

Time: Three Hours

Max. Marks: 100 Marks

PHYSIOLOGY — PAPER- I (RS-4)

Q.P. CODE: 1022

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS

2 x 10 = 20 Marks

1. Mention the events of a cardiac cycle with their durations. Explain the left ventricular pressure and volume changes during cardiac cycle. (3+7)
2. Name the neural regulatory centers of respiration and explain their role in regulation. Illustrate Cheyne-Stokes breathing. (3+4+3)

SHORT ESSAYS

10 x 5 = 50 Marks

3. Explain feedback regulation with suitable examples. (2.5+2.5)
4. Describe the effects of mismatched blood transfusion. (5)
5. A 16 year old boy was brought to the **hospital** with excessive **bleeding** from an **injury** in his foot. He had a past history of similar delayed stoppage of bleeding associated with swelling of injured parts following blunt trauma. One of his paternal uncles **also had** a similar history. Investigation revealed: Hb 14 g/dl, Platelet count 3.5 lakhs/mm³, BT - 5 minutes, CT - 12 minutes.
 - a. Mention the probable diagnosis and cause for the same.
 - b. Mention the type of inheritance of this disorder.
 - c. Name another bleeding disorder with the cause. (2+1+2)
6. Explain the role of complement system in immunity. (5)
7. Explain the role of renin-angiotensin-aldosterone system in BP regulation. (5)
8. List the theories of auto-regulation of blood flow and explain any two. (2+3)
9. Define and classify hypoxia. Explain their causes and treatment. (2+3)
10. Describe the defecation reflex with illustration. (5)
11. Explain the cause for spillover in reabsorption of glucose by Nephrons. (5)
12. Define GFR. Explain the factors regulating the same. (1+4)

SHORT ANSWERS

10 x 3 = 30 Marks

13. List the functions of WBCs. (3)
14. Explain the basis of enhanced immune response to booster doses of vaccine. (3)
15. Mention the symptoms and ECG changes in ischemic heart disease. (2+1)
16. Illustrate and mention the physiological basis of radial pulse tracing. (3)
17. Define functional residual capacity. Mention its normal value and methods for its measurement. (1+1+1)
18. Mention the composition and functions of bile. (1.5+1.5)
19. Define jaundice. Mention the clinical features of obstructive jaundice. (1+2)
20. Mention its cause and treatment of achalasia cardia. 4+4 +4-65+-1.5)
21. Compare and contrast cortical and juxta-medullary Nephrons. (3)
22. Mention the sites of water reabsorption in Nephrons with its principle. (3)

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9. Describe the supports of the urinary bladder.
10. Compare and contrast the features of autosomal dominant and autosomal recessive inheritance.
11. Correlate the microstructure and functions of the adrenal cortex.
12. Describe the development of the kidney. Explain the embryological basis of congenital polycystic kidney. (4+1)

SHORT ANSWERS

10 x 3 = 30 Marks

13. The obturator nerve was injured in an anterior dislocation of hip joint. All the muscles supplied by this nerve were paralyzed except part of one muscle. Which muscle is this and what is the anatomical basis? Enumerate the muscles supplied by the obturator nerve. (2+1)
14. Describe the lymphatic drainage of the stomach.
15. Describe the interior of the second part of the duodenum.
16. Describe briefly the boundaries and contents of the pudendal canal. (2+1)
17. Describe the peritoneal relations of the rectum and their clinical importance. (2+1)
18. Explain the mechanism of meiotic non-disjunction and its consequences. (2+1)
19. Describe the structure and functions of Sertoli cells.
20. Describe the histological appearance of thyroid follicles in different stages of activity.
21. Explain the embryological basis of Meckel's diverticulum.
22. Explain the embryological basis of trachea-oesophageal fistula.

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MBBS Phase - I (CBME) Degree Examination - 10-Feb-2021

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 14-year-old boy came with altered gait a few hours after an injection in his right buttock. On clinical examination he was found to be having right foot drop.
 - a. What is the anatomical basis for the boy's symptoms? (2)
 - b. Describe the following structures under the cover of the gluteus maximus muscle (4-4⁴)
 - (i) Vessels
 - (6) Nerves
2. Draw a neat labelled diagram to show the components of the extra-hepatic biliary system. (2)

Describe the gall bladder under the following headings:
(a) Location; (b) Parts; (c) Relations; (d) Blood supply; (e) Applied anatomy (1+1+3+2+1)

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

3. A 23-year-old female came to the emergency department with an injury to the middle of the right groin region. On examination, there was a deep lacerated wound just below the middle of the right *inguinal* ligament. Describe the structures at risk in this region and their relations. Describe the boundaries of the triangle in this region. (3+2)
4. A 26-year-old male presented to the emergency department with complaints of pain in the umbilical region which later shifted to the right iliac fossa. There was tenderness elicited at McBurney's point. A clinical diagnosis of acute appendicitis was made.
 - (a) Explain the anatomical basis of the pain that was initially felt in the umbilical region.
 - (b) Explain why the pain later shifted to the right iliac fossa.
 - (c) What is McBurney's point and its clinical importance?
 - (d) Describe the positions of the appendix.
 - (e) Describe the arterial supply of the appendix. (1+1+1+1+1)
5. Describe the layers and attachment of the thoracolumbar fascia. (3+2)
6. Describe the relations of the abdominal parts of both ureters and their arterial supply. (3+2)
7. Compare and contrast the features of the male and female bony pelvis.
8. Describe the perineal membrane and the structures piercing it in males and females. (3+1+1)

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1p. Describe the extent, gross features and relations of the hypothalamus. Explain the functional importance of the hypothalamic-hypophyseal portal system. (1+1+2+1)

11. Describe the development of the umbilical cord. Explain why the umbilical arteries carry deoxygenated blood and umbilical veins carry oxygenated blood. (4+1)

12. Compare and contrast the light microscopic features of serous and mucous acini.

SHORT ANSWERS

10 x 3 = 30 Marks

13. A 30-year-old lady had to get blood drawn for some routine blood tests. At the hospital lab, the technician selected a vein that ran across the roof of the cubital fossa for the collection of blood.

- Which vein did the technician select for drawing blood?
- Explain the anatomical basis for the selection of this vein. (1+2)

14. Describe the location, formation and termination of the coronary sinus. (1+1+1)

15. Describe the lymphatic drainage of the lungs.

16. Name six branches of the external carotid artery.

17. Name the bones that contribute to the lateral wall of the nasal cavity. Explain the function, importance of the turbinates. (2+1)

18. Describe the anatomical basis for performing a lumbar puncture at the L3/L4 interspinous level. (4+1)

20. Describe the three types of anastomoses with suitable examples. (1.5+1.5)

21. Describe the components of the blood-brain barrier. Explain its functional importance. (1.5+1.5)

22. Draw a neat, labelled diagram of a blastocyst.

Rajiv Gandhi University of Health Sciences, Karnataka**MBBS Phase - I (CBME) Degree Examination - 08-Feb-2021****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 a typical intercostal space under the following headings:
a) Definition; b) Boundaries; c) Contents (1+2+4)
Explain where a needle is inserted into the intercostal space to drain a pleural effusion and the anatomical basis for the same. Name the structures in order from the skin to the pleura that must be pierced in order to enter the pleural cavity (0.5+0.5+2)
2. Describe the larynx under the following headings:
a) Cavity; b) Actions of the intrinsic muscles; c) Nerve supply (2+3+2)
Explain the anatomical basis of injuries to the nerves supplying the larynx during thyroid surgeries. (3)

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

3. Describe the origin, course, branches and termination of the musculocutaneous nerve. Explain why the motor distribution of the musculocutaneous nerve is affected in Erb's palsy. (0.5+2+1+0.5+1)
 4. A 30-year-old cricketer felt moderate pain in the right shoulder for the last two weeks. The pain was severe enough to prevent him from bowling. He visited a sports medicine specialist who observed that maximum pain was felt in the mid-range of abduction. A diagnosis of rotator cuff tendinitis was made.
 - a. Describe the components of the rotator cuff.
 - b. Explain the functional importance of the rotator cuff.
 - c. Explain the anatomical basis for the maximum pain felt in the mid-range of abduction. (2+1+2)
 5. Describe the movements of the scapula and the muscles causing them. Explain the anatomical basis of winging of the scapula. (2+2+1)
 6. Describe the formation, course, termination and drainage areas of the thoracic duct. Explain how stab injuries to the left side of the neck can damage the thoracic duct. (0.5+1+0.5+2+1)
 7. Describe the attachments, actions and nerve supply of the muscles of the soft palate. Explain the role of the soft palate in deglutition. (2+1+1+1)
- Describe the movements that occur at the atlanto-occipital and median atlanto-axial joints and the muscles causing them. Explain the mechanism by which movements occur at the median atlanto-axial joint. (2+2+1)
9. Draw a neat, labelled diagram of the cross-section of the spinal cord at the mid-thoracic level. Explain the functional importance of the dorsal columns. (4+1)