Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 02-Feb-2021

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 Thyroid gland under following headings:
   a) Capsule b) External features c) Relations d) Blood supply e) Applied anatomy
2. Describe Mammary Gland. Add a note on its applied aspects

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

3. Suboccipital Triangle
4. Bronchopulmonary segments
5. Circle of Will
6. Development of Palate and its anomalies
7. Pericardial sinuses
8. Microscopic structure of compact Bone
9. Spaces of Hand
10. Oculomotor Nerve
11. Fertilization
12. Medical medullary syndrome

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

13. Classify joints
14. Bicipital Groove
15. Cervical pleura
16. Name appendages of skin
17. Draw neat labeled diagram of Spermatozoa
18. Claw Hand
19. Coronary Sinus
20. Name the structure passing through Mandibular foramen
21. Name six branches of Maxillary artery
22. Draw neat labeled diagram of right hilum of lung

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 04-Feb-2021

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 second part of duodenum under the following headings:
   a) Location and extent b) Relations c) Interior d) Development

2. Describe the sciatic nerve under the following headings:
   a) Root value b) Course and relations c) Branches d) Applied anatomy

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

3. Mid gut rotation
4. Boundaries and contents of inguinal canal
5. Ligaments of uterus
6. Karyotyping
7. Development of kidney and mention two congenital anomalies
8. Ischiorectal fossa
9. Femoral artery
10. Microscopic structure of appendix
11. Interior of anal canal
12. Superfical perineal pouch

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

13. Down’s syndrome
14. Male urethra
15. Inversion and eversion
16. Name branches of anterior division of internal iliac artery
17. Draw neat labeled diagram of Tests
18. Enumerate features of Klinefelter syndrome
19. Adductor canal
20. Posterior relations of left kidney
21. Draw and label microscopic structure of pancreas
22. Lymphatic drainage of stomach

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 06-Feb-2021

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. What is Glomerular Filtration Rate (GFR)? Enumerate the factors affecting GFR
2. Define cardiac cycle. Describe in detail with the help of a diagram, the mechanical changes during cardiac cycle

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

3. What is feedback mechanism? Give an example for negative feedback mechanism
4. Facilitated diffusion
5. Fibrinolytic system
6. Non-respiratory functions of lungs
7. Physiology of micturition
8. Preculiarities of pulmonary circulation
9. Cardiopulmonary resuscitation
10. Factors affecting cardiac output
11. Morphology and properties of cardiac muscle
12. Pulmonary function tests

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

13. Define law of Gut
14. Cardiac pacemaker potential
15. Ivan Pavlov
16. Explain mechanism of secretion of hydrochloric acid in stomach
17. Write the functions of platelets
18. Mismatched blood transfusion
19. Enlist liver function test
20. Enterohepatic circulation
21. Types of immunoglobulins
22. Name the enzymes secreted by pancreas

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 08-Feb-2021

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. Enumerate the hormones secreted by anterior pituitary gland and explain in detail about the biosynthesis and functions of growth hormone

2. Write an essay about structure and functions of basal ganglia and add a note on Parkinson's disease

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

3. Papez circuit and its role in memory
4. Polysomnography
5. Functions of Testosterone hormone
6. Kluverbucy syndrome
7. Smell pathway
8. Water regulation of Antidiuretic hormone
9. Female contraceptive methods
10. Biosynthesis of adrenal cortical hormones
11. Pain pathway and analgesic system
12. Erlanger's classification of nerve fibres

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

13. Muller's doctrine of specific nerve energies
14. Actions of Glucagon
15. Formation and circulation of cerebrospinal fluid (CSF)
16. What is Endo cochlear potential?
17. Wernicke's area of cerebral cortex
18. What is Stereognosis? Where is its centre?
19. What is summation? Mention its types
20. Foetal circulation
21. Cerebellar function tests
22. Impedence matching of middle ear

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 10-Feb-2021

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

BIOCHEMISTRY – PAPER I (RS3)
QP 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. Explain in detail transamination and oxidation deamination. Add a note on clinically important transaminases

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

2. Ketogenesis and its significance
3. Digestion and absorption of carbohydrates
4. Biochemical role of Vitamin E and Vitamin K
5. Mechanism of oxidative phosphorylation
6. Functions of Zinc and copper

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

7. Name the enzymes of Fatty acid synthase complex
8. Cori cycle
9. What is Km value? Explain its importance
10. Phase II reactions of biotransformation
11. Facilitated diffusion

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 10-Feb-2021

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

BIOCHEMISTRY – PAPER II (RS3)
Q.P. CODE: 1080

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.
(Note: Both QP Codes 1079 and 1080 are to be, answered within total duration of three hours)
(Use separate Answer books for QP Code 1079 & 1080)

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

1. Enumerate the important buffers in our body. Explain the role of Kidneys in maintain acid base balance

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

2. PosttranslationaI modificationS
3. Abnormal hemoglobins.
4. Protein Calorie Malnutrition
5. Mutations
6. Tubular function tests

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

7. Alfa-fetoprotein
8. Restriction endonucleases
9. Conjugated Bilirubin
10. Transport proteins of blood
11. Structure of immunoglobulin

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 02-Feb-2021

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 Thyroid gland under following headings:
   a) Capsule b) External features c) Relations d) Blood supply e) Applied anatomy
2. Describe Mammary Gland. Add a note on its applied aspects

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

3. Suboccipital Triangle
4. Bronchopulmonary segments
5. Circle of Will
6. Development of Palate and its anomalies
7. Pericardial sinuses
8. Microscopic structure of compact Bone
9. Spaces of Hand
10. Oculomotor Nerve
11. Fertilization
12. Medical medullary syndrome

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

13. Classify joints
14. Bicipital Groove
15. Cervical pleura
16. Name appendages of skin
17. Draw neat labeled diagram of Spermatozoa
18. Claw Hand
19. Coronary Sinus
20. Name the structure passing through Mandibular foramen
21. Name six branches of Maxillary artery
22. Draw neat labeled diagram of right hilum of lung

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 04-Feb-2021

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 second part of duodenum under the following headings:
   a) Location and extent b) Relations c) Interior d) Development

2. Describe the sciatic nerve under the following headings:
   a) Root value b) Course and relations c) Branches d) Applied anatomy

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

3. Mid gut rotation
4. Boundaries and contents of inguinal canal
5. Ligaments of uterus
6. Karyotyping
7. Development of kidney and mention two congenital anomalies
8. Ischiorectal fossa
9. Femoral artery
10. Microscopic structure of appendix
11. Interior of anal canal
12. Superfical perineal pouch

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

13. Down’s syndrome
14. Male urethra
15. Inversion and eversion
16. Name branches of anterior division of internal iliac artery
17. Draw neat labeled diagram of Tests
18. Enumerate features of Klinefelter syndrome
19. Adductor canal
20. Posterior relations of left kidney
21. Draw and label microscopic structure of pancreas
22. Lymphatic drainage of stomach

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 06-Feb-2021

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. What is Glomerular Filtration Rate (GFR)? Enumerate the factors affecting GFR
2. Define cardiac cycle. Describe in detail with the help of a diagram, the mechanical changes during cardiac cycle

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

3. What is feedback mechanism? Give an example for negative feedback mechanism
4. Facilitated diffusion
5. Fibrinolytic system
6. Non-respiratory functions of lungs
7. Physiology of micturition
8. Preculiarities of pulmonary circulation
9. Cardiopulmonary resuscitation
10. Factors affecting cardiac output
11. Morphology and properties of cardiac muscle
12. Pulmonary function tests

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

13. Define law of Gut
14. Cardiac pacemaker potential
15. Ivan Pavlov
16. Explain mechanism of secretion of hydrochloric acid in stomach
17. Write the functions of platelets
18. Mismatched blood transfusion
19. Enlist liver function test
20. Enterohepatic circulation
21. Types of immunoglobulins
22. Name the enzymes secreted by pancreas

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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'splasy. (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)

8. 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)

10. 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.
    a. Which vein did the technician select for drawing blood?
    b. 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 functional importance of the turbinates. (2+1)

18. Describe the attachments and extensions of the pre-vertebral fascia. (2+1)

19. Describe the anatomical basis for performing a lumbar puncture at the L3/L4 interspinous level.

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.

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Rajiv Gandhi University of Health Sciences, Karnataka

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
      (i) Vessels
      (ii) Nerves (4+4)

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 t he perineal membrane and the structures piercing it in males and females. (3+1+1)

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 tracheo-oesophageal fistula.

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 12-Feb-2021

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 splay 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. (1.5+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)

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 12-Feb-2021

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

Corrections

PHYSIOLOGY – PAPER- I (RS-4)
Q.P. CODE: 1022

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

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

Read Marks of the Question No. 20 as :

20. Mention its cause and treatment of achalasia cardia. (1.5+1.5)

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 08-Feb-2021

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. Enumerate the hormones secreted by anterior pituitary gland and explain in detail about the biosynthesis and functions of growth hormone

2. Write an essay about structure and functions of basal ganglia and add a note on Parkinson's disease

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

3. Papez circuit and its role in memory
4. Polysomnography
5. Functions of Testosterone hormone
6. Kluverbucy syndrome
7. Smell pathway
8. Water regulation of Antidiuretic hormone
9. Female contraceptive methods
10. Biosynthesis of adrenal cortical hormones
11. Pain pathway and analgesic system
12. Erlanger's classification of nerve fibres

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

13. Muller's doctrine of specific nerve energies
14. Actions of Glucagon
15. Formation and circulation of cerebrospinal fluid (CSF)
16. What is Endo cochlear potential?
17. Wernicke's area of cerebral cortex
18. What is Stereognosis? Where is its centre?
19. What is summation? Mention its types
20. Foetal circulation
21. Cerebellar function tests
22. Impedence matching of middle ear

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 10-Feb-2021

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

BIOCHEMISTRY – PAPER I (RS3)
QP 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. Explain in detail transamination and oxidation deamination. Add a note on clinically important transaminases

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

2. Ketogenesis and its significance
3. Digestion and absorption of carbohydrates
4. Biochemical role of Vitamin E and Vitamin K
5. Mechanism of oxidative phosphorylation
6. Functions of Zinc and copper

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

7. Name the enzymes of Fatty acid synthase complex
8. Cori cycle
9. What is Km value? Explain its importance
10. Phase II reactions of biotransformation
11. Facilitated diffusion

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 10-Feb-2021

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

BIOCHEMISTRY – PAPER II (RS3)
Q.P. CODE: 1080

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.
(Note: Both QP Codes 1079 and 1080 are to be, answered within total duration of three hours)
(Use separate Answer books for QP Code 1079 & 1080)

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

1. Enumerate the important buffers in our body. Explain the role of Kidneys in maintain acid base balance

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

2. Posttranslational modificationS
3. Abnormal hemoglobins.
4. Protein Calorie Malnutrition
5. Mutations
6. Tubular function tests

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

7. Alfa-fetoprotein
8. Restriction endonucleases
9. Conjugated Bilirubin
10. Transport proteins of blood
11. Structure of immunoglobulin

*****

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 15-Feb-2021

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

PHYSIOLOGY – PAPER - II (RS-4)
Q.P. CODE: 1023

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

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

1. List adrenal gland hormones? Describe in detail about the actions of corticosteroids. Mention the clinical features of Addison's disease. (2+6+2=10)
2. Describe the circulation and functions of cerebrospinal fluid (CSF). Tabulate the composition of CSF against plasma. Discuss the clinical applications of CSF analysis. (2+2+3+3=10)

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

3. Compare fast pain with slow pain.
4. Differentiate between pyramidal and extrapyramidal tracts.
5. Mention the functions of Basal Ganglia.
6. Illustrate the stages of follicular growth in an ovarian cycle.
7. Describe the structure and functions of the placenta.
8. Describe physiological effects of physical training.
9. Explain the disorders of visual field in relation to visual pathway.
10. A patient comes with a history of excessive drinking of water and passing of excess of colorless urine very frequently. Investigation revealed that the patient passed about 15 litre of urine in 24 hours. The urine was colorless, there was no sugar, blood or albumin in the urine.
    a. What is your diagnosis?
    b. What is the cause for the development of polyuria and polydipsia?
    c. In what other conditions polyuria occurs?
    d. How do you manage the condition? (1+1+2+1)
11. Describe the actions of growth hormone.
12. Enumerate the sequence of event involved in the transmission of nerve impulse.

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

13. Why a nerve fiber cannot be fatigued?
14. What are the contraindications for the use of oral contraceptives?
15. List the factors affecting nerve regeneration.
16. How length servomechanism operates to maintain muscle length?
17. Explain renshaw cell inhibition.
18. Why thalamus is called the sensory relay station?
19. List the beneficial effects of fever.
20. Mention the different types of glaucoma.
21. Mention the tuning fork tests used to assess deafness.
22. Distinguish between fast and slow muscle fibers.

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 17-Feb-2021

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. Define lipoproteins? Mention the different lipoproteins involved in transport of lipids. Explain metabolism of dietary lipids under the following heading.
   a. Assembly of dietary lipids
   b. Transport
   c. Utilization in peripheral tissues
   d. Metabolic fate [1+1+2+2+2+2]

2. A 12 year old girl presented with stiffness and tingling of hands and feet, carpopedal spasm. On examination trousseau's sign was positive, chvostek's sign was positive. On laboratory evaluation, serum calcium was significantly reduced.
   a. Interpret the findings and suggest the probable diagnosis?
   b. Mention the reference range and dietary sources of the nutrient.
   c. Explain the role of hormones in regulating the blood levels of this nutrient.
   d. Mention any 6 biochemical functions of this nutrient (1+2+4+3)

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

3. What are mucopolysaccharides?
   a. Name the mucopolysaccharide present in the glomerular basement membrane. What is its significance?
   b. Explain the biochemical basis of heparin as anticoagulant.
   c. Write the composition and importance of chondroitin sulphate?
   d. Which mucopolysaccharide maintains the transparency of cornea? (1+1+1+1+1)

4. Define oxidative phosphorylation? Explain chemiosmotic hypothesis with a neat labelled diagram. (1+2+2)

5. A 10 year old boy had difficulty in vision at night. However his vision was quite normal during daytime except when he entered a dimly lit room. On investigation, his plasma retinol levels were found to be low.
   a. Suggest the probable diagnosis? Which nutrient deficiency causes this disease? (1)
   b. Enumerate any four functions of the nutrient. (2)
   c. Explain Walds visual cycle (2)

6. What is calorific value? Calculate the energy requirement of a 50 year old moderate worker. (1+4)

7. Explain the effect of temperature and substrate concentration on enzyme activity with a graph. (2+3)

8. Explain Fluid mosaic model of cell membrane with a neat labelled diagram.

9. A 5 year old girl was brought to the hospital with enlarged abdomen. History revealed that her childhood development was comparatively slow, frequently hungry, lethargic and irritable. Clinical examination showed enlarged liver. Biochemical investigations of blood sample revealed reduced fasting blood glucose levels and elevated levels of serum lactate, triglyceride and uric acid
    a. Suggest the probable diagnosis?
    b. Name the enzyme defect?
    c. What is the biochemical basis for fasting hypoglycemia, lactic acidosis and hyperuricemia in this condition? (1+1+3)

10. What is metabolic alkalosis? Mention four causes of metabolic alkalosis. Explain the Compensatory mechanism. (1+2+2)

11. Explain the metabolic adaptations occurring in the liver and adipose tissue in a well-fed state.

12. What are isoenzymes? Write the isoenzymes of CPK with tissue distribution. Which isoenzyme is cardiac specific and write its pattern of rise in patients with myocardial infarction. (1+1+1+2)

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

13. Explain the rationale behind using glycated hemoglobin (HbA1c) as an indicator of glycemic control in diabetes mellitus. What is the reference range for HbA1c

14. Deficiency of lung surfactant causes Respiratory Distress Syndrome.
    a. What is the composition of lung surfactant? (1)
    b. What is the biochemical basis for Respiratory distress syndrome? (1)
    c. What is the significance of L/S ratio (1)

15. Explain the structure of collagen. (3)

16. What is the coenzyme form of pyridoxine? Write two pyridoxine dependent reactions. (1+2)

17. Mutual supplementation of cereals and pulses is beneficial. Justify. (3)

18. Give reason for the following:
    a. Requirement of Thiamine is increased in Alcoholics (2)
    b. Prescription of folic acid during early pregnancy (1)

19. Name the most effective physiological buffer in the plasma. Explain the role of carbonic anhydrase in acid base homeostasis. (1+2)

20. Barbiturates should be given with caution in chronic alcoholics. Justify (3)

21. List routinely measured serum electrolytes. Mention their reference range. (1+2)

22. Write the type of inhibitions seen in the following :
    a. Inhibition of Vitamin K by Dicoumarol - an anticoagulant (1)
    b. Inhibition of Cyclo-oxygenase by Aspirin. (1)
    c. Inhibition of Placental Alkaline Phosphatase by Phenylalanine. (1)

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 19-Feb-2021

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 5 year old boy was brought to a Pediatrician with history of mousy odour of urine and delay in achieving cognitive functions. On examination, the boy's skin and hair was fair in colour with hypopigmentation.
    a. What is the probable diagnosis? (1)
    b. Name the enzyme defect in the above disorder. (1)
    c. Write the pathway for catabolism of the above amino acid (5)
    d. Mention the reason for the cause of mousy odour in urine (1)
    e. What biochemical tests are done to confirm the diagnosis? (2)

2. Describe the steps of transcription in prokaryotes. Mention the inhibitors of transcription. Mention the post-transcriptional modifications. (6+1+3)

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

3. A 8 year old girl from endemic malaria area who had splenomegaly was investigated for routine hematology, which revealed low hemoglobin of 7 gm%. Peripheral smear revealed crescent shaped RBCs. She had no history of malaria attack.
    a. What could be the molecular defect of hemoglobin in the above case? (2)
    b. Name the biochemical investigations which can be done to confirm the diagnosis. (2)
    c. Reason out why these patients show resistance to malaria. (1)

4. Interpret the following Liver Function Test report:

Total Bilirubin	Direct bilirubin	Alkaline phosphatase	Ehrlich's test	Stool sample
7.7 mg/dl	3.6 mg/dl	265 IU/L	Negative	Clay colour

    a. What is the probable diagnosis? (1)
    b. Mention the possible causes for the above condition? (2)
    c. Substantiate with reasons for increase in conjugated fraction of bilirubin. (2)

5. Explain the steps in Polymerase Chain Reaction (PCR). Mention four applications of PCR. (3+2)
6. Mention five tumor markers with their diagnostic importance.
7. Explain the disorders associated with purine synthesis and breakdown.
8. Describe the steps involved in heme degradation.
9. List the renal function tests. Explain the principle and application of creatinine clearance. (2 +3)

10 Explain structure and function relationship of protein with an example.

11 Explain the role of antioxidants in protection against reactive oxygen species (ROS).

12 Explain the immunological basis of vaccine development.

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

13. Explain the process of activation of proto-oncogenes to oncogenes.

14. Write the process of phase I detoxification with one example.

15. Name the polyamines and mention their clinical significance.

16. State the advantages of automation in clinical biochemistry laboratory.

17. Draw a neat labelled diagram of structure of t-RNA.

18. Mention the sources of carbon and nitrogen atoms of pyrimidine bases.

19. Mention the normal Albumin/Globulin (A/G) ratio. Give two disorders associated with altered A/G ratio. (1+2)

20. Write the characteristics of genetic code.

21. Compare and contrast between nucleosides and nucleotides.

22. What are molecular scissors? Mention its applications. (1+2)

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 23-Mar-2021

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 shoulder joint under following headings.
    a) Articular surfaces
    b) Capsule and ligaments
    c) Movements and muscles bringing about these movements
    d) Applied anatomy
2. Write about the parotid gland including its location, relations, blood supply, nerve supply and applied anatomy.

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

3. Cubital Fossa – boundaries, contents and applied anatomy
4. Rhomboid fossa
5. Circle of willis
6. Histology of elastic cartilage
7. Broncho pulmonary segments
8. Left coronary artery
9. Chorionic villi
10. Buccinator
11. Para nasal air sinuses
12. Pleura

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

13. Sesamoid bones
14. Filum terminal
15. Pulmonary ligament
16. Corpus luteum
17. Emissary veins
18. Draw a labeled diagram of histology of lymph node
19. Fontanalles
20. Movements of temporomandibular joint
21. Inlet of thorax
22. Lumbricals

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 25-Mar-2021

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 Vermiform Appendix under the following headings :
   a) Gross anatomy b) Development c) Applied anatomy

2. Describe the boundaries and contents of popliteal fossa. Describe origin, course and branches of popliteal artery.

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

3. Hamstring muscles
4. Deep perineal pouch
5. Lesser sac
6. Barr body
7. Development of liver
8. Pelvic diaphragm
9. Prenatal diagnosis
10. Karyotyping
11. Portocaval anastomosis
12. Development of pancreas

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

13. Perineal body
14. Draw and label microscopic structure of pyloric end of stomach
15. Nerve supply of urinary bladder
16. Cruciate anastomosis in lower limb
17. Name six branches of abdominal aorta
18. Illiofemoral ligament
19. Draw and label microscopic structure of ureter
20. Ligaments of Spleen
21. Female Urethra
22. Blood supply of stomach

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS PHASE - I Degree Examination – 27-Mar-2021

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

PHYSIOLOGY - I (RS3)
QP Code: 1077

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Define cardiac output and cardiac index. Describe the various factors regulating cardiac output.
2. What are chemoreceptors? Describe the chemical control of regulation of respiration. Add a note on Cheynes-Stokes breathing.

SHORT ESSAY **10 X 5 = 50 Marks**

3. Factors affecting erythropoesis.
4. Describe the formation and functions of immunoglobulins.
5. Gastric phase of gastric secretion
6. Outline the formation, transport and excretion of bilirubin.
7. Describe the different types of movements of small intestine.
8. Describe micturition reflex.
9. Timed vital capacity
10. Briefly describe the changes occurring during acclimatization to high altitude.
11. Draw and describe pacemaker potential.
12. Peripheral resistance

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

13. Explain the functions of plasma albumin.
14. Pancreatic enzymes
15. Write the changes occurring in tubular fluid, in the collecting duct.
16. Draw a neat diagram of cortical and juxtamedullary nephron.
17. Significance of AV nodal delay
18. Incomplete tetanus
19. Draw and label different lung volumes and capacities.
20. Facilitated diffusion
21. Functions of T helper cell
22. Steatorrhea

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 29-Mar-2021

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

PHYSIOLOGY – II (RS3)
Q.P. CODE: 1078

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

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

1. Describe the physiological actions of insulin.
2. Describe the theories of colour vision. Add a note on colour blindness.

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

3. Effects of cortisol on inflammation and allergy
4. Effects of thyroid hormone on cardiovascular and central nervous system
5. Ovarian changes during menstrual cycle
6. Endogenous analgesia system
7. Inverse stretch reflex
8. Reflex activities in the recovery phase following section below C_5.
9. Otolith organs
10. Hypothalamic regulation of food intake
11. Length-tension relationship in skeletal muscle
12. Blockers of neuromuscular transmission

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

13. Wernicke's area
14. List the clinical features of cretinism.
15. Mullerian inhibiting substance
16. List three indicators of ovulation.
17. What is the ionic basis of Excitatory postsynaptic potential?
18. List three features of Thalamic syndrome.
19. Name the tests for hearing.
20. List the changes occurring during Accommodation reflex.
21. What is post-tetanic potentiation?
22. List the changes occurring on exposure to cold environment.

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 26-Jun-2021

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

PHYSIOLOGY – PAPER - I (RS-4)
Q.P. CODE: 1022
(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. Classify immunity. Explain the role of B and T lymphocytes in immunity. (3+3+4)

2. Draw a normal Lead II ECG and explain the basis of its waves and intervals. State Einthoven's law. (2+6+2)

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

3. Explain the cause, effects and methods for preventing erythroblastosis foetalis. (1+2+2)

4. Describe with illustration the conducting system of heart. Mention the significance of AV nodal delay. (3+2)

5. The pulmonary function test done on a 50 year old man with chronic cough and breathlessness showed a decrease in FEV1, normal FVC and decreased FEV1/FVC.
   a. Mention the type of respiratory disorder. (1+2+2)
   b. Define dynamic lung volumes and capacities.
   c. Explain the utility of flow volume curve in the diagnosis of respiratory disorders.

6. Describe the source, composition and functions of surfactant. (1+1+3)

7. Explain the mechanism of HCl secretion in the gastric glands. Mention the physiological basis of treating hyperacidity. (3+2)

8. Compare and contrast liver and gall bladder bile. Mention the functions of bile. (3+2)

9. Mention the sites and principles of Na reabsorption in the renal tubule. (2+3)

10. Explain the mechanism of acidification of urine. (5)

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

11. Explain the ionic basis of refractory period in an action potential. (3)
12. Mention the functions of proteins in cell membrane. (3)
13. Mention the features of axon reflex with its basis. (1.5 +1.5)
14. Mention the peculiarities of pulmonary circulation. (3)
15. Explain the role of Bohr effect in oxygen transport. (3)
16. Define RV and FRC and give their normal values. (1.5+1.5)

17. Name two gastrointestinal hormones with their functions. (1.5+1.5)

18. List the composition of pancreatic juice.

19. Draw a neat labeled diagram of juxtaglomerular apparatus and mention any two functions. (2+1)

20. Name one substances used for measuring renal clearance and mention their significance. (1+2)

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

21 i) Erythropoiesis starts in the third week of intrauterine life in
a. Liver
b. Spleen
c. Bone marrow
d. Mesoderm of the yolk sac

21 ii) The sedimentation rate of erythrocyte is not influenced by
a. Shape of RBC
b. Volume of RBC
c. Size of Rouleaux
d. Globulin content of blood

21 iii) Normal duration of protodiastole of cardiac cycle is
a. 0.02 sec
b. 0.04 sec
c. 0.08 sec
d. 0.12 sec

21 iv) Nitrogenous bases present in DNA include all except
a. Adenine
b. Guanine
c. Cytosine
d. Uracil

21 v) Which of the following factor slows down gastric emptying
a. Vagal stimulation
b. Gastrin
c. Food rich in carbohydrate
d. Food rich in Fat

22 i) Following are the events in ventricular diastole EXCEPT
a. Isovolumetric relaxation phase
b. First rapid-filling phase
c. Diastasis
d. Rapid ejection phase

22 ii) The Central chemoreceptors are present in
a. The cardiac and aortic bodies
b. The food of the IV ventricles in media
c. The arch of the above
d. The carotid sinus

22 iii)

The following statements are true regarding peristalsis EXCEPT

a. Occurs at the rate of 2–25 cm/min
b. Parasympathetic stimulation inhibits peristalsis
c. It occurs only in one direction
d. Apart from the GI tract it occurs in the bile ducts and ureters

22 iv)

Chief cells of stomach secrete

a. HCl
b. Mucus
c. Pepsinogen
d. Intrinsic factor

22 v)

The part of the nephron impermeable to water is

a. Proximal Convoluted tubule
b. Descending limb of loop of Henle
c. Ascending limb of loop of Henle
d. Distal Convoluted tubule

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MBBS Phase – I (CBME) Degree Examination - 26-Jun-2021

PHYSIOLOGY – PAPER - I (RS-4)
Q.P. CODE: 1022
CORRECTIONS

Read Question No. 22(ii) as follows:

22 ii) The Central chemoreceptors are present in

e. The carotic and aortic bodies
f. The floor of the IV ventricles in medulla
g. The arch of the aorta
h. The carotid sinus

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS PHASE - I Degree Examination – 27-Mar-2021

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

PHYSIOLOGY - I (RS3)
QP Code: 1077

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Define cardiac output and cardiac index. Describe the various factors regulating cardiac output.
2. What are chemoreceptors? Describe the chemical control of regulation of respiration. Add a note on Cheynes-Stokes breathing.

SHORT ESSAY **10 X 5 = 50 Marks**

3. Factors affecting erythropoesis.
4. Describe the formation and functions of immunoglobulins.
5. Gastric phase of gastric secretion
6. Outline the formation, transport and excretion of bilirubin.
7. Describe the different types of movements of small intestine.
8. Describe micturition reflex.
9. Timed vital capacity
10. Briefly describe the changes occurring during acclimatization to high altitude.
11. Draw and describe pacemaker potential.
12. Peripheral resistance

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

13. Explain the functions of plasma albumin.
14. Pancreatic enzymes
15. Write the changes occurring in tubular fluid, in the collecting duct.
16. Draw a neat diagram of cortical and juxtamedullary nephron.
17. Significance of AV nodal delay
18. Incomplete tetanus
19. Draw and label different lung volumes and capacities.
20. Facilitated diffusion
21. Functions of T helper cell
22. Steatorrhea

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 28-Jun-2021

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. Describe the phases and regulation of uterine endometrial cycle. (3+4+3)
2. Describe the nuclei, connections and functions of basal ganglia. (2+5+3)

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

3. Explain Wallerian degeneration and regeneration of nerve fibers. (2.5+2.5)
4. Explain the rachet theory of muscle contraction. (5)
5. A woman aged 46 years consults her physician with history of swelling in the neck, weight gain, facial puffiness, swelling of the limbs and reduced appetite. Examination revealed enlarged thyroid gland, cold extremities, non-pitting edema and peri-orbital swelling. Thyroid function tests: T3 – decreased, T4 – decreased, TSH - increased.
   a. What is the probable diagnosis?
   b. What is the most common cause for the same?
   c. Explain the basis of non-pitting edema
   d. Treatment of this case. (1+1+2+1)
6. Classify diabetes mellitus. Mention its clinical features and their physiological basis. (2+3)
7. Mention the nuclei and functions of thalamus. (2+3)
8. Describe clinical features of hemi-section of spinal cord. (5)
9. Mention the contents and functions of middle ear. (2+3)
10. Explain the cardio-respiratory changes during exercise. (5)

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

11. Compare and contrast red and white muscle fibers. (3)
12. Mention the cause and clinical features of Addison's disease. (1.5+1.5)
13. Mention the cause and clinical features of tetany. (1+2)
14. Mention the cause and clinical features of Acromegaly. (1+2)
15. List the structures forming the limbic system and mention their functions. (1+2)
16. Compare and contrast REM and NREM sleep. (3)
17. Differentiate between superficial and deep reflexes. (3)
18. Draw neat labelled diagram of taste receptor.
19. Mention the utility of tuning fork tests in the diagnosis of deafness. (3)
20. Define lifestyle disorders. Mention the health effects of sedentary lifestyle. (1.5+1.5)

Rajiv Gandhi University of Health Sciences, Karnataka

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

21 i) Unconscious Kinaesthetic sensations are carried by
a) Anterior spinocerebellar tract
b) Anterior spinothalamic tract
c) Lateral spinothalamic tract
d) Posterior columns

21 ii) Nociceptive stimuli are transmitted by
a) Pacinian corpuscle
b) Naked nerve endings
c) Merkel's disc
d) Ruffini end organ

21 iii) The satiety center is located in which portion of hypothalamus
a) Lateral nucleus
b) Preoptic area
c) Ventromedial hypothalamus
d) Dorsomedial hypothalamus

21 iv) All of the following causes hyperglycaemia except,
a) Growth hormone
b) Cortisol
c) Catecholamines
d) Insulin

21 v) Which of the following is not an action of parathyroid hormone
a) Increases the renal absorption of phosphorus
b) Increases the production of vitamin D
c) Mobilizes calcium from bone
d) Increases the intestinal absorption of calcium

22 i) Which of the following is the primary action of Inhibin
a) Inhibit the secretion of prolactin
b) Stimulate the synthesis of oestradiol
c) Simulate the secretion of Thyroid stimulating hormone
d) Inhibit secretion of Follicle stimulating hormone

22 ii) Capacitance of sperm takes place in
a) Seminiferous tubule
b) Epididymis
c) Uterus
d) Vas deferens

22 iii) Angiotensin II causes all of the following except;
a) Simulation of thirst
b) Increased ADH secretion
c) Vasodilation
d) Aldosterone secretion

22 iv) Second order neuron in visual pathway is present in
a) Lateral geniculate body
b) Pretectal area
c) Optic nerve
d) Retina

22 v) The primary auditory cortex is situated in
a) Frontal lobe
b) Parietal lobe
c) Temporal lobe
d) Occipital lobe

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 28-Jun-2021

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

Corrections

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

Read marks in Question Number 1 as (5+5)

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

1. Describe the phases and regulation of uterine endometrial cycle. (5+5)

Read marks in Question Number 18 as (3)

18. Draw neat labelled diagram of taste receptor. (3)

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 22-Jun-2021

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 25 years old patient, known case of type 1 diabetes, was brought to casualty in comatose state. History revealed that he was not taking insulin regularly. Biochemical analysis of blood and urine showed the following findings.
   Blood sugar -510mg/dl
   Urine for Rothera's test and Benedict's test positive
   Blood gas analysis report showed, pH -7.2, Bicarbonate-12mEq/L,
   a. Suggest your probable diagnosis
   b. Name the compounds which give Rothera's test positive
   c. Explain the principle of Rothera's test
   d. Explain the steps of synthesis utilization of these compounds (1+1+2+6)

2. a. Which Vitamin is called as sunshine vitamin?
   b. What is its active form
   c. How it is formed?
   d. Write the biochemical functions and deficiency manifestations of this vitamin. (1+1+4+4)

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

3. Define Anaplerosis. Describe any four anaplerotic reactions of citric acid cycle intermediates. (1+4)

4. Define enzymes. Classify enzymes with one suitable reaction as an example for each class. (1+4)

5. Draw a neatly labelled diagram of the complexes of the electron transport chain. Name any two site specific inhibitors of each complex. (3+2)

6. What are dietary fibers? List any four and write their functions. (1+2+2)

7. A 13 year old girl complains of excessive tiredness, poor appetite and tingling sensation in the limbs. On examination she was pale. Laboratory report revealed Hb-7gm/dl, TIBC is increased, serum transfer in saturation is reduced and peripheral smear showed microcytic hypochromic anemia.
   a. Suggest the probable diagnosis?
   b. Describe the absorption and transport of this nutrient. (1+4)

8. Draw a neat labelled diagram of a cell with the sub cellular organelles. Write the functions of any one four organelles. (3+2)

9. Write the formula to calculate anion gap; Mention its reference range. Discuss the clinical use of anion gap in classifying metabolic acidosis with two examples for each type. (1+1+3)

10. Name the urinary buffers. Explain their role in excreting excess acid from the body. Mention the other renal mechanisms of pH homeostasis. (1+2+2)

Rajiv Gandhi University of Health Sciences, Karnataka

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

11. What is the end product of aerobic glycolysis? Illustrate the fate of this compound. (1+2)

12. Write the diagnostic significance of each of the following enzymes.
    a. Lipase b. Alanine amino transferase c. Creatine kinase (1+1+1)

13. Write the normal biological reference value for serum potassium. Mention any two causes of hyperkalaemia. (1+2)

14. Name any four proteins of the Extracellular Matrix. Write the Posttranslational modification of collagen and its importance. (1+2)

15. Name the mucopolysaccharide with anticoagulant activity. Write its composition and its mechanism of action. (1+1+1)

16. Define nitrogen balance. Give one example each for conditions with positive and negative nitrogen balance. (1+2)

17. Explain how long chain fatty acids are transported into the mitochondria. (3)

18. Give reason for the following
    a. Muscle glycogen doesn't contribute to blood glucose.
    b. Intake of antimalarial drugs like Primaquin in some people causes haemolytic anemia.
    c. Humans cannot synthesize vitamin C (1+1+1)

19. Which vitamin deficiency is likely to develop in patients on Isoniazid, an antitubercular drug? What is the co enzyme form of this vitamin? Write one biochemical reaction dependent on this nutrient. (1+1+1)

20. What is the sorbitol pathway? Write the significance of sorbitol pathway. (1+2)

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

21 i) Which one of the following subcellular organelle is involved in protein sorting
   a. Lysosome
   b. Golgi apparatus
   c. Peroxisomes
   d. Ribosames

21 ii) Ehlers-Danlos syndrome is due to the defective formation of -
   a. Type I Collagen
   b. Type II Collagen
   c. Type III Collagen
   d. Type IV Collagen

21 iii) Serum acid phosphatase enzyme level is increased in
   a. Hepatic disease
   b. Myocardial Infarction
   c. Muscle disease
   d. Prostate cancer

21 iv) All are an example of Monosaccharide EXCEPT
a. Glucose
b. Galctose
c. Trehalose
d. Mannose

21 v) _____ is the nitrogen containing phospholipid

a. Phosphatidylcholine
b. Phosphatidylinositol
c. Phosphatidylglycerol
d. Diphosphatidylglycerol

22 i) The site of action of Hormone sensitive lipase is in -
a. small intestine
b. capillary walls
c. mouth
d. adipocytes

22 ii) Glucose transporter 4 is the major glucose transporter in
a. RBC
b. neurons
c. adipose tissue
d. intestine

22 iii) _____ is known to act as a physiological uncoupler

a. Valinomysin
b. Thyroxine
c. Carboxine
d. Oligomycin

22 iv) Which one of the lipoprotein fraction is elevated in hyperlipoproteinemia Type II A
a. VLDL
b. LDL
c. HDL
d. Chylomicrons

22 v) _____ is the marker of Bone formation.

a. Telopeptides
b. Tartrate resistant acid phosphatase
c. Osteocalcin
d. Pyridinium cross links derived from collagen

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 22-Jun-2021

BIOCHEMISTRY – PAPER I (RS-4)
QP Code: 1024
CORRECTIONS

Read Question No.8 as follows:

8. Draw a neat labelled diagram of a cell with the sub cellular organelles. Write the functions of any four organelles. (3+2)

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 24-Jun-2021

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 6 year old child was brought to the OPD with complaints of Mental retardation, delayed developmental milestones, hyperactive and seizures. The child had light coloured hair, skin and unpleasant mousy body odour. Serum Phenylalanine was 35mg/dl (Normal 1-2mg/dl). Ferric chloride test showed transient blue green colour in urine.
    a. Suggest the probable diagnosis?
    b. Mention the enzyme defect and write the reaction catalysed by their enzyme
    c. Write the biochemical basis for the following clinical findings:
        i. Neurological manifestations
        ii. Light colouredhair and skin
        iii. Mousy body odour
    d. Describe the steps for synthesis of any two biological important compounds derived from tyrosine. (1+2+3+4)

2. Explain in detail the reactions of Heme synthesis? Name the regulatory enzyme of this pathway. How is it regulated? (6+1+3)

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

3. Classify amino acids based on their nutritional significance giving examples. What are non protein amino acids? Give one example. (3+1+1)

4. Mention any four anticancer drugs and write their mechanism of action. (1+4)

5. A 40 year old male came with the complaints of difficulty in breathing, shortness of breath and tightness of chest. History revealed that he is a chronic smoker for the past 15years.Chest X-ray and CT scan showed changes suggestive of emphysema.
    a. Deficiency of which plasma protein causes this condition?
    b. Explain the biochemical basis of emphysema in smokers?
    c. Name any two serine proteases? (1+2+2)

6. Explain the tests done to assess the renal tubular functions? What is urine osmolality? Write its reference range? (3+1+1)

7. Name the RNA which carries amino acids to the site of protein biosynthesis. With illustration explain the structure. (1+4)

8. A four year old child was brought to the hospital with the following complaints developmental failure, aggressive behavior, joint pain, compulsive urge to bite his lips and fingers. Mother revealed a family history of similar illness among family members.
    a. Suggest the probable diagnosis.
    b. Name an appropriate biochemical parameter to diagnose this condition and state its reference range in males and females
    c. Name the enzyme deficiency and the reaction catalysed by the enzyme (1+2+2)

9. Explain Lac operon concept with a diagrammatic representation.

10. Classify antioxidants giving two examples for each class.

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

11. Telomerases are involved in aging process. Justify and give its clinical significance. (1+2)

12. What is Southern blot technique? Write two applications of this technique. (1+2)

13. Mention any three salient features of DNA replication. (3)

14. What is detoxification? Give two examples of conjugation phase reactions? (1+2)

15. What are DNA probes? Write their applications. (1+2)

16. What are oncosuppressor genes? Name any two with their mechanism of action. (1+2)

17. Give reason for the following:
    a. Restriction enzymes are termed as molecular scissors
    b. Changing color of the bruise
    c. Hemolytic jaundice is also called a acholuric jaundice (1+1+1)

18. Illustrate the sources of carbon and nitrogen atoms in Purine ring. (3)

19. Write the biochemical findings in the serum and urine in obstructive jaundice. (3)

20. Give reason for the following:
    a. Pellagra like symptoms are seen in Hartnups disease
    b. Glycine does not exhibit optical activity
    c. Proline is an α- helix breaker (1+1+1)

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

21 i) The protein part present in nucleoprotein is
    a. Globin
    b. Opsin
    c. Histones
    d. Apoferritin

21 ii) The enzyme defect in Acute intermittent porphyria
    e. PBG- deaminase
    f. UPG-cosynthase
    g. Ferrochelatase
    h. UPG-decarboxylase

21 iii) The following compounds are biosynthesized by Glycine EXCEPT
    e. Creatinine
    f. Heme
    g. Melatonin
    h. Purine nucleotide

21 iv) 5'-Nucleotidase is more specific for
e. Myocardial Infarction
f. Prostate cancer
g. Obstructive liver disease
h. Wilson's disease

21 v) Appearance Black colour urine is seen in
e. Porphyria
f. Alkaptonuria
g. Jaundice
h. Urinary tract infection

22 i) Which of the following has not been treated by gene therapy?
a. Hemophilia
b. Severe combined immunodeficiency
c. Cystic fibrosis
d. Glucose – 6- phosphatase deficiency

22 ii) Helicase enzyme in DNA replication -
a. Unwinds the DNA
b. releases the supercoils
c. breaks the strands
d. seals the strands

22 iii) Western blot technique is used for the
e. Detection of specific DNA segment
f. Detection of specific gene expression
g. Identification of a specific protein
h. Location of a gene on a specific chromosome

22 iv) Urine preservatives are used for all the following purposes EXCEPT
a. Reduce bacterial action
b. Minimize chemical decomposition
c. Increase pH
d. Decrease atmospheric oxidation of unstable compounds

22 v) Serum Alpha Fetoprotein level is increased in
e. Multiple Myeloma
f. Choriocarcinoma
g. Hepatoma
h. Lung cancer

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 21-Sep-2021

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 formation of brachial plexus. Name the branches and add a note on Erb's paralysis.
2. Describe the Temporomandibular joint in detail. Add a note on its applied aspects.

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

3. Right atrium
4. Anastomosis around elbow joint
5. Posterior mediastinum
6. Microscopic structure of skeletal muscle
7. Cavernous sinus
8. Development of Placenta
9. Extra ocular muscles of eye ball
10. Third ventricle of brain
11. Mid palmar space
12. Floor of fourth ventricle

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

13. Pleural recesses
14. Epiphysis
15. Inferior cerebellar peduncle
16. Superficial Palmar arch
17. Dangerous area of Face
18. Yolk sac
19. Carotid sheath
20. Normal constrictions of esophagus
21. Retromandibular vein
22. Draw a neat labeled diagram of histology of Lymph node

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination – 23-Sep-2021

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 formation, course, relations, branches and clinical aspects of Sciatic nerve.
2. Describe the parts, relations, supports, blood supply and lymphatic drainage of Uterus.

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

3. Structural abnormalities of chromosomes
4. Microscopic structure of Spleen
5. Coeliac trunk
6. Inversion and Eversion
7. Portocaval anastomosis
8. Pudendal canal
9. Inguinal hernias
10. Ligaments of liver
11. Perineal body
12. Development of suprarenal gland

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

13. Saphenous nerve
14. Tibialis posterior muscle
15. Development of stomach
16. Transpyloric plane
17. Microscopic structure of ovary
18. Turner's syndrome
19. Paramesonephric duct
20. Mesentery
21. Psoas major muscle
22. Normal constrictions of ureter

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 25-Sep-2021

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 physiological roles of the different types of leucocytes circulating in blood
2. Describe digestion and absorption of fat in the digestive tract. Write a note on steatorrhea

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

3. Classify the fluid compartments of body giving their normal values. Mention two methods to determine Extra Cellular Fluid Volume
4. Transport across cell membrane
5. Tissue macrophage system
6. Non-excretory functions of Kidney
7. Cystometrogram and its significance
8. Surfactant
9. Artificial respiration
10. Regulation of coronary circulation
11. Normal ECG in lead ll
12. What is Functional Residual Capacity? How will you measure FRC and its clinical importance?

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

13. Define Frank- Starling law
14. Cardiac pacemaker potential
15. Caisson’s disease
16. Explain mechanism of secretion of hydrochloric acid in stomach
17. List the functions of platelets
18. Erythroblastosis Foetalis
19. Functions of juxtaglomerular apparatus
20. List the functions of Gastrin
21. Functions of plasma proteins
22. List the important functions of saliva

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 28-Sep-2021

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

PHYSIOLOGY – II (RS3)
Q.P. CODE: 1078

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

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

1. Describe in detail the synthesis and functions of thyroid hormones. Add a note on Hypothyroidism

2. Enumerate the NUCLEI of Hypothalamus. Explain the connections and functions of hypothalamus

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

3. Explain Neuroendocrine reflex
4. Polysomnography
5. Functions of Thalamus
6. Stretch Reflex
7. Taste pathway
8. Referred pain and its theories
9. Female contraceptive methods
10. Biosynthesis of adrenal cortical hormones
11. Ascending tracts of spine cord
12. Erlanger's classification of nerve fibres

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

13. What is Bell-Magendie law?
14. Actions of insulin
15. Functions of prefrontal lobe
16. What is Endo cochlear potential?
17. Wernicke's area of cerebral cortex
18. What is Stereognosis? Where is its centre?
19. What is Summation? Mention its types
20. Layers of Retina
21. What is the difference between the spasticity and Rigidity?
22. Impedence matching of middle ear

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 31-Mar-2021

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

BIOCHEMISTRY – PAPER I (RS3)
QP 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. Describe the pathway of glycolysis. How is it regulated? Add a not eon Rappaport – Leubering cycle

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

2. Formation and utilization of Ketone Bodies
3. Absorption and transport of Iron
4. Biochemical role of Vitamin D
5. Classification of enzymes with examples
6. Compounds derived from Tyrosine

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

7. Functions of phospholipids
8. Inhibitors of electron transport chain
9. Biological active peptides
10. Lysosomes
11. Phase I reactions of biotransformation

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 30-Sep-2021

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

BIOCHEMISTRY – PAPER I (RS3)
QP 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 is the normal serum Cholesterol level? Explain the major steps of Cholesterol biosynthesis. Add a note on Type II Hyperlipoproteinemia

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

2. Glycogenolysis and its regulation
3. Biochemical role of Vitamin B6
4. Diagnostic and therapeutic uses of enzymes
5. Factors regulating calcium Homoeostasis
6. Metabolism of Glycine and name the compound derived from it

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

7. Endoplasmic reticulum
8. Glucose – Alanine cycle
9. Maple syrup urine disease
10. Uncouplers of oxidative phosphorylation
11. Cytochrome P450

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination - 30-Sep-2021

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

BIOCHEMISTRY – PAPER II (RS3)
Q.P. CODE: 1080

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.
(Note: Both QP Codes 1079 and 1080 are to be, answered within total duration of three hours)
(Use separate Answer books for QP Code 1079 & 1080)

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

1. What is the normal blood pH? Discuss the various mechanisms by which the blood pH is maintained.

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

2. Replication of DNA.
3. Regulation of blood calcium.
4. Biochemical functions and deficiency manifestations of Thiamine.
5. Genetic code.
6. Heme biosynthesis.

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

7. t-RNA.
8. Detoxification by conjugation
9. Reverse transcriptase
10. Fluorosis
11. Avidin.

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Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I Degree Examination – 31.03.2021

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 QP Code 1079 & 1080)

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

1. Describe the sources, RDA, biochemical functions and deficiency manifestations of Vitamin A.

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

2. Heme biosynthesis
3. Biochemical changes and causes of metabolic alkalosis
4. Inhibitors of replication
5. Mutations
6. Use of serum enzyme markers and bilirubin as liver function tests

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

7. Basal metabolic rate
8. Reference value of serum albumin, A/G ratio and it clinical significance
9. Acute intermittent porphyrias
10. tRNA
11. Classes of immunoglobulins and their functions

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