**MBBS 1ST PROF**

**ANATOMY**

**Sample Paper: PAPER –A, BFUHS**

TIME:3 Hours Max Marks: 100

Note:

 1. **Question No. 1 (MCQ) to be attempted on OMR Sheet (Time: 10 Min.)**

 2. **Question No. 2-6 to be attempted on separate answer book (Time: 2:50 Min.)**

1. A 20-year boy presents to the emergency after a road traffic accident. X-ray shows extensive fractures of the skull, including a fracture and partial closure of the foramen ovale. This fracture would damage the nerve that supplies all the following muscles, EXCEPT:

1. Buccinator
2. Lateral pterygoid
3. Medial pterygoid
4. Temporalis

2. A 45 years patient is unable to taste a cube of sugar placed on the anterior part of the tongue. Which of the following nerve is most likely to have a lesion?

1. Hypoglossal
2. Vagus
3. Glossopharyngeal
4. Facial

3. A 50 years male patient comes with history of fall on an outstretched hand. His arm is now adducted and medially rotated. Which of the following is the most likely diagnosis?

1. Erb’s Palsy
2. Klumpke’s palsy
3. Ape hand
4. Wrist drop

4. A 38-year-old computer operator has been experiencing sharp pains in his hand over the last few months. The pain radiates to his elbow. There is weakness and incoordination of the thumb, with atrophy of the thenar eminence. The cutaneous sensation to the thenar eminence was intact. Which of the following nerve is most likely affected?

1. Ulnar
2. Lateral cutaneous nerve of the forearm
3. Median
4. Musculocutaneous

5. A 45-year male patient is unable to pronate and supinate his forearm rapidly. Which of the following is the most likely location of the lesion?

1. Cerebrum
2. Cerebellum
3. Pons
4. Medulla oblongata

Q2.Describetemporo-mandibular joint under the following headings: (2+5+5=12)

1. Articular surfaces b) Articular disc
2. Movements and muscles producing these movements

Q3.Short notes: (5x5=25)

1. Explain abduction at shoulder joint&enumerate muscles producing it.
2. Describe corpus callosum
3. Explain cartilaginous joints with examples
4. Illustrate histology of thyroid gland
5. Explain arterial supply of supero-lateral surface of left cerebral hemisphere& its significance.

Q4.Explain why: (3x5=15)

1. There a funny sensation felt when the medial aspect of elbow hits against a surface.
2. Injury to recurrent laryngeal nerve lead to hoarseness of voice.
3. Injury to radial nerve lead to wrist drop.
4. Injury of lower trunk of brachial plexus lead to Horner syndrome.
5. The 4th layer of scalp known as dangerous layer.

Q5.Short notes (applied aspects): (6x3=18)

1. Develop theapplied significance of lymphatic drainage of breast.
2. Explain clinical significance of occlusion of posterior cerebral artery.
3. Explain clinical significance of hard palate development.

Q6: Short notes : (5x4=20)

1. Draw a well labelled diagram showing microanatomy of palatine tonsil
2. Draw a well labelled diagram showing the transverse section of the midbrain at the level of superior colliculus
3. Enlist the derivates of second pharyngeal arch
4. Describe transitional epithelium

**MBBS 1ST PROF**

**ANATOMY**

**Sample Paper: PAPER –B, BFUHS**

TIME:3 Hours Max Marks: 100

1. **Question No. 1 (MCQ) to be attempted on OMR Sheet (Time: 10 Min.)**

 2. **Question No. 2-6 to be attempted on separate answer book (Time: 2:50 Min.)**

1. A 12-year-old boy is brought to the emergency department. He complains of abdominal pain as he points towards his lower abdomen but says that the pain initially started at the centre of his belly. He vomited once on the way to the hospital. Physical examination reveals right lower quadrant tenderness. The patient is prepared for abdominal surgery. Which of the following structure is most likely to aid the surgeons in finding the source of this patient’s pain and fever?
2. McBurney’s point
3. Arcuate line
4. Linea semilunaris
5. Transumbilical plane
6. A 40-year-old male presents with vague abdominal pain that has been worsening over the last few days. The pain worsens with meals and often radiates to the back. He has lost 15 kg over the last two months. He admits to drinking alcohol everyday for the last 20 years. Which of the following organ is most likely affected?
7. Gall bladder
8. Duodenum
9. Pancreas
10. Kidney
11. A 55-year-old male complains of sweating, breathlessness, and chest pain. The pain is radiating to the left arm also. He gives a history of increasing fatigue on mild activity over the last few days. Which of the following is the most likely cause of this condition?
12. Coronary artery obstruction
13. Pneumonia
14. Aortic dissection
15. Pericarditis
16. A 16-year-old girl complaint of primary amenorrhea. There is absence of development of secondary sexual characters also. On buccal smear examination, there is absence of barr body. Which of the following is the most likely karyotype for this subject?
17. 47XXY
18. 46XO
19. 45XO
20. 46XX
21. On examination of a posteroanterior chest radiograph of an 18-year-old woman, it was seen that the left dome of the diaphragm was higher than the right dome and reached to the upper border of the fourth rib. The position of the left dome of the diaphragm could be explained by one of the following conditions except which?
22. The left lung could be collapsed.
23. There is a collection of blood under the diaphragm on the left side.
24. There is an amebic abscess in the left lobe of the liver.
25. The left dome of the diaphragm is normally higher than the right dome.

Q2: Explainright coronary artery under the following headings: (2+5+5=12)

1. Origin b) Distribution
2. Course and branches

Q3: Short notes: (5x5=25)

1. Develop the embryological basis of Meckel’s Diverticulum
2. Describe histology of testis
3. Explaininversion and eversion
4. Illustrate medial longitudinal arch
5. Summarise supports of uterus

Q4: Explain why: (3x5=15)

1. A congenital anomaly of pancreas lead to duodenal atresia.
2. Medial meniscus more prone to injury.
3. Sometimes the veins become tortuous around umbilicus.
4. Injury of deep peroneal nerve lead to foot drop.
5. The level of umbilicus referred to as watershed line.

Q5: Short notes (Applied aspects): (6x3=18)

1. Explain trisomy of chromosome 21& its significance
2. Reviewmedicolegal significance of lower end of femur.
3. Comment on clinical significance of inguinal canal.

Q6: Short notes (5x4=20)

1. Draw a well labelled diagram showing microanatomy of the fundus of stomach
2. Explain formation of interatrial septum
3. Illustrate histology of liver
4. Draw a well labelled diagram showing the posterior relations of right kidney

**MBBS 1ST PROF**

**BIOCHEMISTRY**

**Sample Paper: PAPER –B, BFUHS**

TIME:3 Hours Max Marks: 100

1. **Question No. 1 (MCQ) to be attempted on OMR Sheet (Time: 10 Min.)**

 2. **Question No. 2-6 to be attempted on separate answer book (Time: 2:50 Min.)**

1. A 54-year male presents with acute abdominal pain, no skin photosensitization, large amount of ALA and PBG in urine, and symptoms exacerbated by steroids and several other drugs? Which of the following best describes the condition?
2. Porphyria cutanea tarda
3. Acute intermittent porphyria
4. Porphyria variegata
5. Hepatic porphyria
6. Watson and Crick states that the double helix of DNA is stabilized by the bonds between complementary nitrogenous bases. Which of the following bond maintain double helical structure of DNA?

A. N-glycosidic

B. Phosphodiester

C. Esther

D. Hydrogen

E. Disulfide

1. A 10-year-old body develops severe diarrhea while traveling to India. The laboratory investigation shows arterial blood pH = 7.25; partial Pressure of carbon dioxide = 24 mmHg; bicarbonate = 10 mEq/L and normal anion gap. Which of the following is correct diagnosis?
2. Metabolic acidosis
3. Metabolic alkalosis
4. Respiratory acidosis
5. Respiratory alkalosis
6. Which property of p53 enables it to prevent the development of cancer?
7. It is a transcription factor that causes protein production which stimulates the cell cycle
8. It prevents replication of cells with damaged DNA
9. It prevents cells from triggering apoptosis
10. It stimulates synthesis of DNA repair enzymes that replace telomere sequence lost during cell division
11. Which one of the following statements is **INCORRECT**?
12. Rickets is the major symptom of vitamin D deficiency
13. Goiter is the major symptom of iodine deficiency
14. Beriberi is the major symptom of vitamin B2 deficiency
15. Scurvy is the major symptom of vitamin C deficiency

Q 2. **Two formats of LAQ are provided. Paper setter to use any one of these**

A 50-year old male corporate executive was rushed to the casualty department at midnight with a complaint of excruciating pain in his right metatarsophalangeal joint and was unable to keep his foot on the floor. On examination the joint was swollen, red and extremely tender. The doctor on duty gave him an indomethacin tablet, which relieved the symptoms to some extent. He gave a history of alcohol consumption previous night and renal colic a few months back. Next morning blood and urine investigations were done. The laboratory reports are as follows:Serum uric acid-16 mg/dL; Urinary uric acid – 3.2 mg/day; Urinary pH – 4.5; Blood urea – 31 mg/dL and Serum creatinine – 0.9 mg/dL.

1. What is your provisional diagnosis? Explain your reasons for the diagnosis.
2. Comment on the cause of pain and swelling of joint?
3. Explain the biochemical basis for the precipitation of acute episode4+4+4=12

 **OR**

What is Gout? Describe Primary and Secondary Gout in detail. Discuss Biochemical basis of precipitating factors for acute episode of Gout. 3+5+4= 12

Q3. Short notes: 5x5 = 25

1. Describe the metabolic changes in obesity
2. Explain the lac operon concept of gene expression
3. What is protein energy malnutrition? In a tabular form explain the differences between Marasmus and Kwashiorkor
4. Differentiate different types of jaundice based on liver function test interpretation
5. Explain the mechanism of sorting of mitochondrial protein.

Q 4. Explain why: 3x5 = 15

1. Vitamin C is required in synthesis of collagen.
2. Rifampicin is inhibitor of transcription.
3. Abnormalities on cell cycle check points causes tumor formation.
4. Iron is called a “one-way element”
5. Topoisomerase is required during DNA replication.

Q 5. Short notes (Applied aspects): 6x3 = 18

1. Summarise clinical applications of the antioxidantdefense systems in the body
2. Compare and contrast various kidney function tests in renal failure
3. Explain steps and enumerate applications of Polymerase chain reaction (PCR)

Q 6. Short notes: 5x4 = 20

1. Regulation of calcium levels in blood
2. Enumerate various tumour markers and describe one of these in detail.
3. What are the differences between structure and function of IgA and IgG.
4. Discuss the involvement of extracellular matrix components in health and disease

**MBBS 1ST PROF**

**BIOCHEMISTRY**

**Sample Paper: PAPER –B, BFUHS**

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D. Respiratory alkalosis

4. Which property of p53 enables it to prevent the development of cancer?

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B. It prevents replication of cells with damaged DNA

C. It prevents cells from triggering apoptosis

D. It stimulates synthesis of DNA repair enzymes that replace telomere sequence lost during cell division

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B. Explain the lac operon concept of gene expression

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D. Discuss the involvement of extracellular matrix components in health and disease

**MBBS 1ST PROF**

**PHYSIOLOGY**

**Sample Paper: PAPER –A, BFUHS**

TIME:3 Hours Max Marks: 100

1. **Question No. 1 (MCQ) to be attempted on OMR Sheet (Time: 10 Min.)**

 2. **Question No. 2-6 to be attempted on separate answer book (Time: 2:50 Min.)**

1. A 40-year man was found to have partial loss of voluntary movement on right side, loss of pain & temperature on left side below the mid thoracic region. Which of the following is the most likely site of lesion?

1. Transecting left half of spinal cord in lumbar region
2. Transecting left half of spinal cord in upper thoracic region
3. Transecting sensory & motor pathways on right side of pons
4. Transecting right half of spinal cord in upper thoracic region

2. A young woman has puffy skin, hoarse voice with low plasma TSH which increases when she is given TRH. Which of the following she is most likely suffering from?

1. Hyperthyroidism due to thyroid benign tumour
2. Hypothyroidism due to primary abnormality in thyroid gland
3. Hypothyroidism due to primary abnormality in hypothalamus
4. Hypothyroidism due to primary abnormality in pituitary gland

3. A 22-year male has history of easy fatiguability, progressive muscle weakness which worsens with activity. He has difficulty in performing day to day activities. Which of the following is the most likely reason?

1. Damage to calcium channels on synaptic knob of neuromuscular junction
2. Damage to nicotinic cholinergic receptors on motor end plate
3. Lambert Eaton syndrome
4. Decreased miniature end plate potential

4. A 42-year male patient was found to have thin extremities and fat redistributed at abdomen and upper back. He has reddish purple striae on skin and his blood glucose level. Which of the following is the most likely cause for this condition?

1. Increased glucocorticoids
2. Increased growth hormone
3. Increased insulin
4. Increased glucagon

5. A 60-year male experiences tremors while picking up objects. On examination he is found to have hypotonia, pendular knee jerk and inability to perform rapid, repeated alternate and opposite movements. Which of the following is the most likely site of lesion for this condition?

1. Thalamus
2. Motor tract
3. Cerebellum
4. Basal ganglia

**Q 2. Long essay question** (4+4+4=12)

Describe structure of muscle spindle with the help of a labelled diagram. Comment on its functional significance.

**Q 3. Short notes**: 5x5=25

1. Describe mechanism of transmission of impulse across neuromuscular junction in skeletal muscle.
2. Enumerate thyroid hormones and describe their actions on CVS.
3. Describe mechanism of hearing
4. Describe action of parathyroid hormone in calcium homeostasis.
5. Compare and contrast NREM (non-rapid eye movement) and REM sleep

**Q 4.Explain why:** 3x5=15

1. Contralateral loss of pain and temperature sensation in Brown Sequard syndrome
2. Skeletal muscle can be tetanised
3. There is no conception during lactation period
4. Treatment with glucocorticoids should not be abruptly​ stopped
5. Osmotic diuresis occurs in diabetes mellitus

**Q 5 Short notes (applied aspects):** 6x3 =18

1. Describe clinical features of Parkinsonism.
2. Summarise ovulation tests &relate to physiological basis.
3. Explain errors of refraction.

**Q 6 Short notes:** 5x4 =20

1. Compare and contrast absolute and relative refractory period in a nerve fibre
2. Describe types & features of membrane junctions.
3. Explain blood testis barrier & its functions.
4. Illustrate mechanism of action of insulin.

**MBBS 1ST PROF**

**PHYSIOLOGY**

**Sample Paper: PAPER–B, BFUHS**

1. **Question No. 1 (MCQ) to be attempted on OMR Sheet (Time: 10 Min.)**

 2. **Question No. 2-6 to be attempted on separate answer book (Time: 2:50 Min.)**

Q1. Multiple Choice Questions, Use OMR sheet to answer,2x5=10, Time for MCQs-15 min

1. A 35-year male subject has Hb 7gm/dl, RBCs-3 million/mm3, MCV-120 µm3 and MCHC-32%. Which of the following the most likely cause for this condition?
2. Iron deficiency anemia
3. Haemolytic anemia
4. Megaloblastic anemia
5. Aplastic anemia
6. A 45-year male subject complains of pain in left side of chest which increases on physical activity and is referred to left shoulder. Which of the following is the most likely reason for his condition?
7. Angina pectoris
8. Vasovagal syncope
9. Pulmonary embolism
10. Peptic ulcer
11. A 10-year child has persistent bleeding after tooth extraction. Haemostasis was achieved initially after extraction but there is prolonged oozing from the site. Which of the following is the most likely deficient factor?
12. II
13. VII
14. VIII
15. IX
16. A mother complains that her 4-month baby defecates often after meal. Which of the following is the most likely cause for this condition?
17. Gastroileal reflex
18. Gastrocolic reflex
19. Increased CCK level
20. Enterogastric reflex
21. A healthy 37-year male is on high altitude adventure holiday. He spends few initial days at moderate altitude where ventilation is increased. Later on, he ascends to 10,000 feet and develops severe headache, retching and is unable to climb further. Which of the following is the most likely cause for this condition?
22. Cytotoxic hypoxia
23. Hypoxic hypoxia
24. Ketoacidosis
25. Metabolic acidosis

**Q 2. Long essay question** 2+5+5=12

Define blood pressure. Explain short term and long term regulation of blood pressure.

**Q 3. Short notes** 5x5=25

Write short notes on

a) Explainregulation of coronary circulation.

b) Illustrate counter-current mechanism in urine formation.

c) Explain neural regulation of respiration.

d) Describe pharyngeal stage of deglutition.

e) Summarise the physiology of body temperature regulation.

**Q 4.Explain why:** 3x5=15

a) Person with blood group O-ve is considered as universal donor.

b) T wave is upright in normal ECG.

c) Clay coloured stools occur in obstructive jaundice.

d) Carbonic anhydrase inhibitors act as diuretic.

e) Alveoli do not collapse during expiration.

**Q 5. Short notes (applied aspects)**: 6x3 =18

a) Explain pathophysiology & clinical features of hypovolemic shock

b) Illustrate fibrinolytic system and enumerate its clinical applications.

c) Summarise role of renal function tests in renal failure.

**Q 6 Short notes** 5x4 =20

a) Summarise cell mediated immunity

b) Describe pathophysiological basis of peptic ulcer

c) Illustrate the role of oxygen haemoglobin dissociation curve

d) Explainvarious stages of erythropoiesis with a well labelled diagram.