

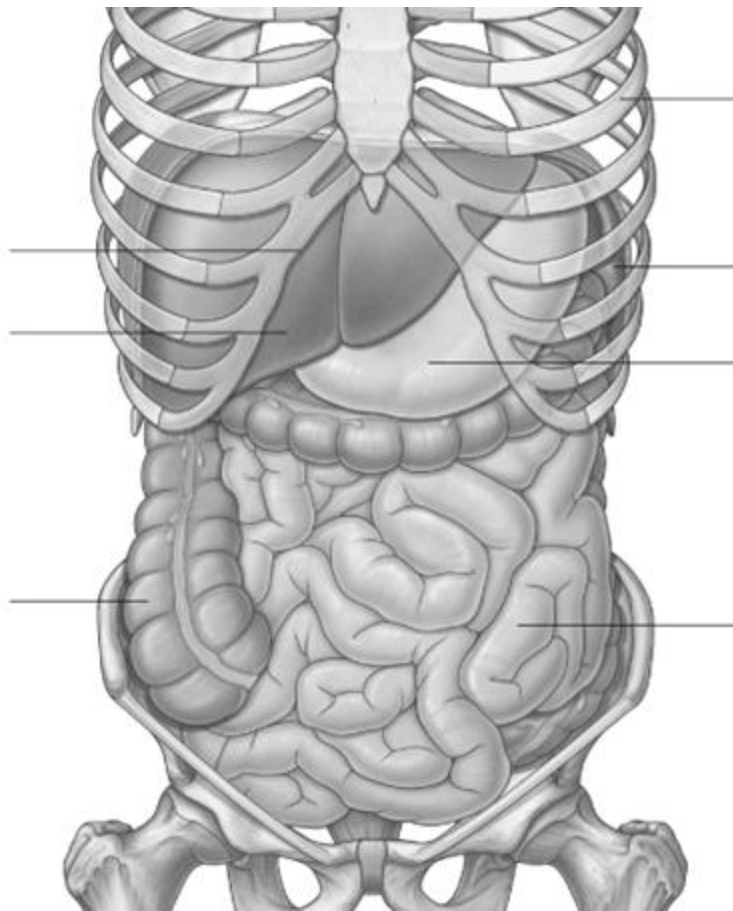
Bismillahir Rahmanir Rahim

QUESTION BANK

For

1ST YEAR MBBS STUDENTS

K-75, DMC



Contents

Anatomy

Abdomen Card, Inferior Extremity Card & 2nd Term

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Bioenergetics & Metabolism Card,
Renal Biochemistry, Body Fluids & Acid-Base Balance Card & 2nd Term

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Anatomy

Abdomen

Batch: K-74

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Describe the formation and contents of rectus sheath. Mention the applied anatomy of inferior epigastric artery. 5+2
2. Describe the lymphatic drainage of the stomach. Write down the functions and clinical importance of gastric canal. 4+3
3. Give an account of support of the uterus. Mention the clinical importance of pouch of Douglas & ampulla of the fallopian tube. 3+2+2
4. Draw and label extra hepatic biliary apparatus. Enumerate the relations of the right lateral surface of the liver. 3+4
5. Describe the interior of the anal canal. Mention the sites of portosystemic anastomosis. 4+3
6. Write briefly on (any two): 3.5+3.5
 - i. arterial supply and different positions of vermiform appendix
 - ii. urogenital diaphragm
 - iii. constrictions of the ureter
7. Explain from your knowledge of anatomy why/how (any two): 3.5+3.5
 - i. Female are more prone to urinary tract infection.
 - ii. Greater omentum is called the policeman of the abdomen.
 - iii. Enlarged prostate causes difficulty in micturition.

Batch: K-73

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Describe the formation of rectus sheath. Mention functions of the muscles of anterior abdominal wall. 5+2
2. Write about the lymphatic drainage of stomach. What are the peculiarities of the first part of duodenum? 5+2
3. Draw and label the posterior relation of the right kidney. Mention the motor nerve supply of the urinary bladder. 4+3
4. Write about the supports of the uterus. Mention the boundaries of ovarian fossa. 5+2
5. Name the contents of the spermatic cord. Define cryptorchism. Draw and label the different positions of vermiform appendix. 3+1+2
6. Write short notes on: 3+4
 - i. the mesentery
 - ii. perineal body

Batch: K-72

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Describe the formation of rectus sheath. What are the contents of rectus sheath?
2. Describe the lymphatic drainage of the stomach. Explain anatomically why carcinoma of the stomach may spread in to the esophagus but does not extend usually into the duodenum?
3. Draw and label the extra hepatic biliary apparatus. Describe the interior of the anal canal.
4. Give the posterior relation of the right kidney. Name the coverings of the kidney. Mention the sites of ureteric constrictions.
5. What do you mean by anti-version and anti-flexion of uterus? Give the nerve supply of the scrotum. Name the peritoneal supports of the uterus.
6. How portal vein is formed? Name the sites of portocaval anastomosis. What are the importance of porto-caval anastomosis?

Batch: K-71

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Write down the formation and contents of rectus sheath. Mention the functions of muscles of anterior abdominal wall.
2. Give an account of lymphatic drainage of stomach. How the small intestine morphologically differs from large intestine? Draw and label the parts of extrahepatic biliary apparatus.
3. Define anteversion and retro version of uterus. Write down the mode of artery supply of uterus. Mention the importance of recto-uterine pouch.
4. Name the parts of male urethra. Describe the features of prostatic part of urethra. Why does enlarge prostate cause difficulty in micturation?
5. Give an account of boundary and contents of ischiorectal fossa. What is perineal body?
6. Write short notes on:
 - i.) Location and formation of porto-systemic anastomosis
 - ii.) Location and nerve supply of anal sphincters.

Batch: K-70

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Give an account of the lymphatic drainage of stomach. Draw and level the structures of stomach bed.
2. Write about the length, location, boundary and content of inguinal canal. State the anatomical differences between direct and indirect inguinal hernia.
3. Write the sites of the porto-systemic anastomosis mentioning the vessels contributing to these anastomoses. Give the functional significance of hepatic portal circulation.
4. Write down the mode of artery supply and supports of uterus. Give the nerve supply of scrotum.
5. Draw and level the –
 - a. Relations of the posterior surface of right kidney.
 - b. Parts of extra –hepatic biliary apparatus
6. Write briefly on-
 - a. Autonomic innervation of urinary bladder
 - b. Boundary and content of Ischiorectal fossa

Batch: K-69

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Give the boundaries and contents of inguinal canal. Mention the differences between direct and indirect inguinal hernia. 4+3
2. State the lymphatic drainage of stomach. Why greater omentum is called abdominal police man? 5+2
3. Enumerate the various positions of vermiform appendix (with a diagram). Give an account of interior of anal canal. 3+4
4. Write down the mode of artery supply of kidney. State the effects of autonomic stimulation on urinary bladder. 5+2
5. What are the supports of uterus? Mention the content of broad ligament. 4+3
6. How is portal vein formed? Mention the sites and contributing vessels of porto-systemic anastomosis. 2+5
7. Write short notes on-
 - i. Layers and nerve supply of scrotum
 - ii. Pelvic diaphragm

Batch: K-67

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Write down the location, extension, boundary and contents of the inguinal canal. What is direct and indirect hernia? 5+2
2. Describe the lymphatic drainage of the stomach. Why is the greater omentum called the policeman of the abdomen? 5+2
3. Describe the interior of the anal canal, why are the external hemorrhoids so painful? 5+2
4. Draw and label the relation of the posterior surface of the right kidney. Mention the distribution of the renal fascia. 2+5
5. Write down the mode of the artery supply of the uterus. Mention the nerve supply of the scrotum. 4+3
6. Write short notes on: 4+3
 - i) Superficial perineal pouch
 - ii) Trigone of the urinary bladder

Batch: K-66

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Write down the location, length, boundary & contents of inguinal canal. Mention the differences between direct & indirect inguinal hernia. 4+3
2. Draw & label the relations of posterior surface of both kidneys. Mention the blood supply of ureter. Give the nerve supply of urinary bladder. 3+2+2
3. Describe the mode of artery supply of uterus. What is anteversion & anteflexion? What are the primary supports of uterus? 3+2+2
4. Write down the relations of second part of duodenum. Describe the lymphatic drainage of stomach. 4+3
5. Write down the sites & vessels contributing to the porto-systemic anastomosis. Mention its clinical importance. 5+2
6. Write short notes on: 2+2+3
 - i) Epiploic foramen
 - ii) Pectinate line
 - iii) Structure & nerve supply of scrotum

Inferior Extremity

Batch: K-74

Full Marks: 35

Time: 50 minutes

Answer any five of the following questions.

Give diagram as far as applicable.

Q.1 Write down the steps of dissection of femoral triangle mentioning its boundaries & contents. Why femoral hernia is common in female? 5+2

Q.2 Give an account of venous drainage of lower limb. Name the factors responsible for venous return from lower limb. 5+2

Q.3 Give the origin, insertion, nerve supply & action of the following muscles in tabulated form. 4+3

i. gluteus maximus

ii. tibialis anterior

Q.4 Describe the formation of longitudinal arches of foot. Mention the maintenance & advantages of arches of foot. 3+4

Q.5 Define dermatome. Draw and label the dermatomes of lower limb showing the axial lines. 2+5

Q.6 Write briefly on: 3.5+3.5

i. formation, movements & stability of hip joint
ii. modifications of deep fascia in thigh

Batch: K-73

Full Marks: 35 Time: 50 minutes

Answer any five questions. Use diagram as far as applicable.

1. Write down the steps of dissection of popliteal fossa. mention the contents of popliteal fossa.
2. Describe the venous drainage of lower limb. What are the factors that influence the venous return of lower limb?
3. Draw and label the dermatomes of lower limb. What do you mean by foot drop?
4. Give the origin, insertion, nerve supply and action of the following muscle -
 - a) tibialis anterior
 - b) gluteus maximus
5. Describe locking and unlocking mechanism of knee joint. What is the role of cruciate ligaments in maintenance of knee joint?
6. Write short notes on:
 - a) Iliotibial tract
 - b) peripheral heart

Batch: K-72

Full Marks: 35 Time: 50 minutes

Answer any five questions. Use diagram as far as applicable.

1. Name the formative elements of hip joint. How the stability of the hip joint is maintained? What do you mean by locking and unlocking of the knee joint?
2. Describe the steps of dissection of popliteal fossa mentioning its contents.
3. Give the arrangement of inguinal lymph node. Mention their area of drainage.
4. Draw and label the dermatome of lower limb showing the axial line.
5. Give the attachment, nerve supply, actions of the muscle. Mention the peculiarities of soleus muscle.
6. Write briefly on
 - i) Iliotibial tract
 - ii) Root value, supply, clinical significance of deep perineal nerve

Batch: K-70

Full Marks: 35

Time: 50 minutes

Answer any five questions. Use diagram as far as applicable.

1. Define dermatome. Give its clinical importance. Draw and level the dermatome of the lower limb.
2. Give an account of the steps of dissection of femoral triangle. Why femoral hernia is more common in female?
3. Write down origin, insertion, nerve supply and actions of Hamstring group of muscles. What is sciatica?
4. Name the ligaments of the knee joint. Describe the locking and unlocking mechanism of the knee joint.
5. Give an account of the medial longitudinal arch of the foot. What are the functions of the arches of the foot? How are the arches of the foot maintained?
6. Write briefly on:
 - a. Great saphenous vein
 - b. Iliotibial tract

Batch: K-69

Full Marks: 35

Time: 50 minutes

Answer any five questions. Use diagram as far as applicable.

1. How the superficial veins of the lower limb are formed. Mention their sites of communications with deep veins. What is varicose vein? 3+3+1
2. Give the steps of dissection of femoral triangle. Explain why femoral hernia is more common in female. 5+2
3. Give the formation of hip joint. Name the ligaments of hip joint. Mention the muscles producing different types of movements of this joint. 1+2+4
4. Enumerate in a tabulated form the origin, insertion, nerve supply and action of the following muscles:
 - a) Gluteus maximus.
 - b) Tibialis anterior.
5. How are longitudinal arches of the foot formed? What are the factors maintaining the medial longitudinal arch? What is foot drop? 3+3+1
6. Write short notes on:
 - a) Boundary and contents of popliteal fossa
 - b) Tendo-achilles

Batch: K-68

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Describe steps of dissection of femoral triangle. What is femoral hernia? Why it is common in female?
2. Describe venous drainage of lower limb. What is varicose vein? 5+2
3. Give origin, insertion, nerve supply and action of hamstring group of muscles. What is foot drop? 6+1
4. Draw and label the dermatome of lower limb. What is axial line? Write down its clinical importance.
5. How hip joint is formed? Mention the movements of the joint and name the muscles producing movements. What is ischemic necrosis of the neck of femur? 1+4+2
6. Write short notes on:
 - a) Planter aponeurosis
 - b) Longitudinal arch

Batch: K-67

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Mention the origin, insertion, nerve supply and actions of the following muscles in a tabulated form:
 - i) Gluteus maximus
 - ii) Tibialis anterior
2. Write down the boundaries and contents of the popliteal fossa. Mention the importance of the adductor tubercle. Write down the characteristic features of the patella. 3+2+2
3. Give the formation and maintenance of the medial longitudinal arch of the foot. Mention the advantages of the arches of the foot. 5+2
4. Draw and label the dermatome of the lower limb. Mention the effects of the lesion of deep peroneal nerve. 5+2
5. Describe the venous drainage of the lower limb. Draw and label the connections and locations of the perforating veins of the lower limb. 4+3
6. Write short notes on: 4+3
 - i) Tendo-Achilles
 - ii) Menisci.

Batch: K-66

Full Marks: 35

Time: 50 minutes

Answer any five questions. Give the diagram as far as applicable.

1. Describe the steps of dissection of femoral triangle. Draw & level the boundary and contents of femoral triangle. 4+3
2. Draw and level the cutaneous supply of both surface of lower limb.
3. Give the formation, type, movements and muscles producing movements of hip joints.
4. Give the formation, maintenance & importance of medial longitudinal arch of foot.
5. Write short notes on: 2.5+2.5+2
 - a) Peripheral heart
 - b) Femoral Nerve.
 - c) Clinical importance of fibula
6. State the effects of
 - a) Incompetent valve of perforators
 - b) Lesion of tendo-achilles
 - c) Lesion of deep peroneal nerves
 - d) Rotation of femur on the tibia in partially flexed knee joint

2nd Term Anatomy

Batch: K-74

Full Marks: 70.

Time: 2 hours 40min

Answer any five questions from each group.

Give the diagram as far applicable.

Group -A

- Q.1 How the primitive gut tube is divided into different part? Enumerate the development of the stomach. 2+5
- Q.2 Describe the development of the testis. Write down the derivatives of the paramesonephric duct. What do you mean by indifferent gonad? 3+2+2
- Q.3 Write down the developmental process of the kidney. State the parts and derivatives of the cloaca 4+3

Q.4 Write down the development of limb. What do you mean by syndactyly. 4+3

Q.5 Draw and label the light microscopic features of: 3+4
i. gastric gland- mentioning different types of cells ii. graffian follicles.

Q.6 Write down the histological structure of hepatic lobule. Mention the histological differences of jejunum and ileum. 4+3

Q.7 Name the components and functions of the lymphatic system. Mention the different types of capillaries with their distributions. 4+3

Group-B

Q.8 Draw and label the regions of the abdomen. Name the muscles of the anterior abdominal wall. Mention the contents of the rectus sheath. 3+2+2

Q.9 Describe the venous drainage of the lower limb. Explain why leg vein possess valves. 5+2

Q.10 Enumerate the mode of arterial supply and supports of the uterus. 4+3

Q.11 Describe the steps of dissection of the femoral triangle. Mention the formation and contents of femoral sheath. 3+4

12 Explain anatomically developmentally, why: 3+2+2

i. duodenum is supplied by the branches of both coeliac trunk and superior mesenteric artery.

ii. femoral hernia is common in female.

iii. appendicular pain is usually first felt in the umbilical region. Q.13 Write briefly on :3+4

i) the mesentery- its extension and contents.

ii) sciatic nerve- its formation and distribution

Q.14 Write down the origin, insertion, nerve supply and actions of hamstring group of muscles in a tabulated form. 7

Batch: K-73

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group.

Give the diagram as far as applicable.

Group A

1. Describe the process of development of lung. What is the respiratory distress syndrome (RDS)? 5+2
2. Discuss the role of Apical Ectodermal Ridge (AER) in the process of development of limb. What is cloaca? Mention the derivatives of its different parts. 3+1+3
3. Write down components and functions of lymphatic system. Name the sites where lymphatic vessels are absent. (2+3)+2
4. Draw and label different parts of cardiovascular system. What do you mean by portal circulation? 3+2+2
5. Draw and label histological structure of
 - i. Seminiferous tubule. 4
 - ii. Hepatic tubule. 3
6. Write short notes on :
 - i. Microscopic structure of renal tubule. 4
 - ii. End artery 3

Group B

7. Draw and label different regions of abdomen. Mention the functions of peritoneum 4+3
8. What is gastric canal? Mention its importance. Describe the lymphatic drainage of stomach. 1+2+4
9. Describe interior of empty urinary bladder. Give the nerve supply of urinary bladder. Mention the importance of constrictions of ureter. 3+3+3
10. What is anteversion and anteflexion of uterus. Describe the mode of arterial supply of uterus. 3+4
11. Describe the steps of dissection of femoral triangle. Give an account of lymphatic drainage of lower limb. 3+4
12. Write about the formation and maintenance of medial longitudinal arch of foot. Give the formation, attachment and importance of tendo Achilles. 4+3

Batch: K-72

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group.

Give the diagram as far as applicable.

Group A

1. Describe the process of development of limb. What is polydactyly and syndactyly?
2. Draw and label the different parts of the urogenital sinus. Mention the derivatives of each part in both sexes.
3. Draw and label the microscopic structure of a hepatic lobule. Mention the function of hepatocytes.
4. Write about the lining epithelium of different parts of nephron with their functional implication.
5. Classify blood vessel anatomically and functionally with example. Mention the factors responsible for venous return.
6. Write briefly on:
 - a. Histological structure of seminiferous tubules.
 - b. Derivatives of mesonephric duct in male.

Group B

7. Describe the formation and contents of the rectus sheath. Mention the clinical importance of linea alba.
8. Mention the arterial supply and lymphatic drainage of the stomach. Why ulceration of stomach usually occurs along the lesser curvature?
9. State the mode of arterial supply of the uterus. What is ectopic pregnancy?
10. Give an account of steps of dissection of femoral triangle. What is femoral canal? Give its clinical importance.
11. Write down the origin, insertion, nerve supply and action of hamstring muscles.
12. Write briefly on:
 - a. Interior of anal canal
 - b. Modification of deep fascia in the thigh.

Batch: K-71

Full Marks: 70 Time: 2 hours 40 minutes

Answer any five questions from each group. Give the diagram as far as applicable.

Group A

1. Classify blood vessels anatomically and functionally. Write down the differences between skeletal & cardiac muscle.
2. How primitive gut tube is divided into different parts? Give the process of development of stomach.
3. Give the derivatives of paramesonephric duct. Write the process of development of testis.
4. Give an account of histological structure of hepatic lobule. Draw and label the structure of a goblet cell. What is portal lobule and portal acini?
5. Distinguish histologically between the different types of ovarian follicle. Give the histological structure of urinary bladder.
6. Write briefly on –
 - a) Gastric gland
 - b) Structure and function of lymph node.

Group B

7. Write down the formation & content of rectus sheath. State the clinical importance of inguinal canal.
8. Draw and label the parts of extra hepatic biliary apparatus. Give the mode of nerve supply of G.I. tract.
9. Draw and label the relation of anterior surface of both kidneys. Give the distribution of renal fascia.
10. Describe the venous drainage of lower limb. Explain why veins of lower limb is provided with valves.
11. What do you mean by anteversion & ante flexion of uterus. Describe the mode of artery supply of the uterus.
12. Write short notes on:
 - a) Menisci of knee joint
 - b) Formation, maintenance & function of medial longitudinal arch of foot.

Batch: K-70

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group. Give the diagram as far as applicable.

Group A

1. What do you mean by indifferent gonad? Give the process of development of testis.
2. State the process of development of excretory units of kidney. Mention the factors responsible for ascent of kidney.
3. Draw and label the:
 - a. parts of cardiovascular system
 - b. Histological structure of urinary bladder.
4. Give an account of the general arrangement of different layers of gastrointestinal tract. What is GALT?
5. How do the primary lymphoid organs differ in their functions from the secondary lymphoid organs? Give the histological structure of lymph node.
6. Write briefly on:
 - a. Development of uterus
 - b. Structure of seminiferous tubule.

Group B

7. Write about the interior of anal canal. State the boundary and contents of ischioanal fossa.
8. Draw and label the posterior relation of right kidney. Write the length and course of pelvic part of ureter. What is renal angle?
9. Write briefly on:
 - a. Epiploic foramen
 - b. Spermatic cord
10. Give an account of steps of dissection of popliteal fossa. Write in short about foot drop.
11. Describe the origin, insertion, nerve supply and actions of muscles of the medial compartment of thigh. Why soleus is called the peripheral heart?

Batch: K-69

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group. Give the diagram as far as applicable.

Group A

1. What are the parts of cloaca? Mention the derivatives of cloaca. Give the process of development of pancreas. Mention the congenital anomalies of kidney.
2. Give an account of general histological structural plan of different layers of gastrointestinal tract. 7
3. Draw and label the histological structure of- 4+3
 - (i) Nephron
 - (ii) Graffian follicle
4. Enumerate the different types of capillary with example. Mention the difference between artery and vein 4+3
5. What is lymph ? Mention the function of lymphatic organs. Explain embryologically how polydactyly and syndactyly occur. 1+3+3

Group B

6. State the formation and contents of rectus sheath. Mention the clinical importance of linea alba. 5 +2
7. What are the structure of extrahepatic biliary apparatus ? Mention the relation of inferior surface of liver.
8. State the mode of artery supply of uterus. What is ectopic pregnancy? Mention the different sites of ectopic pregnancy.
9. What is dermatome? Draw and label the dermatome of lower limb. 2+5
10. State the boundary and contents of popliteal fossa. What is varicose vein? 3+4
11. Write short notes on:
 - i) Femoral sheath
 - ii) Attachment, nerve supply and actions of Hamstring muscles.

Batch: K-68

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group. Give the diagram as far as applicable.

1. State the process of development of kidney. Explain embryologically how polycystic kidney may develop during its development process. 5+2
2. Give the process of development of lower limb. Explain embryologically why extensor compartment of upper limb lies posteriorly and extensor compartment of lower limb lies anteriorly? 5+2
3. Draw and label the histologic structure of. 2+2+3
 - a) Ovary
 - b) Lymph node
 - c) Renal tubules
4. Give account of general plan of histological structure of Gastro intestinal tract. Give the structure of a medium sized artery. 5+2
5. Give the types and functions of blood capillaries State how blood capillary differ from lymph capillaries. 4+3
7. Write down the boundary and contents of inguinal canal. Why is inguinal hernia more common in male?
8. Give an account of lymphatic drainage of stomach. Mention the formation and nerve supply of pyloric
9. Name the parts of male genital organ. how testicular veins are formed? Why enlarged Prostate cause difficulty in urination?
10. Mention the formation, nerve supply and action of muscles producing the movements of knee joint. Why is medial meniscus damaged more than lateral meniscus. ? 5+2
11. Write the boundary and contents of popliteal fossa. Mention the commencement, termination and importance of arteria dorsalis pedis. 3+4

Batch: K-67

Full Marks: 70

Time: 2 hours 40 minutes

Answer any five questions from each group. Give the diagram as far as applicable.

Group A

1. Write the derivatives of the foregut. Mention the process of development of the stomach. (3+2)
2. How is indifferent gonad formed? Write the difference in the process of development of the testis and the ovary. (2+3)
3. Write the process of development of the permanent kidney. Mention why and how the kidney descends to its final position. (3+2)
4. Draw and label the histological structure of the vermiform appendix. (1+4)
5. Mention the lining epithelium of the renal tubules with a diagram. (2.5+2.5)
6. Describe the histological structure of a lymph node.

Group B

7. Write the function and contents of the rectus sheath. (3+2)
8. Give the location and artery supply of the pancreas. Mention the relation of the head of the pancreas. Name the contents of the retroperitoneal space. (2+3)
9. Write the origin, insertion, nerve supply and action of the diaphragm. (3+2)
10. Give the lymphatic drainage of the lower limb. Write the importance of femoral triangle. (1+4)
11. Write the function, ligaments, movements and muscles producing different movements of the knee joint. (2.5+2.5)
12. Write Short notes on: (2+3)
 - i. Layers and nerve supply of the scrotum
 - ii. Planter aponeurosis

Physiology

Respiratory Physiology

Batch: K-74

Full Marks: 50.

Time: 1 hour 30 minutes

Answer all questions

- Q.1 What are the major functional events of respiration? Discuss in brief the pressure changes during normal inspiration and expiration with a diagram. 2+3
- Q.2. Draw a spirogram mentioning all the lung volumes & capacities with their normal value. What is FEV₁? 4+1
- Q.3. Mention the peculiarities of pulmonary circulation. What do you mean by physiologic shunt? 3.5+ 1.5
- Q.4. Name the form in which CO₂ is transported in blood. State the Chloride shift mechanism with diagram. 2+3
- Q.5. What are the importance of different parts of Oxyhemoglobin dissociation curve? What is P₅₀? 4+1
- Q.6. List the lung function tests. State the factors affecting vital capacity. 2.5+ 2.5
- Q.7 What is Hering-Breuer inflation reflex? Give the functions of Pneumotaxic centre. 3+2
- Q.8 Give an outline of chemical regulation of respiration. 5
- Q.9 Define hypercapnoea, apnoea, tachypnoea, bradypnoea and cyanosis. 5
- Q.10 Write short notes on: 2.5+2.5
- i) Dead space ii) Ventilation-Perfusion ratio

Batch: K-73

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. Define pulmonary & alveolar ventilation. Explain why air enters into the lungs during inspiration? 1+1+3
2. Name the volumes & capacities which are measured by spirometer with normal value. Write about FEV1 3+2
3. Draw & explain oxyhemoglobin dissociation curve. Give the importance of steep part. 3+2
4. What is physiological shunt. What do you mean by pulmonary edema safety factor? 3+2
5. List the lung function tests. State the factors affecting vital capacity. 2.5+2.5
6. What is inspiratory ramp signal. How is respiration regulated during exercise? 2+3
7. Draw respiratory membrane. State the factors affecting diffusion of gases through this membrane. 2+3
8. How is oxygen transported from lungs to tissue? What is Bohr effect? 4+1
9. Give an outline about chemical regulation of respiration. 05
10. Write short notes on: 2.5+2.5
 - i. Peculiarities of pulmonary circulation.
 - ii. Dead space.

Batch: K-72

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. Write down the basic mechanism of respiration showing different pressure changes in diagram
2. Write down the peculiarities of pulmonary circulation with significance
3. Draw and label a spirogram of a healthy adults mentioning the respiratory volume & capacities with their normal values.

4. What are the major functional events of respiration? Write about anatomical and physiological dead space with their importance.
5. Draw and label oxyhaemoglobin dissociation curve. What are the importance of different parts of the curve?
6. How CO_2 transported from tissue to the lung?
7. Give the name of respiratory centers with their locations and functions. Write down the importance of respiratory ramp signal.
8. What are the chemical factors that regulate the respiration? Give an outline about chemical regulation of respiration.
9. Define and classify hypoxia with examples. What is apnea?
10. Write short notes on
 - i) Ventilation perfusion ratio
 - ii) Surfactant

Batch: K-71

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. What is respiration? Write in short the mechanism of normal inspiration mentioning the pressure & volume changes in a graph.
2. Write down the peculiarities of pulmonary circulation with its significance.
3. State the transport of O_2 from lungs to the tissues. What is Bohr effect?
4. Dead space. Classify it. Give the composition of inspired air and Alveolar air.
5. If a person has tidal volume 450 ml, respiratory rate 16 breaths/min and dead space air 150 ml, what will be the pulmonary ventilation and alveolar ventilation.
6. Define apnea, dyspnea, tachypnea, hyperapnea and cyanosis.
7. What is inspiratory ramp signal? How does CO_2 regulate respiratory rate?
8. Define Hypoxia. Write down the different types of hypoxia with their cause.
9. List the pulmonary function tests and give the interpretation of FEV1.
10. Write short notes on
 - i) Chloride shift
 - ii) Ventilation perfusion ratio.

Batch: K-70

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. What are the major functional events of respiration? Discuss with diagram the pressure changes during normal inspiration and expiration.
2. Define pulmonary and alveolar ventilation. Calculate the volume of alveolar ventilation if the tidal volume is 500 ml, the dead space volume is 150 ml and respiratory rate is 15 breaths/min.
3. Name the forms in which CO₂ transported from tissues to the lungs. What is Cl⁻ shift?
4. List the respiratory centers with location and functions. What is respiratory ramp signal?
5. Draw a spiro-gram mentioning all the volumes and capacities and their normal values. What is FEV₁?
6. Draw and explain oxy-haemoglobin dissociation curve.
7. Define and classify hypoxia. write in short about acclimatization at high altitude.
8. Define apnea, hyper-capnea, dysapnea, asphyxia, cyanosis.
9. Write down the chemical regulation of respiration.
10. Write short notes on:
 - a. Surfactant
 - b. Liver function test

Batch: K-69

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. Define pulmonary & alveolar ventilation. How do you calculate pulmonary & alveolar ventilation.
2. Draw & explain oxy-hemoglobin dissociation curve. Name the factors that shift the oxy-hemoglobin dissociation curve to the right.
3. List the Lung function tests. State the factors affecting vital capacity. 2.5+2.5
4. Briefly describe the chemical regulation of respiration. 5
5. Name different forms of CO₂ transport from tissues to lungs. Explain chloride shift mechanism with diagram.
6. Write short notes on:
 - i. Surfactant.
 - ii. Hypoxia.

7. Give an outline of the mechanism of secretion of gastric HCL. What is achlorhydria?
8. What are the functions of large intestine? State the defecation reflex. 2+3
9. Name the local hormones of GIT. How is pancreatic secretion regulated? 2+3
10. Write short notes on: 2.5+2.5
 - i. Peristalsis.
 - ii. Functions of saliva.

Batch: K-66

Full Marks: 50 Time: 1 Hour

Answer any TEN of the following.

1. Define the term pulmonary ventilation & alveolar ventilation. Describe alveolar & pleural pressure changes during inspiration & expiration.
2. List the pulmonary volumes and capacities with their normal values. What is FEV1 and vital capacity?
3. Draw & explain Oxy-Hb dissociation curve. What is Bohr effect & Haldane effect?
4. State the role of chemoreceptors in regulation of respiration.
5. What is respiratory unit? Discuss the factors affecting gaseous exchange through the respiratory membrane.
6. Write short notes on- i) Chloride Shift ii) Hypoxia
7. List the proteolytic enzymes present in the digestive juices. Mention the function of each enzyme.
8. Describe gastric filling, mixing & emptying. What is hunger contraction?
9. Discuss briefly about regulation of pancreatic secretion.
10. What kinds of movements occur in the intestine? What do you mean by gastro-colic reflex, duodeno-colic reflex & defecation reflex?
11. What are the end products of protein & fat digestion? How is glucose absorbed in the intestine?
12. Write short notes on:
 - i) Liver function test
 - ii) Saliva

GIT and Renal Physiology

Batch: K-74

Full marks: 50.

Time: 1hour 30 minutes

Answer all questions

- Q.1** Give an outline of pharyngeal phase of swallowing. What is the basic electrical rhythm in GIT? 3+2
- Q.2.** List the gastrointestinal reflexes. Write about the defecation reflex. 2+3
- Q3.** Enumerate the motor functions of stomach. How is gastric emptying regulated? 2+3
- Q4.** What are the differences between cortical and juxtamedullary nephron? Write about the functional importance of vasa recta in forming concentrated urine. 2+3
- Q.5** Define GFR. List the determinants of GFR. Calculate the net filtration pressure across the glomerular membrane 1+2+2
- Q.6** Name the hormones acting on renal tubules. Give the mechanism of HCO₃ reabsorption in the renal tubules. 2+3
- Q.7** Discuss in brief the peculiarities of renal circulation. 05
- Q.8** State the renal mechanism of formation of dilute urine. 05
- Q.9** Define T_m, Tubular load, Filtration fraction, Renal threshold and diuresis. 05
- Q.10** Write short notes on: 2.5+2.5
- i) Myenteric and submucosal plexus
- ii) Atonic bladder

Batch: K-73

Full Marks: 50

Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. Name the local hormones of GIT. Mention the sources, causes & function of Gastrin and Cholecystokinin-Pancreozymin hormone.
2. Name the movements of GIT. Write in brief about the propulsive movement of small intestine.

3. Enumerate the motor functions of stomach. How is gastric emptying regulated?
4. Draw and label a nephron. Differentiate cortical nephron from juxtamedullary nephron.
5. Write in brief about the mechanism of formation of dilute urine.
6. Name the substances that are completely reabsorbed along the renal tubules.
7. State the mechanism of glucose reabsorption in the renal tubules. What is glomerular filtrate? What is the difference between filtrate & urine.
8. What are the basic mechanisms of urine formation? Write about the peculiarities of renal circulation.
9. Describe in brief about the auto-regulation of renal blood flow.
10. Write short notes on:
 - i) Enteric nervous system
 - ii) Atonic bladder

Batch: K-72

Full Marks: 50

Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. Explain basic electrical activity of intestinal smooth muscle with diagram
2. List the gastrointestinal reflexes. Write about the defaecation reflex?
3. Write briefly about neural regulation of gastrointestinal function. What is law of gut?
4. Give the regulatory function of kidney. Name the hormones act on kidney with function of any three of them.
5. Define GFR. List the determinants of GFR. Calculate the net filtration pressure across the glomerular membrane.
6. Name the substances that are reabsorbed & secreted in renal tubules. State the mechanism of water reabsorption along the different parts of nephron.
7. Describe the role of counter current mechanism in the creation and maintenance of hyper osmolar medullary interstitium.
8. What is micturition reflex? Write briefly about the mechanism of micturition reflex.
9. Define filtration fraction, transport maximum, renal threshold, water diuresis, obligatory urine volume.

10. Write short notes on
- Pharyngeal stage of deglutition
 - JGA

Batch: K-71

Full Marks: 50

Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

- List the movements of GIT. Describe the mixing movement of small intestine. (2+3)
- Write about basic electrical rhythm & spike potential of GIT smooth muscle. What is the "Law of gut"? (3+2)
- What are the hormones of-GIT? Mention the functions, causes & site of secretions of three hormones. (2+3)
- What are the basic mechanisms of urine formation? Write about the peculiarities of renal circulation. (1+4)
- Define GFR. Shortly narrate the factors influencing GFR. (1+4)
- What is juxtaglomerular complex? Describe in brief about autoregulation of renal blood flow. (2+3)
- Mention the water resistant segment of a nephron. Write down the mechanism of water reabsorption through distal convoluted tubule. (2+3)
- Describe renal mechanism of formation of dilute urine. (5)
- How is medullary interstitial hyperosmolarity developed & maintained? (5)
- Discuss about micturition reflex. (5)
- Write short notes on: (2.5+2.5)
 - Enteric nervous system
 - Diuresis

Batch: K-70

Full Marks: 50 Time: 1 Hour

Answer any TEN of the following.

- Enumerate the motor functions of stomach. How is gastric emptying regulated?
- Mention the basic stimuli that causes pancreatic secretion. How is bicarbonate ion produced in the pancreas?
- List the movements of GIT. Describe the movements of the small intestine.

4. Define GFR. Shortly narrate the factors affecting GFR.
5. Name the hormones that regulate tubular reabsorption. State the mechanism of reabsorption in the renal tubule.
6. What do you mean by plasma clearance value of a substance? Explain its role in assessing kidney function.
7. Discuss the fate of H⁺ in the renal tubules. What is limiting pH?
8. What do you mean by obligatory urine volume? State the mechanism of production of hyperosmotic medullary interstitium.
9. What is micturition reflex? discuss the mechanism of micturition reflex.
10. Compare the composition of ECF and ICF. Give 24 hrs water intake and output chart in an adult person.
11. Write short notes on:
 - a. Liver function test
 - b. T_m and Tubular load

Renal System and Body Fluids

Batch: K-69

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions. All questions carry equal marks

1. List the functions of kidney. What do you mean by "Creatinine clearance is 140 ml/min"?
2. Name the hormones that regulate tubular reabsorption. How is Na reabsorbed along different parts of the nephron? 2+3
3. What is obligatory urine volume? How is hyperosmolarity of medullary interstitium maintained? 1+4
4. Define GFR. Calculate the net filtration pressure in glomeruli. 2+3
5. What is micturition reflex? How is voluntary control of micturition accomplished?
6. What is the pH range of urine? How does the alkaline glomerular filtrate become acidic urine? 1+4
7. What are the basic processes of urine formation? What are the peculiarities of renal circulation? 1+4
8. What do you mean by free water clearance and osmolar clearance? Mention the difference between osmotic diuresis and water diuresis. 2+3

9. List the fluid compartments of the body with their normal value. How is plasma volume measured? 3+2
10. Write short notes on : 2.5+2.5
- Renal function test.
 - Limiting pH.

Batch: K-68

Full Marks: 50 Time: 60 Minutes

Answer all questions. All questions carry equal marks

- List the regulatory function of Kidney. Give the use of different plasma clearance value. What do you mean by "Creatinine clearance is 140 ml"? (2+2+1)
- How is net filtration pressure calculated for GFR? State the role of tubuloglomerular feedback mechanism for auto regulation of GFR during decreased renal arterial pressure. (2+3)
- Name the hormones and effect of hormone that regulate tubular reabsorption. How is Na reabsorbed along different parts of the nephron? (2+3)
- What is osmolar clearance and free water clearance? Explain the role of osmoreceptor-antidiuretic hormone feedback mechanism for regulating extracellular fluid volume & osmolarity. (2+3)
- What is obligatory urine volume? How is hyperosmolarity of medullary intersitium maintained? (1+4)
- Discuss the fate of H⁺ in urine. What is limiting pH ? (4+1)
- Define transport maximum and renal threshold. Mention transport maximum of glucose and creatinine. What are the differences between osmotic diuresis and water diuresis? (2+1+2)
- List the fluid compartments of the body with their normal values. How can extra cellular fluid be measured? (3+2)
- Mention two important electrolytes & nonelectrolytes with their normal values in ECF. What are the sources & amounts of water gain & water loss in the body? (2+3)
- Write short notes on:
 - Renal function test
 - Micturition reflex

Batch: K-67

Full Marks: 50 Time: 60 Minutes

Answer any TEN of the following

1. Draw and label the juxta-glomerular apparatus. Mention the peculiarities of renal circulation. 2+3
2. Define GFR. State the mechanism of auto regulation of GFR. 1+4
3. Discuss the fate of H⁺ in Urine. What is limiting PH? 4+1
4. How is Na reabsorbed along the different parts of the nephron. 5
5. How is hyperosmolarity of medullary interstitium maintained? 5
6. What do you mean by renal threshold & diuresis? Mention differences between osmotic diuresis & water diuresis. 3+2
7. What are T_m & Tubular load. What do you mean by obligatory & facultative urine volume.
8. List the fluid compartments of the body with their normal values. How can extracellular fluid can be measured? 3+2
9. Give the differences between ECF and ICF. What are the sources of water gain and water loss in the body. 2.5+2.5
10. What is micturition reflex. How is voluntary control of micturition accomplished. 2+3
11. Write short notes on (any two)- 2.5+2.5
 - a) Renal function test.
 - b) Oedema.
 - c) Atonic bladder.

Batch: K-66

Full Marks: 50 Time: 60 Minutes

Answer all questions. All questions carry equal marks

1. a) Draw and label a glomerular filtering membrane.
b) How is the effective filtration pressure created?
2. a) Classify body fluid compartment of our body.
b) How can you measure extracellular fluid volume?
3. a) What are the functions of Kidney?
b) List the Kidney function tests.
4. a) What is the F1 range of urine?
b) How does the alkaline glomerular filtrate become acidic urine?
5. a) Outline the micturition reflex.
b) What is automatic bladder?
6. a) What do you mean by plasma clearance value of a substance?

- b) How can GFR be measured by plasma clearance value?
7. a) What are the basic processes of urine formation?
b) What are the peculiarities of renal circulation?
8. Write short notes on:
i) Diuresis ii) Limiting pH
9. a) Define nephron.
b) Draw and label the different parts of a nephron.
10. a) What are the hormones acting on kidneys?
b) How is concentrated urine formed?

2nd Term Physiology

Batch: K-74

Full marks: 70 Time: 2hours 30 minutes

(Answer any seven questions from each group)

Group A

- Q.1** Define pulmonary ventilation. How do you calculate pulmonary ventilation? Explain why air enters into lungs during inspiration. 1+2+2
- Q.2** Give the composition of atmospheric and alveolar air. What do you mean by anatomical and physiological dead space? 2+3
- Q.3** Mention the respiratory volumes and capacities with their normal values. Give the physiological importance of residual volume. 2+3
- Q.4** Draw and label oxy-hemoglobin dissociation curve. Give the importance of steep part of the curve. 3+2
- Q.5** Give an outline about chemical regulation of respiration. 5
- Q.6** Define and classify hypoxia with examples. What is dyspnoea? 4+1
- Q.7.** State the three blood flow zones of lungs. What do you mean by Physiologic Shunt? 3+2
- Q.8** Write short notes on
- i) Respiratory centers
- ii) Vital capacity

Group -B

- Q.9** List the movements of alimentary tract. Discuss in brief about the movements of large intestine.
- Q.10** Name the gastrointestinal hormones. Write down the origin, regulation of secretion and functions of gastrin and secretin.

Q.11 Write about the enteric nervous system with its functional significance that are the effects of parasympathetic denervation on GIT?

Q.12 mention the functions of Kidney. How is GFR Auto regulated?

Q.13 Write down the basic mechanism of urine formation. List the substances those are completely reabsorbed in proximal tubule. What is tubular load? 2+2 +1

Q.14 What do you mean by obligatory urine volume? What are the factors that contribute to form hyperosmolar medullary interstitium and how do they maintained?

Q.15 Give an outline about micturition reflex. What is automatic bladder?

Q.16. short notes on: 2.5+2.5

(i) Peristalsis

ii) Diuresis

Batch: K-73

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group.

Group-A

1. Discuss the pressure & volume changes during normal respiration with a diagram. what is lung compliance? 3.5+1.5
2. Define vital capacity. Why does sex & posture affect vital capacity? 2+3
3. State the three blood flow zones of lungs. why is P_{O2} of blood in the aorta is less than the P_{O2} of blood in pulmonary veins? 2+3
4. Name the forms in which CO₂ transported in blood. State the chloride shift mechanism. 2+3
5. Draw & explain oxy-hemoglobin dissociation curve. Why is the curve shifted to the right? 3+2
6. Write down the location & functions of different respiratory centers. What is the physiological importance of Hering breuer inflation reflex? 3+2
7. Draw & label a respiratory membrane. What are the factors affecting gaseous diffusion through the respiratory membrane? 2+3
8. Write short notes on:
 - i) Pulmonary function test
 - ii) Ventilation perfusion ratio 2.5+2.5

Group-B

9. Narrate in brief the basic electrical rhythm of GIT. Give the difference between smooth & nerve fibre action potential. 3+2
10. Name the gastrointestinal hormones. Write about the regulation of secretion & functions of any two of them. 2+3
11. What are the basic movement of GIT? State the pharyngeal stage of swallowing. 1+4
12. What is counter current system? How is concentrated urine formed? 1+4
13. Write down the peculiarities of renal circulation. 5
14. Give the mechanism of water reabsorption through different parts of renal tubules. What do you mean by obligatory urine volume? 3+2
15. How is higher centers control micturition reflex? What is

uninhibited neurogenic bladder? 3+2

16. Write short notes on:

i) GI reflexes ii) GFR 2.5+2 5

Batch: K-72

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group.

Group-A

1. What are the major functional events of respiration? What do you mean by anatomical and physiological dead space?
2. Mention the respiratory volumes & capacities with their normal values in healthy adults. Give the physiological importance of residual volume.
3. Write in brief about the effect of hydrostatic pressure gradients on regional pulmonary blood flow.
4. Name the forms in which O_2 is transported from the lung to tissues. What is bohr effect?
5. What is heringf breuer inflation reflex? How is respiration regulated during exercise?
6. List the pulmonary function test. Give the importance of vital capacity.
7. Name the parts with their importance of oxyhaemoglobin dissociation curve. What is p50?
8. Write short notes on
 - i) Physiological shunt
 - ii) Lung compliance

Group-B

1. Enumerate the motor function of stomach. How is gastric emptying regulated?
2. Name the gastrointestinal hormones. Write about the regulation of secretion & functions of any two of them.
3. What are the function of large intestine? State the defecation reflex.

4. What are the difference between cortical and juxtamedullary nephrons? Write about the functional importance of vasa recta in forming concentrated urine.
5. Describe in brief about the autoregulation of renal blood flow.
6. What are the basic mechanism of urine formation? What are the factors that contribute to form hyperosmolar medullary interstitium?
7. Name the substances that are completely reabsorbed along the renal tubules. State the mechanism of glucose reabsorption in the proximal tubules.
8. Write short notes on
 - i) BER
 - ii) Atonic bladder

Batch: K-71

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group.

Group-A

1. What, are the functional events of respiration? Discuss the pressure changes during normal respiration with a diagram. 1.5+3.5
2. Draw & label the respiratory membrane. State the factors affecting diffusion of gases through this membrane. 2+3
3. What is inspiratory Ramp signal? How is respiration regulated during exercise? 2+3
4. Draw & explain Oxy-hemoglobin dissociation curve. Why is the curve shifted to the right? 3+2
5. List the pulmonary function tests & give the interpretation of FEV1.
6. Name the forms in which CO₂ is transported from tissues to the lungs. State the chloride shift mechanism. 1.5+3.5
7. Mention the peculiarities of pulmonary circulation. 'What- do you mean by physiologic shunt? 3.5+1.5
8. Write short notes on : 2.5+2.5
 - i) Dead space.
 - ii) Vital capacity.

Group-B

9. Write about basic electrical rhythm & spike potential of GIT smooth muscle. What is the "Law of gut". 3+2
10. Name the hormones of GIT. Mention the functions, causes & site of secretion of three GI "hormones. 2+3

11. Write down the functions of kidney. Mention the peculiarities of renal circulation. 2+3
12. Define GFR. List the determinants of GFR. Calculate the net filtration pressure. 1+2+2
13. Name three hormones that regulate tubular reabsorption. State the mechanism of glucose reabsorption in the renal tubule. 2+3
14. What do you mean by obligatory urine volume? State the mechanism of production of hyperosmotic medullary interstitium. 1.5+3.5
15. Write is micturition reflex? Discuss its mechanism. 1+4
16. Write short notes on: 2.5+2.5
- i) Diuresis ii) Enteric nervous system

Batch: K-70

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group.

Group-A

1. State the mechanism of respiration with a diagram showing pressure and volume changes.
2. Mention the respiratory volumes and capacities with their normal values in healthy adults. What is physiological significance of FEV1.
3. What are Bohr effect and Haldane effect? Draw and explain O₂-Hb dissociation curve.
4. List the respiratory centers with location and functions. What is ramp signal?
5. List the movements of GIT. Describe the movements of small intestine.
6. Mention the function of saliva. How does saliva maintain the oral hygiene?
7. Motor functions of stomach. How is HCL secreted from parietal cell?
8. Short note:
 - a. Hypoxia
 - b. Entero-hepatic circulation.

Group-B

9. State the peculiarities of renal circulation.
10. Mention the water resistant segment of nephron. Write down the mechanism of water re-absorption through distal convoluted tubule.
11. Define plasma clearance, Free water clearance, T_m, Water diuresis, and obligatory urine volume.

12. Mention the differences between glomerular filtrate and urine if plasma flow through both kidneys is 650 ml/min, GFR is 125 ml/min. What is filtration fraction?
13. What is the pH range of urine? How does the alkaline glomerular filtrate become acidic urine?
14. Give the differences between ECF & ICF. What are the sources of water gain & water loss in the body?
15. What is trans-cellular fluid? How can be extracellular fluid measured?
16. Short note:
 - a. Juxta-glomerular apparatus
 - b. Functions of kidney

Batch: K-69

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group-A

1. Draw respiratory membrane. State the factors affecting diffusion of gases through this membrane. 2+3
2. Define respiration, Describe the basic mechanism of respiration. 1+4
3. Define pulmonary & alveolar ventilation with their normal values. Draw a spirogram to show the different lung volumes & capacities. 2+3
4. What information you can get from Oxy-Hb dissociation curve? What is p50? 4+1
5. Name the enzymes present in gastric juice. Give the mechanism of secretion of HCL from gastric gland. 1.5+3.5
6. Name the important constituents of saliva. Write down the functions of saliva. 2+3
7. List the local hormones of GIT. Write down the functions & regulation of secretion of any two of them. 2+3
8. Write short notes on: 2.5+2.5
 - i) Chloride shift
 - ii) Defecation reflex.

Group B

9. Define GFR. List the determinants of GFR. Calculate the net filtration pressure across the glomerular membrane. 1+2+2

10. What are the functions of the kidney? Describe briefly the role of kidney in regulation of ECF volume. 2+3
11. Give an outline of micturition reflex. What is atonic bladder? 3+2
12. What do you mean by plasma clearance value of a substance? Explain its role in assessing kidney function. 1+4
13. Describe the role of counter current mechanism in the creation & maintenance of hyper-osmotic medullary interstitium. 5
14. Write down the fate of H⁺ in the renal tubules. Name the acid substances present in urine.
15. Compare the composition of ECF & ICF. Give a 24 hours water intake & output chart in an adult person. 2+3
16. Write short notes on: 2.5+2.5
 - i) JGA
 - ii) Renal function test

Batch: K-68

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Define pulmonary and alveolar ventilation. Discuss the basic mechanism of respiration.
2. What are the non-respiratory functions of respiratory tract? Enumerate the reflexes of the respiratory system.
3. Draw and explain Oxy-hemoglobin dissociation curve. What is P-50?
4. Enumerate the lung function tests. What is FEV₁?
5. How is CO₂ transported from tissues to the lungs? What is chloride shift?
6. Write down the motor functions of stomach. How is stomach emptying regulated?
7. Mention the carbohydrate splitting enzymes present in GIT. How is glucose absorbed?
8. Write short notes on:
 - i) Defecation reflex
 - ii) Functions of liver

Group B

9. Draw and label a nephron. Differentiate cortical nephron from juxtamedullary nephron.

10. What is counter current system? What are the factors that contribute to form concentrated urine?
11. What are the components of micturition reflex? How is micturition occurred?
12. Define plasma clearance, plasma load and tubular load. What do you mean by obligatory and facultative urine volume?
13. Discuss the fate of H⁺ in the renal tubules. What is limiting pH?
14. Mention the basic principle of body fluid measurement. How can extracellular fluid be measured?
15. List the fluid compartments of the body with their normal values. What are the sources and amount of water gain and water loss in the body?
16. Write short notes on:
 - i) GFR
 - ii) Functions of kidneys

Batch: K-67

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Discuss with diagram the pressure changes during normal inspiration and expiration. What do you mean by compliance of the lungs?
2. How is Oxygen transported from lungs to tissues? What is physiologic shunt and physiologic dead space?
3. What is Inspiratory Ramp signal? How is respiration regulated during exercise?
4. List of the lung function tests. Discuss the factors affecting vital capacity.
5. Enumerate the motor functions of stomach. How is gastric emptying regulated?
6. How is pancreatic secretion regulated? Why does the pancreas not autodigested?
7. How does fat digestion and absorption occur in small intestine? What is steatorrhea?
8. Write short notes on (any two)
 - a) Chloride shift.
 - b) Liver function test.
 - c) Periodic breathing.

Group B

9. Draw the nephron?
10. Name the factors that regulate tubular reabsorption of glucose in the renal tubules.
11. How is dilute urine formed? Mention the differences between GFR and urine.
12. What do you mean by free water clearance and osmolar clearance? Mention the difference between osmotic diuresis and water diuresis.
13. Discuss the fate of H⁺ in the renal tubules? What is limiting pH?
14. List the fluid compartments of the body with their normal value. How is plasma volume measured?
15. What is micturition reflex? How is voluntary control of micturition accomplished?
16. Write short notes on (any two)
 - a) edema
 - b) Neurogenic bladder
 - c) T_m and Tubular load

Biochemistry

Bioenergetics and Metabolism

Batch: K-74

Time: 1 hour 15 minutes,

Total Marks: 40

Answer all questions. All questions carry equal marks

- Q.1** Give a brief outline of digestion & absorption of dietary fat.
- Q.2** Define glycolysis. Outline the glycolytic pathway by schematic diagram.
- Q.3** What is respiratory chain? Draw a respiratory chain mentioning the site of ATP synthesis.
- Q.4** TCA cycle is called an amphibolic pathway - explain.
- Q.5** Name the ketone bodies. How they are synthesized? Why ketosis is developed in uncontrolled diabetes mellitus?
- Q.6** Briefly describe HDL metabolism.
- Q.7** Define transamination with example. What are the sources & disposal routes of ammonia
- Q.8** Write short notes:
- a) B oxidation
 - b) Local hormone

Batch: K-73

Full Marks: 40 Time: 1hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Name four major components of gastric juice. State their functions.
2. State the irreversible steps of glycolysis. How glycolysis can be inhibited in vivo and vitro?
3. Write down the sources and fates of acetyl co-A. Give the importance of HMP shunt pathway.
4. Enumerate the name of ketone bodies. How ketosis is developed in uncontrolled diabetes mellitus?
5. Define transamination with example. Give the sources and fates of ammonia?
6. Briefly describe HDL metabolism.
7. Give the flowchart of ATP synthesis in respiratory chain. Name the inhibitors of respiratory chain.
8. Short Notes:
 - a) Local Hormones of GIT
 - b) β -oxidation

Batch: K-72

Full Marks: 40 Time: 1hour 15 minutes

Answers all questions. Each question carry equal marks.

1. What is HMP shunt? write down its importance.
2. Enumerate the digestive juices with their pH. Write note on local hormone of GIT.
3. Define oxidative phosphorylation. Show the components, organization and site of ATP synthesis of respiratory chain in flow chart.
4. Enumerate the ketone bodies. State the origin and fate of ketone bodies.
5. Define glycolysis. Show in a flow chart how glucose is converted to pyruvate.
6. Define deamination. Write down the source and fate of ammonia in our body.
7. What is β -oxidation of fatty acid? Calculate ATP generation by complete oxidation of an 18 carbon fatty acid.

8. Write short notes on : i) Cori cycle ii) transamination

Batch: K-71

Full Marks: 40 Time: 1hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Name the digestive juices with their PH. What are the four major component of gastric juice? Give the functions of each.
2. What is Respiratory Chain? Show the components, arrangements and site of ATP synthesis of the chain in a flow chart. Name the inhibitors of the chain.
3. What are the pathways of Carbohydrate metabolism? Briefly explain TCA cycle is amphibolic & common metabolic pathway.
4. What is Is oxidation? How many ATPs are generated from an -20-c fatty acid after complete oxidation?
5. Write down the causes of ketosis. How ketosis is developed in uncontrolled Diabetes meliitus?
6. Briefly discuss the blood glucose regulation in the body?
7. Define Transamination & Deamination with example. What are the fates of ammonia?
8. Write short notes on: a) HMP shunt, b) Amino acid pool

Batch: K-70

Full Marks: 40 Time: 1hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Name the digestive juices with their pH and important components of gastric juice. Write the functions of HCl.
2. Define respiratory chain . Show the components, arrangements and sites of ATP synthesis of the respiratory chain in a flow chart .Name the inhibitors of respiratory chain.
3. Name the lipoproteins .Draw and level the general structure of a lipoprotein . Write about HDL-C metabolism.
4. Define B-oxidation. Write down the pathway of B-oxidation of a 18-carbon fatty acid.

5. Give the importance of HMP shunt pathway. Calculate the ATP production on complete oxidation of 1 mole of glucose.
6. Define trans-amination. Write down the importance of trans-amination enzyme. Draw urea cycle.
7. Write down the blood glucose regulation mechanism.
8. Write short notes on
 - i) Nitrogen balance
 - ii) Local hormones of GIT

Batch: K-69

Full Marks: 40 Time: 1hour 15 minutes

Answers all questions. Each question carry equal marks.

1. What is Respiratory Chain? Show the components, arrangement & site of ATP synthesis of the chain in a flow chart. Name the inhibitors of the chain.
2. What are the pathways of Carbohydrate metabolism? Briefly explain TCA cycle is amphibolic & common metabolic pathway?
3. What is the metabolic fuel? How blood glucose level is maintained in prolonged starvation?
4. Define HMP Shunt & state its importance.
5. What are the fates of Acetyl Co-A? Give an account of ATP generation after the Oxidation of an 18 carbon fatty acid.
6. Enumerate ketone bodies. Write down the causes of ketosis. How ketosis developed in uncontrolled Diabetes mellitus?
7. Define Trans-amination & Deamination with example. What are the fates of ammonia?
8. Write short notes:
 - (a) Lipoproteins
 - (b) Gluconeogenesis

Renal Biochemistry, Body Fluids & Acid-Base Balance

Batch: K-74

Full Marks: 40.

Time: 1 hour 15 minutes

Answer all questions.

- Q.1** Make a water intake and output chart for an adult. What is water intoxication?
- Q.2** State the role of kidney to maintain acid base balance of the body.
- Q.3** What is your comment regarding the blood picture, pH-7.5, PCO₂-31 mm of Hg HCO₃⁻-19 mmol/L. Mention its compensation and correction.
- Q.4** Define anion gap and base excess. Mention their importance in acid base disorder.
- Q.5** Briefly discuss osmoregulation of water balance. What is water turnover?
- Q.6** Define hyperkalaemia. Write down the causes and consequence of hyperkalaemia.
- Q.7** How Na level in blood is regulated?
- Q.8** Write short notes on: a) isotonic volume contraction b) creatinine clearance rate.

Batch: K-73

Full Marks: 40 Time: 1 hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Distribute the total body water in different compartments in a 70 kg adult male. What is water turnover?
2. What is transmembrane flux? Write down the causes & consequences of hyperkalaemia.
3. Define & classify diuresis. Give the difference between water and osmotic diuresis.
4. Mention the role of kidney to maintain acid base balance.
5. Name the major electrolytes in ECF with their normal values. Write down in short about hormonal regulations of Na
6. What are the forms of calcium in blood? How blood calcium level is regulated?
7. Classify simple acid base disorder with their primary defect. Write down the five causes of metabolic acidosis.
8. Write in short about :
(a) Anion gap (b) Renal clearance

Batch: K-72

Full Marks: 40 Time: 1 hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Give the distribution of total body water in different compartment in a 70 kg adult male. What is insensible water loss.
2. Mention the roll of kidney to maintain acid base balance.
3. Define and classify diuresis. Write note on water intoxication.
4. Name the major electrolytes in ECF with their normal value. Briefly discuss the hormonal regulation of Na⁺ & k⁺.
5. Name the forms of serum Ca⁺. state in brief how serum calcium regulated.
6. Classify simple acid base disorders with their primary defect. How metabolic acid base disorder is compensated ?
7. Define anion gap and base excess. Mention their importance in acid base disorder.
8. Write short notes on :
 - i) Obligatory urine volume
 - ii) transmembrane k⁺ flux

Batch: K-71

Full Marks: 40 Time: 1 hour 15 minutes

Answers all questions. Each question carry equal marks.

1. What is the rate limiting pH of urine? Enumerate the basic mechanism of acidification & explain the distal tubular acidification of urine.
2. Define tubular load, plasma load, plasma clearance, transport maximum & renal threshold examples.
3. Distribute the total body fluid in different compartments of a 70 kg adult female. Explain the role of ADH in regulation of body fluid volume.
4. Define & classify diuresis. Differentiate between water diuresis & osmotic diuresis.
5. Name the different forms of calcium in our body. How normal serum calcium level is maintained in our body?
6. Classify simple acid-base disorders with their primary defects & 3 causes of each. How metabolic acidosis is compensated?
7. Define water turnover. Make daily water intake & output chart of an adult person.
8. Write short notes on:
 - i) Anion Gap
 - ii) Transmembrane K^+ flux.

Batch: K-70

Full Marks: 40 Time: 1 hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Classify body fluid compartments. What is trans-cellular fluid? Give three example of it.
2. Make a intake and output chart. What is water turnover? Give its importance.
3. Explain the role of kidney in acid-base balance. Define renal threshold and plasma clearance with example.
4. What are the forms of calcium in blood? Write down the hormone regulation of calcium.
5. Classify simple acid-base disorder with primary defects. Write down three causes and compensation of metabolic acidosis.

6. Write down the major serum electrolytes with their reference range .
Mention causes and consequences of hyponatremia.
7. Define and classify Diuresis. What do you mean by obligatory urine volume and limiting pH of urine.
8. Write down short notes on :
 - a. Anion gap
 - b. Hyperkalemia.

Batch: K-69

Full Marks: 40 Time: 1 hour 15 minutes

Answers all questions. Each question carry equal marks.

1. Distribute total body water in different compartments of an adult of 70 kg. State water turn over with its importance.
2. Classify simple Acid-base disorder with their primary defects. Mention the mechanism and compensation of metabolic acidosis.
3. Write about the sensors and effectors in the homeostasis of Na⁺ balance.
4. Write the different forms of Ca in blood? Mention the normal level of Serum State and hormonal regulation of serum Ca.
5. How you assess renal function test?
6. Mention the role of Kidney in acid- base regulation.
7. Define osmolarity and osmolar gap. Mention the role of ADH to maintain water balance.
8. Write short notes on (Any two):
 - a) Anion gap
 - b) Tetany
 - c) Hyperkalemia

2nd Term Biochemistry

Batch: K-74

Total marks: 80.

Time: 2 hour 40mins

(Answer all the questions. Each question carries equal marks.)

Group-A

- Q.1 Enumerate the digestive juices with their pH. Name the four major component of gastric juice with the functions of each.
- Q.2 State the role of bile in digestion of fat. How fat is absorbed?
- Q.3 "TCA cycle is an amphibolic pathway" explain. Why oxaloacetic acid is called the catalyst of TCA cycle?
- Q.4 Briefly describe amino acid pool. What is ammonia intoxication?
- Q.5 Define β -oxidation of fatty acid. Show the flow chart of β -oxidation of an 18 carbon fatty acid
- Q.6 What is gluconeogenesis? Name the substrate for it. Give its importance
- Q.7 What is ketosis? Why ketosis is developed in uncontrolled diabetes mellitus?
- Q.8 Write short notes on: (i) HMP shunt (ii) Zymogens

Group -B

- Q.9 Distribute the total body fluid in different compartments of a 60 kg adult male
- Q.10 Define & classify diuresis. What is obligatory urine volume? Q.11 Define hyponatremia. What are the causes and effect of hyponatremia?
- Q.12 Name the different forms of calcium in human body. How normal serum calcium level is regulated?
- Q.13 What is osmolar gap? Briefly describe body fluid regulation in hyperosmolarity of blood
- Q.14 Write short notes on: (i) Water turnover (ii) Transmembrane potassium flux
- Q.15 Classify simple acid base disorders with their primary defects. Write down the causes and compensation of metabolic acidosis. Q.16 Classify volume disorders. What are the causes of isotonic fluid contraction

Batch: K-73

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks

Group-A

1. Name the Zymogens Write down the Important constituents of pancreatic juice. What is achlorhydria?
2. Name the anabolic & catabolic pathways of carbohydrate. Write down the differences between glucokinase and hexokinase.
3. What is apo-protein? Mention the apo-proteins with their functions. Write down the difference between apo B-48 & apo B-100.
4. What do you mean by emulsification of fat? Write in brief about the absorption of fat.
5. Define transamination with two examples What are the fates of NH_3
6. Define glycogenesis and glycogenolysis. Citric Acid Cycle is called the common metabolic pathway-justify.
7. Name the ketone bodies. How they are synthesized in our body?
8. Write short notes on:
 - a) Importance of HMP shunt
 - b) Respiratory chain

Group-B

1. Write down the water intake and output chart for 24 hours. Children are more prone to dehydration-justify it.
2. Write the major electrolytes in ECF with their normal levels. Enumerate the causes of hyponatraemia.
3. Define and classify volume disorders. Write down the causes of hypotonic volume disorders.
4. Name the classical acid base disorders. Enumerate three causes of each .Write the compensation & correction of metabolic acidosis.
5. Write in brief about calcium homeostasis. What is bone buffer?
6. Define Plasma Load, Transport Maximum, Renal Threshold, Plasma Clearance and Free Water Clearance with examples.
7. How water balance is maintained in our body? What is water intoxication?

8. Write short notes on: a) Transmembrane K⁺ flux b) Diuresis.

Batch: K-72

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks

Group-A

1. List the digestive juices with their pH. Briefly discuss the absorption of the end product of starch digestion.
2. Draw and label respiratory chain with sites of ATP formation. Name the inhibitors of respiratory chain.
3. Define β -oxidation of fatty acid. Calculate how many ATPs are generated from a 16-c saturated fatty acid after its complete oxidation.
4. What is amino acid pool? Briefly discuss transamination and deamination with example.
5. Name the ketone bodies. How they are synthesized in body? Give their fate.
6. Briefly discuss the metabolism of LDL with diagram. What is Apo protein?
7. State the glucostatic function of liver with its importance.
8. Write short note on : i) Emulsification of fat ii) Cori cycle

Group-B

1. Distribute the total body water in a 60 kg healthy adult male. What is transcellular fluid? Give example.
2. Name the major electrolytes of ECF with their normal ranges. Briefly discuss sodium homeostasis.
3. What is water turn over? Why do children get easily dehydrated? Give the water intake and output chart.
4. Enumerate the simple acid base disorders with their primary defect. Mention four causes of metabolic acidosis. How metabolic acidosis is compensated?
5. What are the different forms of calcium? Explain the role of calcitriol on calcium homeostasis.
6. List the classical parameters to check the acid base status of an individual with their normal ranges. What is base excess? Mention its importance in acid base disorders.

7. Briefly discuss the role of kidney to maintain acid base balance
8. Write short notes on : i) Plasma clearance ii) Transmembrane k flux

Batch: K-71

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks

Group-A

1. Enumerate the digestion of protein. Write in short about intestinal zymogens.
2. What is intermediary metabolism? Name the irreversible steps of glycolysis. Write down the importance of anaerobic glycolysis.
3. What is Carnitine Shuttle mechanism? Calculate ATP production from 18-C Fatty acid by β -oxidation.
4. Enumerate the hormonal regulation of blood glucose concentration in our body.
5. Name the blood lipids with their reference ranges. Draw & label the structure of a lipoprotein and classify it.
6. Ketone bodies are alternate fuel for cells - Justify. Write down the fates of acetyl Co-A.
7. Enumerate the flow chart of urea cycle. Write down the sources and disposal of NH_3 .
8. Write short notes on (any two): i) Amino acid pool ii) ATP
iii) Importance of Pentose Phosphate Pathway

Group-B

1. Calculate the distribution of body fluid in different compartments of a 60 kg adult male. Write in short about transcellular fluid.
2. Classify the classical acid base disorders. Enumerate the primary defect, compensation correction of respiratory acidosis.
3. Name the major electrolytes present in ECF & ICF. Enumerate the causes & consequence of hypernatraemia.
4. What is the fate of H^+ ion which is secreted in the tubular lumen?
5. Define plasma clearance, renal threshold, diuresis, osmolar gap and free water clearance.
6. Classify volume disorders. Write down the causes of hypotonic volume expansion.

7. Define Water turnover with its importance. What do you mean by metabolic water?
8. Write short notes on (any two):
 - i) Alkali reserve
 - ii) Hyperkalaemia
 - iii) Water intoxication.

Batch: K-70

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group-A

1. Name the anabolic and catabolic pathways of metabolism. Write down the differences between glycolysis and HMP shunt.
2. What is oxidative phosphorylation? Write down the different complexes of respiratory chain with sites of ATP production. How many ATP is formed by 1 molecule of NADH and FADH₂ and why?
3. What is the end product of fat digestion ? How fat is digested in GIT?
4. Define trans-amination with example . Enumerate urea cycle in flow chart.
5. What is B-oxidation? Write down the energetic of B-oxidation of a 18-C fatty acid.
6. Name the lipoprotein. Enumerate the source, metabolism and fate of LDL-C. Give its clinical importance.
7. How blood glucose level is maintained in fed and fast state?
8. Write short notes on :
 - a. Amino acid pool
 - b. Local hormones of GIT

Group-B

1. Calculate the distribution of body fluid in different compartments of a 70 Kg person. Name the electrolytes in ECF and ICF with their reference ranges.

2. What are the classical acid-base disorders? Give two causes of each with interpretation of their primary defects. How respiratory acidosis is compensated?
3. Mention the different forms of calcium in plasma with their percentages. Mention the hormonal regulation of calcium metabolism.
4. What do you mean by trans-membrane K^+ flux? Enumerate the causes and consequences of hypokalemia.
5. What are the important causes of hypernatremia? Mention the role of aldosterone in Sodium regulation.
6. Define GFR, Osmolar clearance, renal threshold, transport maximum, and limiting pH of urine.
7. Define and classify diuresis. Write down the differences between water diuresis and osmotic diuresis.
8. Write short notes :
 - a. Base excess
 - b. Water turnover

Batch: K-69

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. What is intermediary metabolism? Name the intermediary pathways of Carbohydrate metabolism. Write down the difference between glycolysis and HMP shunt.
2. Define respiratory Chain. Show in a flow chart the sites of ATP synthesis in the respiratory chain. How many ATPs are formed by NADH & FADH₂ and why?
3. Describe the regulation of glycogen metabolism (glycogenolysis and glycogenesis)
4. Define Oxidative deamination. Write down the source and fate of NH₃ in our body. What is ammonia intoxication?
5. What is β -oxidation? Write down the energetic of β -oxidation of a 20 Carbon fatty acid.

6. Name the lipoproteins. Draw and level the general structure of a lipoprotein. Enumerate HDL-C metabolism.
7. What are ketonuria, ketonaemia & ketosis? Mention the causes of ketoacidosis. How ketone bodies are utilized in our bodies?
8. Write short notes (any two):
 - I) Cori cycle
 - II) Nitrogen Balance
 - III) Phenylketonuria

Group B

1. Calculate the distribution of body fluid in different compartments of a 60 kg person. How they are measured? Name the major electrolytes present in ECF & ICF.
2. What are the classical acid-base disorder? Give two examples of each with interpretation of their primary defects. How metabolic acidosis is compensated?
3. Name the different forms of calcium in our body with their percentage. Enumerate the functions of calcium & role of parathormone in calcium regulation in our body.
4. What do you mean by trans-membrane K^+ flux? Enumerate the causes & consequence of Hyperkalemia including cardiac effect.
5. What are the important causes of hyponatremia? Mention the role of sensors and effectors in Sodium (Na^+) homeostasis.
6. Define plasma clearance, renal threshold, diuresis, osmolar gap and rate limiting pH.
7. Define water turnover with its importance. What do you mean by water intoxication, metabolic water & insensible water loss?
8. Write short notes (any two):
 - I) Alkali reserve
 - II) Aldosterone escape
 - III) HCO_3^- -space & TCO_2

Batch: K-66

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define diet, Balanced diet, BMR, SDA & RQ. (3+2)

2. Name the members of vit-B complex with their active co-enzyme. Write down the mechanism of development of megaloblastic anemia in B₁₂ deficiency. (2+3)
3. Define Body Mass Index. Mention the complication of obesity. How helps in prevention of obesity. (3+2)
4. What are the antioxidant vitamins? Mention the daily requirement & functions of Ascorbic Acid.
5. How vitamin-D is synthesized in the body? Mention the role of calcium homeostasis. (2.5+2.5)
6. Write down the biochemical functions of vitamin-A. Write down the symptoms of vitamin-A deficiency. (3+2)
7. Classify minerals and state the functions & deficiency disorder of Zinc. (2+3)
8. Write Short notes on: (2+3)
 - i) Folate trap
 - ii) PEM

Group B

1. Write down the electrolytic composition of ICF & ECF. Write down the volume of ICF & ECF of an 80Kg male. (3+2)
2. Enumerate the simple acid-base disorder with their primary defect and the causes of metabolic acidosis. How metabolic acidosis is compensated? (2+3)
3. Classify volume disorders . Write the causes of hypotonic volume. (3+2)
4. What do you mean by acidosis & alkalosis? Mention the blood in respiratory alkalosis & metabolic acidosis. (1+4)
5. Mention the causes and consequences of hypo & hyperkalemia.
6. Mention the normal serum calcium level. Write in brief on homeostasis. (3+2)
7. Define plasma clearance. Write down plasma clearance of creatinine & inulin. Why creatinine value is more specification for renal failure?
8. Write Short notes on: (2+3)
 - i) Anion gap
 - ii) Water turnover

Needs deep thinking

“We created man out of the extract of clay, then We made him into a drop of life-germ (zygote = spermatozoa + oocyte), then We placed it in a safe depository (uterus), then We made this drop into a clot (embryo), then We made the clot into a lump (somites), then We made the lump into bones (ossification), then We clothed the bones with flesh (muscle formation), and then We caused it to grow into another creation (fetus). Thus Most Blessed is Allah SWT, the Best of all those that create. Thereafter you are destined to die, and then on the Day of Resurrection you shall certainly be raised up.”

Al-Qur'an, Surah Mu'minun, Verses: 12-16

“O man! What has deceived you about your generous Lord (Allah SWT), Who created you, shaped you, and made you well-proportioned and set you in whatever form He pleased? No indeed; (the fact is that) you deny the Reckoning (Qiyamah), declaring it a lie; you do so the while there are watchers (angels) over you; noble scribes (Kiraman Katibeen), who know what you do. Surely the virtuous shall be in Bliss (Heaven), and the wicked shall be in the Blazing Fire (Hell).”

Al-Qur'an, Surah Infitar, Verses: 6-14



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