
10. Explain the microscopic structure of Hyaline cartilage.
11. Enumerate the types of neuron with examples.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

12. Enumerate the contents of anterior mediastinum.
13. Name the branches of axillary artery.
14. Name the ligaments of shoulder joint.
15. Name the sites of ectopic pregnancy.
16. Name the contents of Carotid sheath.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase-I, April 2021**	**Max. Marks:**	**25 Marks**
Subject :	**Anatomy Paper-I, QP Code: 1001**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Manubriosternal joint of the first rib is
   (A) Synchondrosis (B) Syndesmosis
   (C) Synovial plane (D) Synovial saddle

2. Counting of ribs can be done at the level of
   (A) Sternal angle (B) Suprasternal notch
   (C) Xiphisternal joint (D) Body of the sternum

3. Anterior interventricular artery is a branch of _____artery
   (A) Left coronary (B) Right coronary
   (C) Pulmonary (D) Cerebral

4. Myocardial infarction is
   (A) Necrosis of cardiac muscle (B) Necrosis of skeletal muscle
   (C) Necrosis of smooth muscle (D) None of the above

5. Bronchoscopy is done to visualise
   (A) Gastrointestinal Tract (B) Bronchial tree
   (C) Kidney Ureter Bladder (D) Blood Vessels

6. Carina corresponds to
   (A) Tracheal bifurcation (B) Division of pulmonary artery
   (C) Beginning of trachea (D) All of the above

7. Maxillary sinus opens into
   (A) Spheno ethmoidal recess (B) Superior meatus
   (C) Middle meatus (D) Inferior meatus

8. Palatine tonsil is present in
   (A) Nasopharynx (B) Oropharynx
   (C) Laryngopharynx (D) Lateral wall of the nose

9. Adult spinal cord ends at_____ vertebral level
   (A) Upper border of L1 (B) Lower border of L1
   (C) Upper border of L2 (D) Lower border of L2

10. Superior thyroid artery is a branch of
    (A) Internal carotid artery (B) External carotid artery
    (C) Thyrocervical trunk (D) Subclavian artery

11. Stenson's duct belongs to
    (A) Sublingual gland (B) Parotid gland
    (C) Submandibular gland (D) None of the above

12. Safety muscle of the tongue is _____
    (A) Palatoglossus (B) Styloglossus
    (C) Genioglossus (D) Chondroglossus

13. All the following are infrahyoid muscles **EXCEPT**
    (A) Sternohyoid (B) Sternothyroid
    (C) Thyrohyoid (D) Omohyoid - inferior belly

14. By how many openings do the semicircular canals open in the vestibule?
    (A) Two (B) Three
    (C) Four (D) Five

15. The stria medullaris of fourth ventricle are_____fibres.
    (A) Cuneocerebellar (B) Auditory nerve
    (C) Aberrant pontocerebellar (D) Vestibulocerebellar

16. Which ventricles are connected by the interventricular foramina of Monro?
    (A) Third and fourth (B) Lateral and third
    (C) Lateral and fourth (D) Right and left lateral

17. Broca's area is located in which lobe of the cerebral hemisphere?
    (A) Parietal (B) Frontal
    (C) Temporal (D) Occipital

18. Area no 44 of frontal lobe is
    (A) Sensory speech area (B) Motor speech area
    (C) Frontal eyefield (D) Visual area

19. Trapezius muscle is supplied by_____ nerve
    (A) First cranial nerve (B) Cranial part 11^{th} cranial nerve
    (C) Spinal part of 11^{th} cranial nerve (D) 12^{th} cranial nerve

20. Floor of the cubital fossa is formed by
    (A) Supinator (B) Brachioradialis
    (C) Pronator teres (D) Palmaris longus

21. The carpal tunnel contains all of the following **EXCEPT**
    (A) Median nerve (B) Flexor pollicis longus
    (C) Flexor carpi radialis (D) Flexor digitorum superficialis

22. Nerve of the second arch is
    (A) Mandibular nerve (B) Facial nerve
    (C) Glossopharyngeal nerve (D) Recurrent laryngeal nerve

23. 16 celled stage of cleavage is called a
    (A) Blastocyst (B) Morulla
    (C) Zygote (D) Graafian follicle

24. Hassall's corpuscles are seen in
    (A) Spleen (B) Thymus
    (C) Tonsil (D) Lymph node

25. The commonest type of synapse is
    (A) Axosomatic (B) Dendrosomatic
    (C) Axoaxonic (D) Axodendritic

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MBBS PHASE – I
(CBME)
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

ANATOMY
PAPER – II

Q.P. Code: A002

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number **Marks**

1. M.C.Q. **20 X 1 = 20**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Give the detailed morphological features of stomach. Mention its blood and nerve supply. (6+2+2)
3. Describe the hip joint under the following headings: a) Articular surfaces b) Ligaments c) Movements d) Applied anatomy. (2+2+4+2)

SHORT ESSAY QUESTIONS: **9 X 5 = 45**

4. Discuss in brief about rotation of midgut with diagram.
5. Describe the formation and sites of Porta- caval anastomoses.
6. Describe the boundaries and contents of deep perineal pouch.
7. Enumerate the supports of uterus.
8. Write a note on medial longitudinal arch of foot.
9. Klinefelter's syndrome.
10. Explain the microscopic structure of duodenum.
11. Explain the microscopic structure of Kidney.
12. A 26-year-old man complaining of a painful swelling in the right groin was seen by his physician; he had vomited four times in the previous 3 hours. On examination, he was dehydrated and his abdomen was moderately distended. A large, tense swelling, which was very tender on palpation, was seen in the right groin and extended down into the scrotum. An attempt to gently push the contents of the swelling back into the abdomen was impossible.
    a. What is this swelling? (1)
    b. What is the name of the canal present in the right groin? (2)
    c. What is mid inguinal point? (2)

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

13. Name the coverings of testis.
14. Mention the boundaries of quadrate lobe of liver.
15. Describe the development of pancreas
16. Enumerate derivatives of hindgut
17. Draw diagram of microscopic structure of urinary bladder.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Anatomy Paper II, QP Code: A002**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. The bilaminar peritoneal fold between stomach and diaphragm is
   (A) Greater omentum (B) Lesser omentum
   (C) Gastro-phrenic ligament (D) Gastro-splenic ligament

2. The rectus sheath above the costal margin is
   (A) Deficient posteriorly (B) Deficient anteriorly
   (C) Reinforced by fascia from intercostal muscles (D) Thickend by endothoracic fascia

3. Stomach bed is formed by following structures **EXCEPT**
   (A) Splenic artery (B) Transverse mesocolon
   (C) Right kidney (D) Anterior surface of pancreas

4. The outer most covering of testis is tunica
   (A) Vaginalis (B) Albuginea
   (C) Vasculosa (D) Adventitia

5. True ligaments of urinary bladder are all **EXCEPT**
   (A) Lateral puboprostatic (B) Medial puboprostatic
   (C) Median umbilical ligament (D) Median umbilical fold

6. Anal columns of Morgagni are present in_____ part of anal canal
   (A) Upper (B) Intermediate
   (C) Lower (D) All of the above

7. Foot drop is due to damage to_____ nerve
   (A) Deep peroneal nerve (B) Posterior tibial nerve
   (C) Medial plantar nerve (D) Lateral plantar nerve

8. Saphenous opening is an oval opening in the
   (A) Superficial fatty layer (B) Deep membranous layer
   (C) Deep fascia of the thigh (D) Iliotibial tract

9. All the following constitute Guy ropes **EXCEPT**
   (A) Gracilis (B) Semitendinosus
   (C) Sartorious (D) Semimembranosus

10. Deltoid ligament stabilizes the_____joint
    (A) Hip (B) Knee
    (C) Ankle (D) Superior tibiofibular

11. Primordial sex cells arise from
    (A) Amniotic sac (B) Yolk sac
    (C) Chorionic cavity (D) Neural crest cells

12. The development of metanephric blastema is induced by
    (A) Pronephric duct (B) Mesonehphric tubules
    (C) Allantois (D) Ureteric bud

13. Chromaffin cells of adrenal medulla are derivatives of
    (A) Neural crest cells (B) Primordial germ cells
    (C) Mesenchymal cells (D) Primitive streak cells

14. Mesonephric ducts are also called as
    (A) Wolffian duct (B) Mullerian duct
    (C) Stenson's duct (D) Wirsung's duct

15. C- cells of thyroid gland secretes
    (A) Paratharmone (B) Thyrocalcitonin
    (C) T3 & T4 (D) TSH

16. The prominent feature in a medium sized artery is
    (A) Endothelium (B) Internal elastic lamina
    (C) Tunica adventitia (D) Sub-endothelial connective tissue

17. In liver, the space of Disse is a space
    (A) Around the central vein (B) Around the portal triad
    (C) In between the hepatocytes (D) Between sinusoids and hepatocytes

18. Macula densa are cells of
    (A) Bowman's capsule (B) Proximal convoluted tubule
    (C) Collecting duct (D) Distal convoluted tubule

19. A color-blind man marries the daughter of a color-blind person. In their progeny
    (A) None of her daughters are colour-blind (B) All her sons are colour-blind
    (C) All her daughters are colour-blind (D) Half of her sons are colour-blind

20. Down's syndrome is an example of
    (A) Monosomy (B) Trisomy
    (C) Triploidy (D) Polyploidy

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MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

ANATOMY
PAPER – II

Q.P. Code: 1002

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**25 X 1 = 25**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Describe the Inguinal Canal under the following headings: (6+2+ 2)
   a) Boundaries b) Contents and c) Applied anatomy.
3. Describe the femoral triangle under following headings: (4+4+2)
   a) Boundaries b) Contents and c) Applied anatomy.

SHORT ESSAY QUESTIONS: **8 X 5 = 40**

4. Describe the development of pancreas and its congenital anomalies.
5. Describe the formation and sites of Porta- caval anastomoses.
6. Describe the blood supply and lymphatic drainage of stomach.
7. Describe the boundaries and contents of Ischiorectal fossa.
8. Describe the anastomosis around knee joint.
9. Formation, course and tributaries of great saphenous Vein.
10. Chromosome-structure and types.
11. Explain the microscopic structure of Kidney.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

12. Name the hamstrings muscles and their actions.
13. Name the bare areas of liver.
14. Mention the importance of clinical angle of spleen.
15. Draw diagram of microscopic structure of pancreas.
16. Describe Inversion.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase I, April 2021**	**Max. Marks:**	**25 Marks**
Subject :	**Anatomy Paper II, QP Code: 1002**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. The bilaminar peritoneal fold between stomach and diaphragm is
   (A) Greater omentum (B) Lesser omentum
   (C) Gastro-phrenic ligament (D) Gastro-splenic ligament

2. The subcostal plane passes through
   (A) Ninth costal cartilage (B) Tenth costal cartilage
   (C) Eighth costal cartilage (D) Eleventh costal cartilage

3. The tail of the pancreas is one of the contents of the following ligament
   (A) Gastrosplenic ligament (B) Phrenico-colic ligament
   (C) Lienorenal ligament (D) Hepato-duodenal ligament

4. The duct of Wirsung is the other name for
   (A) Common bile duct (B) Hepatic duct
   (C) Main pancreatic duct (D) Accessory pancreatic duct

5. The ovarian artery is a branch of
   (A) Abdominal aorta (B) Uterine artery
   (C) Renal artery (D) Superior mesentric artery

6. Duodenal cap is normal finding in
   (A) Cholecystography (B) Barium meal
   (C) Pyelography (D) Barium enema

7. Superior rectal artery is continuation of _____artery
   (A) Superior rectal (B) Internal iliac
   (C) Inferior mesenteric (D) Median sacral

8. Important cardinal features of large intestine are absent in rectum are
   (A) Sacculations (B) Appendices epiploicae
   (C) Tenia coli (D) All of the above

9. The lumbosacral trunk is formed by
   (A) L4 only (B) L5 only
   (C) L4 and L5 (D) S1and S2

10. Heister valve is seen in
    (A) Bile duct (B) Cystic duct
    (C) Pancreatic duct (D) Stenson's duct.

11. Portal vein is formed by the junction of
    (A) Superior mesenteric vein and inferiormesenteric vein
    (B) Splenic vein and superior mesenteric vein
    (C) Splenic vein and inferior mesenteric vein
    (D) Superior mesenteric vein and inferior rectal vein

12. Aortic opening in Diaphragm is at_____level
    (A) 8^{th} thoracic vertebra
    (B) 10^{th} thoracic vertebra
    (C) 12^{th} thoracic vertebra
    (D) 5^{th} thoracic vertebra

13. Ligamentum teres is a content of
    (A) Falciform ligament
    (B) Coronary ligament
    (C) Right triangular ligament
    (D) Left triangular ligament

14. Which of the following is also known as ligament of Bigelow?
    (A) Ischiofemoral ligament
    (B) Pubofemoral ligament
    (C) Iliofemoral ligament
    (D) Ligamentum teres capita femoris

15. Deltoid ligament stabilizes the _____joint
    (A) Hip
    (B) Knee
    (C) Ankle
    (D) Superior tibiofibular

16. Baker's cyst is related to
    (A) Femoral triangle
    (B) Femoral canal
    (C) Adductor canal
    (D) Popliteal fossa

17. Which muscle is called the "peripheral heart"
    (A) Popliteus
    (B) Soleus
    (C) Gastrocnemius
    (D) Tibialis Posterior

18. Derivatives of hindgut are all the following **EXCEPT**
    (A) Descending colon
    (B) Sigmoid colon
    (C) Left one third of transverse colon
    (D) Proctodeum below anal membrane

19. Diaphragm is formed from all the following components **EXCEPT**
    (A) Septum transversum
    (B) Pleuroperitoneal membranes
    (C) Dorsal mesentery of oesophagus
    (D) Septum secundum

20. Hydrocele is caused because of persistence of
    (A) Processus vaginalis
    (B) Cryptorchidism
    (C) Ectopic tesis
    (D) Mullarian ducts

21. The prominent feature in a medium sized artery is
    (A) Endothelium
    (B) Internal elastic lamina
    (C) Tunica adventitia
    (D) Sub-endothelial connective tissue

22. Centroacinar cells are seen in
    (A) Pancreas
    (B) Liver
    (C) Parotid gland
    (D) Pituitary gland

23. Down's syndrome is an example of
    (A) Monosomy
    (B) Trisomy
    (C) Triploidy
    (D) Polyploidy

24. Chromosome classification is called
    (A) Denver classification
    (B) Robert classification
    (C) Colorado classification
    (D) Denovo classification

25. The karyotype 47,XXY is seen in
    (A) Down's syndrome
    (B) Polysomy X
    (C) Klinefelter's syndrome
    (D) Edward's syndrome

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MBBS PHASE – I
(CBME)
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

PHYSIOLOGY
PAPER – I

Q.P. Code: A003

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**20 X 1 = 20**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Explain the composition and functions of bile juice. Describe the hormonal regulation of bile. (3+3+4)
3. Define shock. Classify the shock. Describe the stages and compensatory mechanisms taking place in Hypovolemic shock. (2 +2+6)

SHORT ESSAY QUESTIONS: **9 X 5 = 45**

4. Classify body fluid compartments with their normal values. Add a note on measurement of ECF.
5. Define cross matching. Describe the hazards of mismatched blood transfusion.
6. Describe the fibrinolytic system of blood.
7. Explain the role of peripheral chemoreceptors in regulation of respiration.
8. Sketch the oxygen hemoglobin dissociation curve. Explain the significance of its shape.
9. Explain the properties of smooth muscle and add a note on plasticity of smooth muscles. (3+2)
10. Define GFR. Describe autoregulation of GFR.
11. List renal function tests and add a note artificial kidney.
12. Describe Sino-aortic reflex & its importance.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

13. Explain facilitated diffusion with example.
14. Describe the role of vitamin K in blood coagulation.
15. Define artificial respiration. List the methods.
16. List the functions of Gastrin.
17. Describe the application of Fick's principle to measure cardiac output.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Physiology Paper I, QP Code: A003**	**Time:**	**30 Minutes**

Instructions:
- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Transport of sodium & Hydrogen ion in renal tubules is an example of
   (A) Antiport (B) Symport
   (C) Uniport (D) Diffusion

2. Normal cell volume and pressure depends upon
   (A) Gibbs- Donnan effect
   (B) Operation of Na-K pump
   (C) Asymmetrical distribution of ions across cell membrane
   (D) Presence of more osmotically active particles in the cell

3. Membrane integrity of RBC is maintained mainly by
   (A) Hemoglobin (B) Spectrin
   (C) G-Protein (D) Ankyrin

4. Intravascular clotting is normally prevented by
   (A) Heparin (B) Antithrombin
   (C) Protein C (D) All of the above

5. Each hemoglobin molecule can bind to how many numbers of O_2 molecules?
   (A) 1 (B) 2
   (C) 3 (D) 4

6. Over production of Porphyrins or its precursors is due to the over activity of the Enzyme
   (A) Ala reductase (B) Delta aminolevulinic acid synthase
   (C) Carbonic anhydrase (D) G 1-6-PD

7. Gas with greatest affinity for haemoglobin is
   (A) Oxygen (B) Carbon monoxide
   (C) Carbon dioxide (D) Helium

8. Vital capacity is
   (A) Maximum amount of air expired after normal inspiration
   (B) Reduced in standing position
   (C) Measured by spirometry
   (D) Increased in obstructive lung diseases

9. A height of more than _____ mts is defined as high altitude
   (A) 500 mts (B) 1000 mts
   (C) 2000 mts (D) 3000 mts

10. Which of the following discharge spontaneously during quite breathing
    (A) Inspiratory neurons (B) Motor neurons to respiratory muscles
    (C) Neurons in apneustic center (D) Expiratory neurons

11. Which inhibits gastric secretion
    (A) Insulin
    (B) High pH
    (C) Secretin
    (D) Calcium

12. Motilin hormone
    (A) Inhibits GIT Motility
    (B) Increases ileal blood flow
    (C) Decreases GIT motility
    (D) Regulates Intestinal motility during inter- digestive phase

13. The stomach does not digest itself because
    (A) Hydrogen ions are neutralized by food
    (B) Gastric cells are not digestible
    (C) Cells transport hydrogen out of the cells
    (D) Thick layer of mucus

14. The Tm value for glucose in adult male is
    (A) 175 mg/min
    (B) 275 mg/min
    (C) 375 mg/min
    (D) 475 mg/min

15. A major process in transport of substances in kidney is
    (A) Trans epithelial
    (B) Trans cellular
    (C) Paracellular
    (D) Intercellular

16. Hormone influencing facultative reabsorption of water is
    (A) Vasopressin
    (B) Oxytocin
    (C) Aldosterone
    (D) Renin

17. Fibres of intermodal pathways are
    (A) Highly contractile
    (B) Modified nerve fibres
    (C) Modified atrial muscle fibre
    (D) Conduct impulses rapidly

18. Cardiac muscle cannot be tetanized because
    (A) Heart has abundant blood supply
    (B) It has high myoglobin content
    (C) Contractile response is more than half over during the action potential
    (D) Less than 1% of total energy liberated is provided by aerobic metabolism

19. Heterometric regulation of cardiac output is
    (A) Dependent on parasympathetic innervation of heart
    (B) Dependent on sympathetic innervation of heart
    (C) Dependent on Frank-Starling's law of heart
    (D) Not dependent on the resting length of cardiac muscle fibres

20. According to Poiseuille Hagen formula, the relationship is calculated among the following **EXCEPT**
    (A) Blood flow
    (B) pH of blood
    (C) Radius of vessel
    (D) Viscosity of fluid

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MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

PHYSIOLOGY
PAPER – I

Q.P. Code: 1003

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number **Marks**

1. M.C.Q. **25 X 1 = 25**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Define GFR. Describe the factors determining GFR. Explain its regulation. (2+4+4)

3. Describe various changes occurring during a cardiac cycle with suitable diagram. Draw left ventricular pressure curve in relation to cardiac cycle. (7+3)

SHORT ESSAY QUESTIONS: **8 X 5 = 40**

4. Define Homeostasis. Explain positive feedback mechanism with one example.
5. Discuss Rh incompatibility.
6. Describe the composition and functions of lung surfactant. Add a note on Infant Respiratory Distress Syndrome.
7. Describe the role of central chemoreceptors in regulation of respiration.
8. Explain the factors affecting gastric emptying.
9. Describe the Cephalic phase of gastric juice secretion and experiments to prove it.
10. Explain Cystometrogram.
11. With the help of labelled diagram compare the pacemaker potential with action potential of cardiac muscle fiber. Explain its ionic basis.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

12. List the substances used to measure body fluid compartments.
13. List the functions of Lymph.
14. Explain the significance of ventilation perfusion ratio.
15. List the functions of HCL
16. Define Bainbridge reflex.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, April 2021**	**Max. Marks:**	**25 Marks**
Subject :	**Physiology Paper I, QP Code: 1003**	**Time:**	**30 Minutes**

Instructions:
- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Cytoskeleton comprises of
   (A) Microtubules (B) Cell membrane
   (C) Golgi complex (D) Cell junctions

2. Apart from nucleus, DNA is also present in
   (A) Golgi apparatus (B) Endoplasmic reticulum
   (C) Mitochondria (D) Ribosomes

3. Regarding NA^+-K^+- ATPase **TRUE** statement is
   (A) It is an antiport carrying 3 Na^+ into the cell and $2K^+$ outside the cell
   (B) Maintains cell volume
   (C) A symport of 3 Na^+ and $2K^+$ into cell
   (D) It is an electrogenic pump maintaining cell positivity

4. HbS is an abnormal Haemoglobin in which Glutamic acid is replaced by
   (A) Leucine (B) Isoleucine
   (C) Valine (D) Methionine

5. Clotting time is prolonged in all **EXCEPT**
   (A) Haemophilia (B) Thrombocytopenia
   (C) Vit K deficiency (D) Afibrinogenemia

6. The process by which chemical substances attract leucocytes to the site of injury is called as,
   (A) Diapedesis (B) Chemotaxis
   (C) Opsonisation (D) Phagocytosis

7. In Glycated hemoglobin which of the following compound is attached to beta chain of HbA
   (A) Fructose (B) Glucose
   (C) Galactose (D) Glycogen

8. The amount of air remaining in lungs after tidal expiration is called
   (A) Residual volume (B) Functional residual capacity
   (C) Vital capacity (D) Total lung capacity

9. J- receptors are located in
   (A) Myocardium (B) Blood vessels
   (C) Alveolar interstitium (D) Carotid body

10. Hyperventilation causes the following condition
    (A) Hypocapnia (B) Hypercapnia
    (C) Hypoxia (D) Oxygen toxicity

11. Carbon monoxide poisoning causes
    (A) Hypoxic hypoxia (B) Anaemic hypoxia
    (C) Histotoxic hypoxia (D) Stagnant hypoxia

12. The problem of nitrogen narcosis in deep sea divers can be avoided by breathing the following mixture gases
    (A) Oxygen and helium
    (B) Oxygen and carbon dioxide
    (C) Helium and carbon dioxide
    (D) Helium and carbon monoxide

13. The point at which breathing can no longer be voluntarily inhibited is called
    (A) Apnoea point
    (B) Breaking point
    (C) Saturation point
    (D) Hypernoea point

14. Pancreatic secretion includes
    (A) Enterokinase
    (B) Chymotrypsin
    (C) Renin
    (D) Gastrin

15. Stimulation of parasympathetic nerve to GIT produces
    (A) Contraction of sphincters
    (B) Inhibition of secretion from stomach
    (C) Inhibition of intestinal secretions
    (D) Increase in motility and tone

16. Movement of the small intestine is
    (A) Peristalsis
    (B) Antral systole
    (C) Retropulsion
    (D) Mass peristalsis

17. The Tm value for glucose in adult male is
    (A) 175 mg/min
    (B) 275 mg/min
    (C) 375 mg/min
    (D) 475 mg/min

18. Substance used to measure renal plasma flow (RPF) is
    (A) Para-aminohippuric acid (PAH)
    (B) Diodrast
    (C) Cr-labelled EDTA
    (D) Radioactive labelled Iodine

19. Hormone influencing facultative reabsorption of water is
    (A) Vasopressin
    (B) Oxytocin
    (C) Aldosterone
    (D) Renin

20. The efferent arteriole of the Juxta medullary nephron divides into capillary network to form
    (A) Vasarecta
    (B) Peritubular capillaries
    (C) Glomerulus
    (D) Renal vein

21. Within physiological limits, the force of contraction of the ventricular muscle fibres is directly proportional to its initial length. This is according to
    (A) Ohm's Law
    (B) Frank-Starling Law
    (C) Einthoven's Law
    (D) All or None Law

22. Cushing's reflex helps in maintaining
    (A) Coronary blood flow
    (B) Cerebral blood flow
    (C) Renal blood flow
    (D) Adrenal blood flow

23. The PR interval in an ECG is measured from
    (A) Beginning of P wave to the end of R wave
    (B) Beginning of P wave to the beginning of QRS complex
    (C) End of P wave to the beginning of QRS complex
    (D) End of P wave to the end of QRS complex

24. Which of the following has the highest total cross sectional area in the body?
    (A) Arteries
    (B) Capillaries
    (C) Arterioles
    (D) Veins

25. CNS ischemic response operates
    (A) At mean BP > 50 mmHg
    (B) At mean BP 60-150 mmHg
    (C) At mean BP <40 mmHg
    (D) Due to fall in arterial pO_2

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MBBS PHASE – I
(CBME)
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

PHYSIOLOGY
PAPER – II

Q.P. Code: A004

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**20 X 1 = 20**
LONG ESSAY QUESTIONS:		**2 X 10 = 20**
2.	Name the hormones that play a role in calcium homeostasis. Explain the actions of any two of them. Add a note on Tetany.	(2+6+2)
3.	Describe and draw a neat labelled diagram of the visual pathway. Add a note on Macular Sparing.	
SHORT ESSAY QUESTIONS:		**9 X 5 = 45**
4.	A female aged 28 years came with a history of nervousness restlessness, tiredness, excessive sweating, palpitation, increased appetite and amenorrhea on examination there was tachycardia, skin was warm and moist and the front of the neck was enlarged. The eyes were prominent and the lids were retracted, examination of cardia revealed that the heart was enlarged and sinus tachycardia and extra systoles were present. B.M.R was 40%, Serum cholesterol 100mg%, Basal pulse rate 120/min.	
	a) Comment on investigation report	1
	b) What is your diagnosis?	1
	c) What other investigations would you suggest to confirm your diagnosis?	3
5.	Describe physiological actions of Progesterone.	
6.	Explain hormonal changes during menstrual cycle.	
7.	Describe the formation, circulations and functions of aqueous humour.	
8.	Describe the structure of organ of corti.	
9.	Define sleep. Explain REM sleep.	(1+4)
10.	Define referred pain. Explain the theories of referred pain.	(1+4)
11.	Describe the centers of speech with their location and functions.	
12.	Explain the properties of nerve fibers	
SHORT ANSWER QUESTIONS:		**5 X 3 = 15**
13.	Differentiate between Gigantism and Acromegaly	
14.	List the endocrine functions of testis	
15.	Describe the reduced eye.	
16.	Explain reflex arc with a neat diagram.	
17.	List the properties of smooth muscle	

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Physiology Paper II, QP Code: A004**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Peak Secretion of Oestrogen occurs in
   (A) Just Before Ovulation (B) Mid Luteal Phase
   (C) After Ovulation (D) Secretory Phase

2. The Placental Hormone primarily responsible for the growth and maintenance of corpus leuteum of 1st trimester of pregnancy is
   (A) HCG (B) HCS
   (C) Estrogen (D) Progesterone

3. Main nutritional supply for the sperms
   (A) Glucose (B) Fructose
   (C) Sucrose (D) Galactose

4. Site where endolymph is present
   (A) Scala vestibuli (B) Scala Media
   (C) Helicotrema (D) Scala Tympani

5. Tympanic reflex helps in
   (A) Protecting auditory receptors (B) Amplifying sound
   (C) Equalizing the pressure (D) Transmission of sound

6. The changes that occur in rod cells when rhodopsin is activated by light are
   (A) Increase in cGMP (B) Deactivation of phosphodiesterase
   (C) Depolarization of rods cells (D) Decreased release of neurotransmitter

7. Action of Aldosterone hormone is
   (A) Retention of sodium and water (B) Retention of potassium
   (C) Increase in hydrogen ion concentration in ECF (D) Excretion of chloride ions

8. Factor stimulating the secretion of growth hormone
   (A) Decreased blood glucose (B) Increased blood glucose
   (C) Increased blood free fatty acids (D) Somatomedins

9. A patient having coarse facial features, protruding jaw, broad nose & kyphosis, is probably suffering from
   (A) Cushing syndrome (B) Acromegaly
   (C) Myxoedema (D) Addison's disease

10. Mechanism of action of Insulin is via
    (A) Voltage gated ion channels (B) Tyrosine kinase membrane receptor
    (C) Nuclear receptor (D) G protein receptor

11. The least important factors in regulation of aldosterone secretion is
    (A) ACTH
    (B) Na^+
    (C) K^+
    (D) Renin-Angiotensin system

12. Following statement about prolactin is correct
    (A) Prolactin initiates ovulation
    (B) Causes ejection of milk during suckling
    (C) Inhibits growth of breast tissue
    (D) Its secretion is tonically inhibited by hypothalamus

13. Inverse stretch reflex is a
    (A) Superficial reflex
    (B) Monosynaptic reflex
    (C) Polysynaptic reflex
    (D) Disynaptic reflex

14. Dorsal roots are sensory and ventral roots are motor is known as
    (A) Bell Magendie law
    (B) Weber Fechner law
    (C) Marey's law
    (D) Frank Starling law

15. Circadian rhythm of sleep is controlled by which nucleus of hypothalamus?
    (A) Paraventricular
    (B) Ventromedial
    (C) Arcuate
    (D) Suprachiasmatic

16. Role of cerebellum in motor performance is
    (A) Planning and programming of movements
    (B) Converts abstract thoughts into voluntary action
    (C) Initiation of skilled voluntary action
    (D) Smoothness and coordination of voluntary movements

17. Climbing fibres of the cerebellar cortex come from
    (A) Red nucleus
    (B) Vestibular nucleus
    (C) Inferior olivary nucleus
    (D) Midline raphe nucleus

18. Muscle contraction is triggered by
    (A) Ca binding tropomyosin
    (B) Ca binding troponin C
    (C) Ca binding troponin I
    (D) ATP break down

19. Immediate source of energy for muscle contraction is
    (A) Glucose
    (B) Glycogen
    (C) ATP
    (D) Phosphocreatine

20. The time interval during which no stimulus can elicit an action potential in a nerve fibre is called the
    (A) Latent period
    (B) Relative refractory period
    (C) Absolute refractory period
    (D) Repolarization period

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MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

PHYSIOLOGY
PAPER – II

Q.P. Code: 1004

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**25 X 1 = 25**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Name the hormones secreted from Adrenal Cortex. Describe the functions of mineralocorticoids. Add a note on Addision's Disease. (2+5+3)

3. Describe the origin, course, termination and functions of corticospinal tract with a neat- labelled diagram. Explain the differences between UMN and LMN lesions. (1+3+1+2+3)

SHORT ESSAY QUESTIONS: **8 X 5 = 40**

4. Discuss the actions of Insulin.
5. Compare pubertal changes in males and females.
6. Define and explain stages of spermatogenesis. Explain factors affecting spermatogenesis. (2+3)
7. Explain the mechanism of Dark and Light adaptation.
8. Explain functions of middle ear.
9. Describe the properties of sensory receptors.
10. Explain the functions of Basal ganglia.
11. Describe the strength duration curve with a neat labelled diagram.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

12. Explain milk ejection reflex.
13. Name indicators of ovulation.
14. List the functions of semicircular canals.
15. List the features in REM sleep.
16. Justify the role of sarcotubular system in contraction of skeletal muscle.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase I, April 2021**	**Max. Marks:**	**25 Marks**
Subject :	**Physiology Paper II, QP Code: 1004**	**Time:**	**30 Minutes**

Instructions:
- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Spermatozoa mature and acquire motility in
   (A) Epididymis (B) Vas-deferens
   (C) Rete-testes (D) Prostate

2. Cryptorchidism refers to
   (A) Male hypogonadism (B) Removal of testes before puberty
   (C) Undescended testes (D) Removal of testes after puberty

3. The basis of immunological test for pregnancy is detection of
   (A) Oestrogen (B) Progesterone
   (C) Human Chorionic Gonadotropin (D) Luteinizing hormone

4. In absence of fertilization, corpus luteum begins to degenerate on which day of a normal 28 days menstrual cycle
   (A) 7^{th} (B) 14^{th}
   (C) 24^{th} (D) 30^{th}

5. Medial geniculate body is concerned with
   (A) Hearing (B) Vision
   (C) Smell (D) Taste

6. Bending of the hairs away from kinocilium results in
   (A) Depolarization (B) Hyperpolarization
   (C) Repolarization (D) No change

7. Visual acuity is greatest in the retinal fovea because of
   (A) Only rods (B) Only cones
   (C) Both rods and cones (D) No rods and cones

8. The sensory system where an adequate stimulus results in hyperpolarization of receptor cells is
   (A) Visual pathway (B) Auditory pathway
   (C) Taste pathway (D) Olfactory signaling

9. Insulin facilitates glucose uptake in
   (A) Kidney tubules (B) RBCs
   (C) Brain (D) Skeletal muscle

10. Hypotonic volume expansion of plasma results in a decrease secretion of
    (A) Aldosterone (B) Renin
    (C) Glomerular filtration rate (D) Antidiuretic hormone

11. Basal metabolic rate is increased by
    (A) Thyroxine (B) Antidiuretic hormone
    (C) Insulin (D) Oxytocin

12. Increased secretion of growth hormone after puberty leads to
    (A) Cretinism (B) Dwarfism
    (C) Acromegaly (D) Gigantism

13. A high plasma calcium level causes
(A) Bone demineralization
(B) Increased formation of 1,25-dihydroxycholecalciferol
(C) Increased formation of 24,25-dihydroxycholecalciferol
(D) Decreased secretion of calcitonin

14. Yellowish tint skin in myxedema is due to
(A) Anemia (B) Increased bilirubin level
(C) Decreased cholesterol (D) Carotenemia

15. Major neurotransmitter in substantial nigra is
(A) Dopamine (B) Noradrenaline
(C) Serotonin (D) Acetylcholine

16. Sole output from cerebellum is from
(A) Basket cell (B) Granule cells
(C) Stellate cells (D) Purkinje cells

17. Phantom limb is an example of following property of receptors
(A) Muller's Doctrine of specific nerve energy (B) Law of projection
(C) Intensity discrimination (D) Adaptation

18. Alpha waves in EEG are recorded when the person is
(A) Awake and eyes closed (B) In deep sleep
(C) Under stress (D) Awake and eyes opened

19. One of the following is a property at the synapse
(A) Law of forward conduction (B) Law of projection
(C) All or none law (D) Law of adequate stimulus

20. The satiety center is located in which portion of hypothalamus
(A) Dorsomedial nucleus (B) Ventromedial nucleus
(C) Preoptic area (D) Lateral nucleus

21. GATE through which pain impulses reach the lateral spinothalamic system is closed by
(A) Stimulation of small fibers (B) Stimulation of large fibers
(C) Central transmission cells activation (D) Inhibition of dorsal columns

22. Major area for language comprehension in cerebral cortex is known as
(A) Broca's area (B) Wernicke's area
(C) Exner's area (D) Dejerine area

23. Motor unit consists of
(A) All muscle fiber in a muscle
(B) Motor nerve and muscle fibers that it supplies
(C) Afferent neuron, center and efferent neuron
(D) Single muscle fiber and all neurons that innervate

24. Spontaneous release of acetylcholine at the neuromuscular junction produces
(A) Miniature end plate potential (B) Action potential
(C) Post-tetanic potential (D) Resting membrane potential

25. A Patient complains of muscle weakness which disappears on administration of neostigmine. Its mechanism of action is
(A) It blocks the action of acetylcholine
(B) It interferes with the action of acetylcholine esterase
(C) It interferes with action of amine oxidase
(D) It interferes with the action of carbonic anhydrase

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MBBS PHASE – I
(CBME)
DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

BIOCHEMISTRY
PAPER-I

Q.P. Code: A005

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number **Marks**

1. M.C.Q. **20 X 1 = 20**

LONG ESSAY QUESTIONS: **2 X 10 = 20**

2. Write in detail on glycogen synthesis and degradation. Give an account of the regulation.
3. Outline the metabolism of phenylalanine and tyrosine. Mention the inborn errors of their metabolism along with the enzyme defect. (6+4)

SHORT ESSAY QUESTIONS: **9 X 5 = 45**

4. Define isoenzymes. Describe the features of lactate dehydrogenase (LDH) isoenzymes and their distribution.
5. Explain the covalent modification of enzyme regulation. Give **two** examples.
6. Explain Rapoport Luebering cycle and its significance.
7. What are mucopolysaccharides? Name any **three** and explain their biological significance.
8. Explain in detail the digestion and absorption of Lipids.
9. Explain the pathogenesis of atherosclerosis.
10. Name **two** common types of secondary structures. Describe the features of alpha helix. (1+4)
11. What is Glycemic Index and how it is calculated? Mention the significance of Glycemic Index. (1+2+2)
12. Male patient aged 35 years came with complains of skin lesions over extensor surface of both elbows and knees. On examination: BP- 150/90 mm of Hg pulse – 80 beats/min, regular RS- Air entry bilaterally equal abdomen- Soft, non-tender CNS- Conscious, oriented •Investigations Total cholesterol – 508 mg/dL Triglyceride- 289 mg/dL. Random blood sugar (RBS)-338 mg/dL
    a. Mention the probable diagnosis in this case as per Fredrickson classification of primary hyperlipidaemias.
    b. Interpret the results of the Random blood sugar, Serum cholesterol and Triglyceride levels in the given case.
    c. Explain the rationale behind the use of statins in lowering the levels of Cholesterol.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

13. Define facilitated transport and give **one** example.
14. Enumerate the bile salts explain their role in the digestion and absorption of lipids.
15. Explain the primary structure of proteins. Mention the significance of primary structure.
16. Mention any **three** biologically important peptides.
17. Mention the Respiratory Quotient of Carbohydrates, Proteins and Lipids. (1+1+1)

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Biochemistry Paper-I, QP Code: A005**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Symport system operates in which of the glucose transporters?
   (A) GLUT-1 (B) GLUT-2
   (C) GLUT-3 (D) SGLT (Sodium glucose linked transporter)

2. A substance can only be accumulated against its electrochemical gradient by
   (A) Facilitated diffusion (B) Passage through ion channels
   (C) Diffusion through an uniport (D) Active transport

3. Regarding non-competitive inhibition all are true **EXCEPT**
   (A) Inhibitor binds to the site other than active site
   (B) Km value remains unchanged
   (C) Vmax increases
   (D) Enzyme substrate binding is not interfered

4. The ion which activates salivary amylase activity is
   (A) Chloride (B) Bicarbonate
   (C) Sodium (D) Potassium

5. An example of lyases is
   (A) Lactate dehydrogenase (B) Glutamine synthetase
   (C) Trypsin (D) Aldolase

6. During glycogenolysis ,enzyme glycogen phosphorylase produces
   (A) Glucose 6 phosphate (B) Glucose 1 phosphate
   (C) Glucose (D) UDP glucose

7. The conversion of pyruvate to acetyl CoA and CO_2
   (A) Is reversible (B) Is catalyzed by Pyruvate dehydrogenase
   (C) Depends on the coenzyme biotin (D) Occurs in the cytosol

8. Gluconeogenesis can proceed from all of the following, **EXCEPT**
   (A) Lactate (B) Palmitic acid
   (C) Propionyl CoA (D) Glycerol

9. The **MOST** important initial source of blood glucose during fasting is
   (A) Muscle Glycogen (B) Muscle protein
   (C) Liver Triglyceride (D) Liver Glycogen

10. Lipoprotein lipase which degrades Chylomicron's lipid core, requires the following Apolipoprotein
    (A) B 100 (B) C-II
    (C) B 48 (D) A-I

11. The ketone bodies are mainly used for which one of the following processes?
    (A) Excretion as metabolic waste products
    (B) Energy generation in the liver
    (C) Generation of energy in the extra hepatic tissues
    (D) Generation of energy in red blood cells

12. In the biosynthesis of cholesterol, the rate limiting enzyme is
    (A) Mevalonate kinase
    (B) HMG-CoA synthetase
    (C) HMG-CoA reductase
    (D) HMG-CoA lyase

13. The following is a omega 3 fatty acid
    (A) Oleic acid
    (B) Linoleic acid
    (C) Linolenic acid
    (D) Arachidonic acid

14. Which of the following food stuff exerts maximum specific dynamic action?
    (A) Carbohydrates
    (B) Fats
    (C) Proteins
    (D) Vitamins

15. Calorific value of Carbohydrates is
    (A) 4 kcal/g
    (B) 4.8 kcal/g
    (C) 5.4 kcal/g
    (D) 5.8 kcal/g

16. The following is **TRUE** regarding collagen
    (A) Is a globular protein
    (B) Rich in lysine and cystine
    (C) Present in ligaments
    (D) Has double helix structure

17. The amino acid with greatest buffering capacity at physiologic pH is
    (A) Lysine
    (B) Histidine
    (C) Glycine
    (D) Alanine

18. Which of the following amino acid is exclusively ketogenic?
    (A) Leucine
    (B) Phenylalanine
    (C) Threonine
    (D) Isoleucine

19. All of the following are hemoproteins, **EXCEPT**
    (A) Myoglobin
    (B) Cytochrome
    (C) Catalase
    (D) Albumin

20. Name the defective enzyme in cystathioninuria
    (A) Cystathionase
    (B) Phenyl alanine hydroxylase
    (C) Homogentisic acid oxidase
    (D) Para hydroxy phenyl pyruvate oxidase

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KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH, BELAGAVI.
(Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956)

Accredited 'A' Grade by NAAC (2nd Cycle) **Placed in 'A' Category by MHRD (GoI)**

MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 2 Hours **Max. Marks: 50**

BIOCHEMISTRY
PAPER-I

Q.P. Code: 1997

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**15 X 1 = 15**

LONG ESSAY QUESTIONS: **1 X 10 = 10**

2. Define enzymes. Classify and explain each class of enzyme with one example according to IUBMB system. (1+9)

SHORT ESSAY QUESTIONS: **2 X 5 = 10**

3. Enumerate the different transport mechanisms across the cell membrane with suitable examples.
4. What are the indications for Oral glucose tolerance test (OGTT)? Explain the procedure.

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

5. What is Zymogen? Give examples.
6. Mention the therapeutic uses of enzymes.
7. Write the significance of hexose monophosphate shunt pathway.
8. What is Galactosemia? Name the enzyme defect and its clinical presentations.
9. Give the sources and fate of acetyl CoA.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, April 2021**	**Max. Marks:**	**15 Marks**
Subject :	**Biochemistry, QP Code: 1997**	**Time:**	**30 Minutes**

Instructions:
- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. The cell organelle which synthesizes ribosomes
   (A) Nucleolus (B) Endoplasmic reticulum
   (C) Lysosome (D) Golgi complex

2. Membrane proteins that speed the movement of a solute across a membrane by facilitating diffusion are called
   (A) Enzymes (B) Transporters
   (C) Ligands (D) Receptors

3. In erythrocyte, glucose transport is an example of
   (A) Simple diffusion (B) Active transport
   (C) Facilitated diffusion (D) Ion driven active transport

4. Cofactor for carboxylation reaction
   (A) Thiamine (B) Biotin
   (C) Folic acid (D) Pyridoxine

5. Muscle does not release glucose to the blood stream as it LACKS the enzyme
   (A) Glucose 1 phosphatase (B) Fructose 6 phosphatase
   (C) Glucose 6 phosphatase (D) Phosphoglucomutase

6. Rapaport- Leubering cycle is associated with the synthesis of
   (A) 1,3 bisphosphoglycerate (B) 2,3 bisphosphoglycerate
   (C) Phosphoenol pyruvate (D) Glyceraldehyde 3- phosphate

7. The nitrogenous base present in surfactant is
   (A) Choline (B) Ethanolamine
   (C) Serine (D) Inositol

8. The ketone bodies are mainly used for which one of the following processes?
   (A) Excretion as metabolic waste products
   (B) Energy generation in the liver
   (C) Generation of energy in the extra hepatic tissues
   (D) Generation of energy in red blood cells

9. The apolipoprotein which acts as ligand for LDL receptor is
   (A) B-48 (B) B-100
   (C) A-II (D) C-II

10. Oxidation of fatty acids occurs in
    (A) Cytosol (B) Matrix of the mitochondria
    (C) Endoplasmic reticulum (D) Golgi apparatus

11. The amino acid with greatest buffering capacity at physiologic pH is
    (A) Lysine (B) Histidine
    (C) Glycine (D) Alanine

12. Which of the following amino acid is exclusively ketogenic?
    (A) Leucine (B) Phenylalanine
    (C) Threonine (D) Isoleucine

13. Glycine is used for synthesis of the following, **EXCEPT**
    (A) Heme (B) Serotonin
    (C) Purine (D) Creatinine

14. Which of the following food stuff exerts maximum specific dynamic action?
    (A) Carbohydrates (B) Fats
    (C) Proteins (D) Vitamins

15. Calorific value (Energy density) of Carbohydrates is
    (A) 4 kcal/g (B) 4.8 kcal/g
    (C) 5.4 kcal/g (D) 5.8 kcal/g

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MBBS PHASE – I
(CBME)

DEGREE EXAMINATION – APRIL 2021

Time: 3 Hours **Max. Marks: 100**

BIOCHEMISTRY
PAPER-II

Q.P. Code: A006

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number		**Marks**
1.	M.C.Q.	**20 X 1 = 20**
LONG ESSAY QUESTIONS:		**2 X 10 = 20**
2.	Define genetic code. What are the salient features of genetic code? Add a note on wobble hypothesis.	(1+6+3)
3.	Describe the sources, biochemical functions, requirements and deficiency manifestations of thiamine.	
SHORT ESSAY QUESTIONS:		**9 X 5 = 45**
4.	Explain Post-transcription modification of mRNA.	
5.	Describe the Recombinant DNA technology. What are the applications of this technique?	
6.	Explain phase 1 reactions of detoxification with **two** examples each.	
7.	What is Folate trap? Explain.	
8.	Mention the causes and deficiency manifestations of Vitamin B12.	
9.	What are blood buffers? Explain their role in acid-base balance.	(2.5+2.5)
10.	Write the sources, RDA, factors affecting Iodine absorption in intestine, functions and deficiency manifestations of Iodine.	
11.	What is sickle cell anemia? Give its biochemical cause. Why does a person with sickle cell trait show an increased resistance to Malaria?	(2+2+1)
12.	A 4 year old child was bought to the hospital with complaints of chronic cough and bronchitis, history reviled there were frequent such episodes in past one year. On physical examination there was growth retardation other significant finding in ocular examination was pallor, dryness of eyes and white shiny scaly lesions on the temporal side of the right eye. Comment on the findings in the eyes (What and why?). What will be the sequel if untreated?	
SHORT ANSWER QUESTIONS:		**5 X 3 = 15**
13.	Mention the role of Allopurinol in the treatment of gout.	
14.	Mention the total body water distribution.	
15.	What is the biochemical defect and clinical features in Wilson's disease?	
16.	Explain the basic structure of Collagen.	
17.	List responsibilities of patients.	

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, (CBME) April 2021**	**Max. Marks:**	**20 Marks**
Subject :	**Biochemistry Paper-II, QP Code: A006**	**Time:**	**30 Minutes**

Instructions:

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. All are vectors for Gene therapy **EXCEPT**
   (A) Proteasomes (B) Liposomes
   (C) Adenoviruses (D) Retroviruses

2. Prokaryotic transcription is terminated when
   (A) Codon on the mRNA is AUG (B) Codon on the mRNA is UGA
   (C) Rho factor binds to DNA (D) Codon on the mRNA is UAA

3. Which of the following best describes the Degeneracy of genetic code?
   (A) Single codon stands for multiple aminoacids
   (B) One amino acid is represented by multiple codons
   (C) Overlapping of codons is observed at times
   (D) Some codons contain 4 bases instead of 3 bases

4. Detoxification reactions occur MAINLY in
   (A) Intestine (B) Kidneys
   (C) Liver (D) Spleen

5. Which of the following acts as a source for sulphate in detoxification reactions?
   (A) Sulphuric acid (B) Hydrogen sulphide
   (C) Phospho adenosine phosphosulfate(PAPS) (D) Methionine

6. Unusual nucleotide pseudouridylic acid is present in
   (A) mRNA (B) tRNA
   (C) rRNA (D) hnRNA

7. The chief product of catabolism of purines in human beings is
   (A) Urea (B) Uric acid
   (C) Hypoxanthine (D) Beta aminoisobutaric acid

8. Lesch Nyhan syndrome is due to the lack of
   (A) HGPRTase (B) APRTase
   (C) Adenine deaminase (D) PRPP amino transferase

9. One of the following is antagonist to Vitamin K
   (A) Avidin (B) British Anti - Lewisite
   (C) Dicoumarol (D) Menadione

10. The functionally active form of Vitamin D is
    (A) Cholecalciferol (B) Ergocalciferol
    (C) 7-Dehydrocholesterol (D) Calcitriol

11. Which of the following vitamins acts as a coenzyme for transfer of one carbon units?
    (A) Niacin
    (B) Thiamine
    (C) Riboflavin
    (D) Folic acid

12. The enzyme activity measured in Beriberi is?
    (A) Transketolase
    (B) Transaminase
    (C) Decarboxylase
    (D) Deaminase

13. Vitamin acting as reducing agent is
    (A) Vitamin C
    (B) Vitamin B12
    (C) Folic acid
    (D) Thiamine

14. Pantothenic acid acts as a carrier of
    (A) NADP
    (B) NADPH
    (C) FAD
    (D) CoA

15. Pellagra occurs due to deficiency of
    (A) Biotin
    (B) Niacin
    (C) Pantothenic acid
    (D) Folic acid

16. Deficiency of Folic acid causes
    (A) Microcytic anemia
    (B) Hemolytic anemia
    (C) Neural tube defects
    (D) Beriberi

17. Which of the following is considered as the final acceptor of electrons in respiratory chain?
    (A) Coenzyme Q
    (B) Cytochrome C
    (C) Cytochrome A
    (D) Molecular Oxygen

18. The bicarbonate ions move from Red blood cells to plasma in exchange for?
    (A) Carbon dioxide
    (B) Oxygen
    (C) Chloride
    (D) Sodium

19. Important buffer in extracellular fluid is
    (A) Hemoglobin
    (B) Bicarbonate
    (C) Protein
    (D) Phosphate

20. Osmolality of Plasma is
    (A) 80-100 milliosmole/litre
    (B) 180-200milliosmol/litre
    (C) 280-300 milliosmole/litre
    (D) 380-400 milliosmole/litre

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MBBS PHASE – I
DEGREE EXAMINATION – APRIL 2021

Time: 2 Hours **Max. Marks: 50**

BIOCHEMISTRY
PAPER-II

Q.P. Code: 1998

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number **Marks**

1. M.C.Q. **10 X 1 = 10**

LONG ESSAY QUESTIONS: **1 X 10 = 10**

2. Define genetic code. What are the salient features of genetic code? Add a note on Wobble hypothesis. (1+6+3)

SHORT ESSAY QUESTIONS: **3 X 5 = 15**

3. Describe the Recombinant DNA technology. What are the applications of this technique?
4. Explain the reactions of Catabolism (Degradation) of heme.
5. Briefly describe the procedure of Creatinine clearance test and its significance. (3+2)

SHORT ANSWER QUESTIONS: **5 X 3 = 15**

6. Explain phase **2** reactions with **two** examples each.
7. Explain the Wald's visual cycle.
8. Give causes and clinical manifestations of Pellagra.
9. Define buffers. Give the composition of the blood buffers. (1+2)
10. Mention the molecular defect in Sickle cell haemoglobin and its clinical significance.

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MULTIPLE CHOICE QUESTIONS

Course:	**MBBS Phase – I, April 2021**	**Max. Marks:**	**10 Marks**
Subject :	**Biochemistry, QP Code: 1998**	**Time:**	**30 Minutes**

Instructions:
- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Substitution of an adenine base by guanine in DNA is known as
   (A) Transposition (B) Transition
   (C) Transversion (D) Frame shift mutation

2. The polymerase chain reaction (PCR)
   (A) Amplifies fragments of DNA many times
   (B) Cleaves DNA into small fragments
   (C) Constructs a plasmid vector
   (D) Detects specific DNA fragments from a mixture of DNA molecules

3. DNA replication occurs during the following phase of cell cycle
   (A) M phase (B) S phase
   (C) Gap 1 phase (D) Gap 2 phase

4. The chief product of catabolism of purines in human beings is
   (A) Urea (B) Uric acid
   (C) Hypoxanthine (D) Beta aminoisobutaric acid

5. The functionally active form of Vitamin D is
   (A) Cholecalciferol (B) Ergocalciferol
   (C) 7-Dehydrocholesterol (D) Calcitriol

6. Vitamin that is excreted in urine is
   (A) Vitamin A (B) Vitamin C
   (C) Vitamin D (D) Vitamin K

7. Deficiency of Vitamin B12 causes
   (A) Microcytic anemia (B) Peripheral neuropathy
   (C) Beriberi (D) Neural tube defects

8. Bilirubin in serum can be measured by
   (A) Vanden Bergh reaction (B) Ehrlich's reaction
   (C) Schlesinger's reaction (D) Ninhydrin reaction

9. Which of the following is biologically more potent
   (A) Monoiodotyrosine (MIT) (B) Diiodotyrosine (DIT)
   (C) Triiodothyronine (T3) (D) Tetraiodothyronine (T4)

10. Marker for prostate cancer is
    (A) Beta Hcg (B) ALP (Alkaline Phosphatase)
    (C) PSA (Prostate specific antigen) (D) Alpha fetoprotein

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