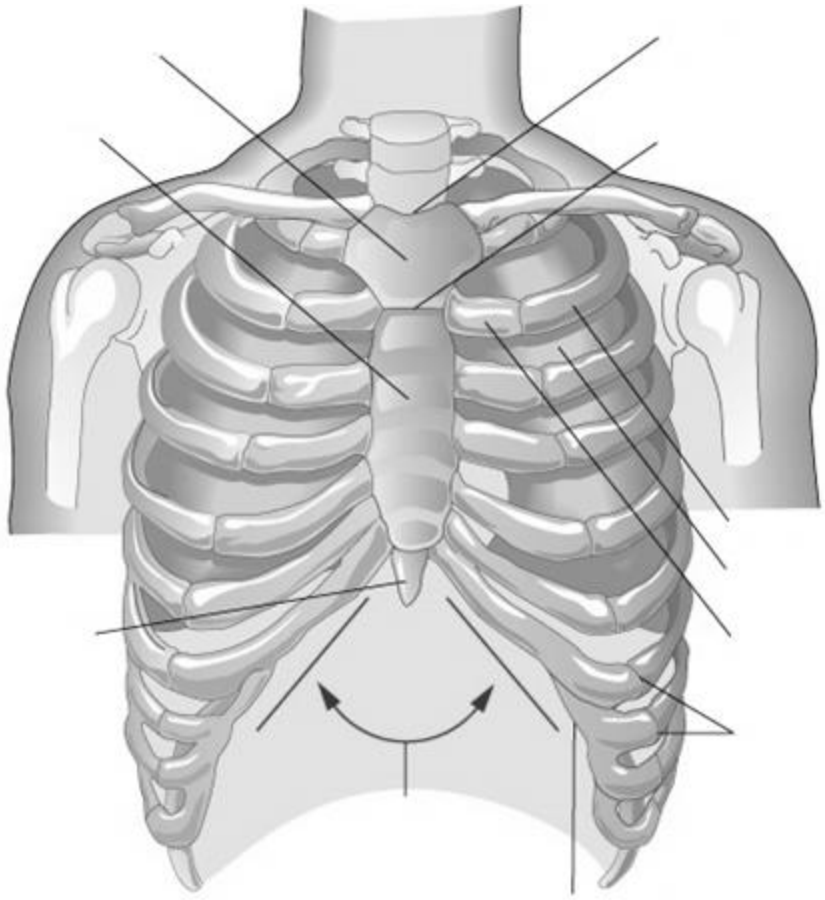
Bismillahir Rahmanir Rahim

QUESTION BANK

For

1 ST YEAR MBBS STUDENTS

K-75, DMC



Contents

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Anatomy

Thorax

Batch: K-74

Full Marks: 35 Time: 50 minutes

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

1. Define mediastinum. Write down the boundaries and contents of the superior mediastinum. 2+5

2. Name the parts of parietal pleura. Mention their nerve supply. Describe the venous drainage of the posterior thoracic wall 1+2+4

3.describe the interior of the right. atrium. What is fibrous skeleton of the heart? 5+2

4. Define bronchopulmonary segment. Draw and label the bronchopulmonary segments of the both lungs. 2+5

5. Define intercostal nerve. Briefly describe the steps of dissection of a typical intercostal space. 5+2

6.Write short notes on. 3+4

I) Costo-diaphragmatic recess its importance

ii)origin, course, branches and area of distribution of left coronary artery.

Batch: K-73

Full Marks: 35 Time: 50 minutes

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

1. Describe interior of right atrium. Mention functions of papillary muscles. 5+2
2. Define intercostal nerve. Draw & label a typical intercostal nerve. Mention the contents of an intercostal space. 1+4+2
3. Define bronchopulmonary segment. Draw & label bronchopulmonary segments of right lung 2+5
4. Write down the parts, function & nerve supply of pericardium. Mention the pericardial sinuses with their importance. 5+2
5. Write down the origin, course &branches of right coronary artery. What do you mean by dominance in coronary circulation? 5+2
6. Write short notes on:
    a. Location, function & artery supply of S.A node
    b. Root value & sensory supply of phrenic nerve

Batch: K-72

Full Marks: 35 Time: 50 minutes

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

1. Define intercostal nerve. Draw and label a typical intercostal nerve. Name the muscles of inspiration. 2+3+2
2. Name the parts of parietal pleura. Mention their nerve supply. Describe the venous drainage of the posterior thoracic wall. 1+3+3
3. Give an account of the base of the heart mentioning its formation, relation and vertebral level. 4+3
4. Define bronchopulmonary segment. Draw and label the bronchial tree. What is lung unit? 2+3+2
5. Write down the origin, course, branches and area of distribution of left coronary artery. 7
6. Write short notes on:
    a) Costodiaphragmatic recess of pleura and its importance. 3
    b) Location, functions and arterial supply of SA node. 4

Batch: K-70

Full Marks: 35 Time: 50 minutes

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

1. Give the relations of base of heart. Draw & label the arterial supply of heart. What do you mean by cardiac dominance?
2. Write about the pleural recesses with their importance. How pulmonary ligament is formed? Mention its function. Draw & label the bronchopulmonary segment of right lung.
3. Define intercostal nerve. Draw & label a typical intercostal nerve.
4. Give an account of the venous drainage of posterior thoracic wall. What do you mean respiratory unit.
5. Mention the features of interior of right atrium of heart with diagram. Write down the clinical importance of transverse sinus.
6. Write short note on:
   a) Formation & tributaries of superior venacava.
   b) Formation & distribution of phrenic nerve.

Batch: K-69

Full Marks: 35 Time: 50 minutes

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

1. Give an account of peculiarities of coronary circulation. Describe origin, course, branches and area of supply of left coronary artery. (2+5)
2. Draw and label the bronchopulmonary segments of both surfaces of right lung. Mention the clinical importance of bronchopulmonary segments. Give the parts and artery supply of respiratory zone of lung.
3. Give an account of interior of right ventricle of heart (use diagram). Mention the locations, functions and artery supply of conducting tissue of heart. (3+2+2)
4. Write down the venous drainage of posterior thoracic wall. Mention the formation and tributaries of azygos vein. (4+3)
5. Define intercostal nerve. Draw and label a typical intercostal nerve. Mention the nerve supply of different part of pleura. (1+3+3)
6 Write short notes on:
   i) Pleural recesses. (3)
   ii) Formation, termination and area of drainage of thoracic duct. (4)

Batch: K-68

Full Marks: 35 Time: 50 minutes

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

1. Give the boundary and contents of a typical intercostal space. Draw and label a typical spinal nerve.(4+3)
2. What is a bronchopulmonary segments? Give its importance. Draw and label the bronchopulmonary segments of the right lung. (2+2+3)
3. Describe the interior of the right atrium of the heart. Give the nerve supply of the heart. (5+2)
4. What are the pleural recesses? Give their importance. Give the nerve supply of the pleura. (2+3+2)
5. Describe the venous drainage of the posterior thoracic wall with a diagram. Name the muscles of inspiration. (5+2)
6. Write briefly about:
   i) Thoracic duct (4)
   ii) Sternal angle (3)

Batch: K-67

Full Marks: 35 Time: 50 minutes

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

1. Define intercostal nerve. Draw and label a typical intercostal nerve. (1+6)
2. Draw and label the bronchopulmonary segment of right lung. Mention the clinical importance of bronchopulmonary segment. (5+2)
3. Describe the interior of right ventricle. Mention the peculiarities of coronary circulation. (5+2)
4. Describe the venous drainage of thoracic wall. Mention the importance of sternal angle. (5+2)
5. Write down the steps of dissection of a typical intercostal space. What is pericardial effusion? (6+1)
6. Write short notes on:(4+3)
   (i) Pleural recess
   (ii) Contents of superior mediastinum

Superior Extremity

Batch: K-74

Full Marks: 35 Time: 50 minutes

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

1 Define dermatome. Draw and label the dermatome of the upper limb showing the axial lines. 2+5

2.write down the origin, insertion, nerve supply & actions of deltoid & lumbrical muscles. 7

3.Describe the steps of dissection of the axilla mentioning its boundaries and contents What is Erb's palsy ? 5+2

4.State the formative elements, stability, nerve supply and movements of shoulder joint. How the rotator cuff is formed? 5+2

Q 5. Write briefly on (any two) : 3.5+3.5

i. lymphatic drainage of the breast

ii venous drainage of the upper limb (use diagram).

iii palmar aponeurosis.

Q 6 Explain anatomically why/how (any two) : 3 5+3 5

i. radial artery is clinically important.

ii. ulnar nerve palsy leads to ulnar claw hand

iii carpal tunnel syndrome occur.

Batch: K-73

Full Marks: 35 Time: 50 minutes

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

1. Give the steps of dissection of cubital fossa. Mention the clinical importance of medial cubital vein 5+2
2. Describe the lymphatic drainage of breast. What is peau d orange?5+2
3. Give the origin, insertion, nerve supply & action of the following muscles -

a. Biceps brachii 3
b. Deltoid 4

4. Draw & label dermatome of upper limb. Write about axial line. 5+2
5. Describe the venous drainage of upper limb. 7
6. Write short notes on:
   a. Clavipectoral fascia 3
   b. Carpal tunnel syndrome 4

Batch: K-72

Full Marks: 35 Time: 50 minutes

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

1. Draw and label the brachial plexus of nerve. Mention the site, nerve involvement and features of Klumpke's paralysis. 4+3
2. State the formative elements, stability and movements of shoulder joints. Explain why shoulder joint commonly dislocate inferiorly. 5+2
3. Give the steps of dissection of axilla. What is carpal tunnel syndrome? 5+2
4. Describe the origin, insertion, nerve supply and actions of the lumbrical muscles. What will happen if the intrinsic muscles of the hands are paralyzed? 5+2
5. Give an account of venous drainage of upper limb. Why median cubital vein is clinically important? 5+2
6. Write briefly on:
   i) Origin, course, termination and branches of brachial artery. 3
   ii) Lymphatic drainage of breast. 4

Batch: K-71

Full Marks: 35 Time: 50 minutes

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

1. Draw and label the brachial plexus. Write in short about Erb's palsy.
2. Describe the steps of dissection of cubital fossa. Why median cubital vein is chosen for I/V injection?
3. Give the origin, insertion, nerve supply and actions of deep group of muscles of forearm. What is wrist drop?

4. State the formative elements,stability,nerve supply and movements of shoulder joint. Why inferior dislocation is more common in case of shoulder joint?
5. Enumerate the boundary and contents of axilla.Describe the lymphatic drainage of the breast
6. Write briefly on:
    a) Clavipectoral fascia
    b) Radial artery.

Batch: K-70

Full Marks: 35 Time: 50 minutes

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

1. Write down the steps of dissection of cubiital fossa. Name structures that pierce the clavipectoral fascia.
2. Give an account of the lymphatic drainage of the breast. What is peau d' orange?
3. Draw &label the bracial plexus. What do you mean by pre-fixed and post-fixed type of bracial plexus?
4. Write down the origin, insertion, nerve supply and action of –
    a) Deltoid
    b) Lumbricals.
5. State the type, formation and muscles producing movement at elbow joint. What do you mean by carrying angle? Define axial line.
6. Write short notes on:
    a) Formation of superficial veins of upper limb.
    b) Rotator cuff

Batch: K-69

Full Marks: 35 Time: 50 minutes

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

1. Write down the steps of dissection of axilla. Mention the contents of axilla.
2. Draw & label the brachial plexus. What do you mean by dermatome and myotome?

3. Give an account of origin, insertion, nerve supply and action of deltoid and biceps bracii muscles.
4. What are the radioulnar joints? Mention their types, movements and muscles producing different movements of the joint.
5. Give an account of venous drainage of upper limb. Why median cubital vein is clinically important?
6. Write briefly on:
    i. Palmar aponeurosis
    ii. Lymphatic drainage of breast

Batch: K-67

Full Marks: 35 Time: 50 minutes

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

1. What is dermatome? Draw and label the dermatome of the upper limb showing the axial lines. (2+5)
2. Give the steps of the dissection of the axilla. Mention the clinical importance of the median cubital vein. (2+5)
3. Write down in tabulated form the origin, insertion, nerve supply and actions of the following muscles.
    a) Deltoid
    b) Flexor digitorum profundus
4. Draw and label the Brachial plexus. What is claw hand?(5+2)
5. How the superficial and deep lymphatics drain from the breast? Give the clinical importance of the lymphatic drainage of the breast. (5+2)
6. Write short notes on the following: (4+3)
    a) Carpal tunnel syndrome
    b) Cephalic vein

1st Term Anatomy

Batch: K-74

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.Define gastrulation. Write down the process of gastrulation. Mention the results of fertilization. 1+4+2

2 Explain using your knowledge of embryology: 3.5+3.5

i) why second week of human development is called the week of twos-

ii) third to eight weeks of embryogenesis is critical for normal development.

3. Classify glandular epithelium with example. Draw and label the different types of squamous epithelium. 3+4

4.Explain anatomically : 3.5+3.5

I) intercalated disc is present in cardiac muscle.

ii)why fibroblast contains abundant rough endoplasmic reticulum.

5. Define joint. Classify joint according to the axis of movement with example. What is Hilton's law. 1+5+1

6.Define primary and secondary ossification center. Describe the artery supply of a growing long bone. 2+5

Group -B

7. Write down the formation and posterior relations 0f the base of the heart. Draw and label the artery supply of heart showing the different branches of coronary arteries. 4+3

8 Describe steps of dissection of a typical intercostal space mentioning its boundaries and contents. Why pleural fluid is aspirated through upper border of the lower rib in the 9tth intercostal space? 5+2

9 Define bronchopulmonary segment. Draw and label the bronchopulmonary segments of both lungs. 2+5

10 Define dermatome. Mention the effect of lesion of - 1+6

i) radial nerve in arm.

ii) median. nerve at the wrist.

iii) ulnar nerve in hand.

11 Write down the origin. insertion. nerve supply and action of the following muscles : i) deltoid and (ii) pectoralis major 3+4

l2 Write briefly on : 3+4

l) venous drainage of the upper limb.

ii) Lymphatic drainage of breast.

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. Define fertilization & implantation. Draw & label the structure of a blastocyst. 3+4
2. What are the different parts of endoderm? Mention the process of formation & significant of notochord. 2+5
3. Draw & label different parts of cardiovascular system. What do you mean by prime mover & synergist muscle? 4+3
4. Write down the differences between different types of cartilaginous joint. Mention the structure & function of periosteum. 4+3
5. Draw & label the structure of:
    a. Cell membrane
    b. Golgi apparatus
    c. Cardiac muscle
6. Classify gland according to mode of secretion with example. Write about the differences between different types of cartilages with their location. 3+4

Group B

1. Give the steps of dissection of cubital fossa. Where should the needle inserted in an intercostal space for pleural aspiration & why? 4+3
2. Describe the lymphatic drainage of breast. Why it is clinically so important to know the bronchopulmonary segments of lung? 4+3
3. Write down the origin course, course & branches of left coronary artery. How the valves of heart are formed? 5+2
4. Give the origin, insertion, nerve supply & action of the following muscles:
    a. Pectoralis major
    b. Flexor digitorum superficialis 3+4
5. Draw & label dermatomes of upper limb. What is carpal tunnel syndrome? 5+2
6. Write short note on:
    a. Medial cubital vein
    b. Superior radioulnar joint

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. Draw & label the structure of an embryo at the end of second week of pregnancy. Explain why acrosome reaction occur. 5+2
2. What are the different types of placental villi? Give their structure. Describe the process of formation of notochord. 1.5+3+2.5
3. Classify glandular epithelium with example. Draw and label the different types of squamous epithelium. 3+4
4. Describe the histological structure of compact bone. Draw and label the structure of fibroblast. Give its function. 4+2+1
5. Classify muscle according to arrangement of fibers with example. Give the characteristic features of pivot type of joint and secondary cartilaginous joint. 4+3
6. Define primary and secondary ossification center. Describe the artery supply of a growing long bone.

Group B

1. Draw and label the artery supply of heart showing the different branches of coronary arteries. Mention the effect of sympathetic stimulation on heart. 4+3

2. Give the boundaries and contents of a typical intercostal space. What do you mean by 'pump handle' & 'bucket handle' movement? 4+3
3. Draw and label the parts of respiratory zone of bronchial tree. Mention the characteristic features and importance of a bronchopulmonary segment. 3+2+2
4. Mention the effect of lesion of:
   i. Radial nerve in arm
   ii. Median nerve at the wrist
   iii. Ulnar nerve in hand. Define dermatome.
5. Write down the origin, insertion, nerve supply & action of –
   i. Supraspinatus 3
   ii. Triceps muscles. 4
6. Describe the lymphatic drainage of breast. Mention the clinical importance of the lymphatic drainage of the breast. 5+2

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. Describe the events occuring in the different phases of 1st meiotic cell division. What is polar body?
2. Draw and label a blastocyst at the end of 2nd week of pregnancy. What is ectopic pregnancy?
3. Give the characteristic features of transitional epithelium. Explain why skin lined with keratinized stratified squamous epithelium.
4. Define joint.Draw and label a Haversian system. Give the composition and functions of organic material of bone.
5. Give the account of the arterial supply of a growing long bone. Mention the structureand functions of periosteum.
6. Write briefly on
   a) Structure of different types of villi of developing placenta
   b) Differences between types of cartilages.

Group B

7. Give an account of interior of right atrium of the heart. Mention the location, tributaries and termination of coronary sinus.

8. Draw and label the bronchopulmonary segments of the left lung. Mention the nerve supply of pleura.
9. Describe the origin,insertion and nerve supply of the diaphragm.Mention the artery supply of the thoracic wall.
10. Describe the steps of dissection of axilla.Write in short about Erb's paralysis.
11. Define dermatome.Give the importance of axial line.Draw and label the dermatome of the upper limb.
12. Write briefly on
    a) Fibrous skeleton of the heart
    b) Rotator cuff.

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. State the events occurring during the prophase of first meiotic division. Mention the differences between oogenesis & spermatogenesis.
2. What are the derivatives of neural crest cell? Explain how epiblast become the source trilaminar germ layers.
3. Give the structure of smooth endoplasmic reticulum. Mention its function at different locations of the body. Draw and label the different type of epithelium.
4. Draw and label a Haversian system. Write down the differences between different types of cartilage.
5. Define joint. Give the characteristic features of primary & secondary cartilaginous joint with their sites.
6. Draw and label the different parts of a developing long bone. What is epiphysial line? Mention the mode of artery supply of a developing long bone.

Group B

7. How does the base of the heart form? Give an account of the interior of the anterior of the right ventricle.
8. Write down the origin, course, and distribution of Right coronary artery. Name the arteries contributing to the anastomoses of coronary circulation.

9. Give the steps of dissection of cubital fossa. Mention the importance of medial cubital vein.
10. Define dermatome and axial line. Draw and label dermatome of upper limb.
11. Give the origin, insertion, nerve supply and action of
    a) Deltoid
    b) Triceps brachii
12. Write down the formation, tributaries, and termination of azygos vein. Draw and label the parts of respiratory unit of bronchial tree.

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. State the changes in the prophase of 1st meiotic cell division (use diagram). What is nondisjunction and anaphase lag? 4+3
2. Give the process of formation of fetal part of placenta. Mention the functions of placenta.
3. Draw and label the structure of:
   a) Cardiac muscle and skeletal muscle
   b) stratified squamous epithelium and transitional epithelium
4. Name the connective tissue cells. Write about the structures and functions of them.
5. Define epiphysis. Mention the types of epiphysis with example. Draw and label the zones of epiphyseal plate of cartilage
6. Write briefly on:
   i. Differences between primary and secondary cartilaginous joint.
   ii. Prime over, antagonist, synergist and fixator.

Group B

7. Draw and label the respiratory zone of lung. Mention the artery supply of this. Mention the importance of bronchopulmonary segments.
8. Describe the interior of right atrium (use diagram). What is fibrous skeleton of the heart? Give its functions.
9. Draw and label a typical intercostal nerve. Give the location, tributaries and termination of coronary sinus.
10. Give the steps of dissection of cubital fossa. Mention its contents. What is tennis elbow?

11. Draw and label the dermatome of upper limb. What is claw hand?
12. Write briefly on:
    i. Root value, course and area of supply of phrenic nerve
    ii. Origin, insertion, nerve supply and action of flexor digitorum profundus

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.

Group A

1. Write down the differences between mitotic and meiotic cell division in a tabulated form. Draw and label the structure of mitochondria. 5+2
2. Draw and label the structure of primary, secondary and tertiary villi. Give the derivatives of the surface ectoderm. 3+4
3. Draw and label a Haversian system. Classify glands with example. 3+4
4. State the functions of different connective tissue cells. Define capacitation and zona reaction. 5+2
5. Write down the arterial supply of a long bone. Give the organic composition of the bone. 3+4
6. Write briefly on:
   i) Ball and socket type of synovial joint. 3
   ii) Histological characteristics of skeletal muscle. 4

Group B

7. Draw and label a typical spinal nerve. What is raciet syndrome? 5+2
8. Describe the venous drainage of heart. Mention the importance of transverse pericardial sinus. 5+2
9. What is root of the lung? Name the parts of respiratory unit. Give the arterial supply of lung. 2+2+3
10. Write down the steps of dissection of the axilla. What is claw hand? 5+2
11. Draw and label the cutaneous supply of the hand. Mention the names of the muscles acting on the elbow joint with their nerve supply and action.
12. Write short notes on: 2+2+3
    I. sino-atrial node,
    II. median-cubital vein,
    III. pleural recesses

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. Describe the events of prophase of first meiotic cell division. State the results of fertilization. 5+2
2. Define gastrulation. What are the parts of ectoderm? Mention the derivatives of neural crest cells. State the importance of primitive streak. 2+2+2+1
3. Define epiphysis. Mention its type with example. Give the artery supply of a long bone. 2+2+3
4. What are the parts of cardiovascular system? Describe the portal circulation.
5. Give the composition of connective tissue. Give the structure and functions of fibroblast. 3+4
6. Classify glandular epithelium with example. Give the structure and functions of mitochondria. 4+3

Group B

7. Draw and label the brachial plexus. Mention the effects of lesion of ulnar nerve. 5+2
8. Give the formation of shoulder joint. Name the muscles responsible for producing different movements of the joint. Mention how the stability of the joint is maintained. 2+3+2
9. Describe the arterial supply of heart. Mention the posterior relation of base of the heart. 5+2
10. Mention the parts and nerve supply of pleura. What are the pleural recesses. Give their importance. State the effects of autonomic innervation on lung. 2+2+3
11. Give the venous drainage of posterior thoracic wall. Give the structure and functions of respiratory membrane. 5+2
12. Write short note on : 3+4
    i. Superficial cardiac plexus.
    ii. Origin and insertion of flexor digitorum profundus.

Physiology

GP & Blood

Batch: K-74

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1.Mention the functions of cell membrane proteins. How does active transport differ from passive transport? 2+3

2.Extracellular fluid is termed as the internal environment- explain. How does negative feedback mechanism help in homeostasis? 2+3

3.Draw & label the action potential of a large nerve fiber. How is membrane potential generated in a cell? 2+3

4.State the molecular mechanism of muscle contraction. What is sarcomere? 4+1

5.Name the important plasma proteins with their normal values. Write down the functions of plasma proteins. 3+2

6.Discuss the factors that regulate erythropoiesis. Mention the changes that take place in an RBC during development. 2+3

7.Define hemostasis and coagulation. How is platelet plug formed? 2+3

8.Give the differential and absolute count of WBC in blood. Mention the functions of aggranulocytes. 2+3

9.Name the classical blood groups. Why are they called so? How does renal shutdown occur in mismatched blood transfusion? 1+1.5+2.5

10.Write short notes on: 2.5+2.5

(i) Na+-K+ pump (ii) Erythroblastosis foetalis.

Batch: K-73

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Define homeostasis. Explain- 'Positive feedback is better known as vicious cycle'.
2. Define action potential. Draw & label the action potential of cardiac muscle & large nerve fiber.
3. Classify cell membrane transport process with examples. How does Sodium- Potassium pump control cell volume?
4. Name the contractile units of muscle. State the general mechanism of muscle contraction & relaxation.
5. Name the plasma proteins with their normal value. Write down the function of plasma proteins.
6. List the life span of blood cells. Discuss the fate of RBC.
7. How is prothrombin activator formed? What are the fates of a clot?
8. Give the total count & differential count of WBC. Discuss the properties of WBC.
9. What is Land-Steiner's law? Discuss the mechanism of acute renal shut down in mismatched blood transfusion.
10. Write short notes on:
    i. Megaloblastic anemia
    ii. Fibrinolysis

Batch: K-72

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Negative feedback is beneficiary for body- explain with example. Why ECF is called the internal environment? 3+2
2. How action potential is generated in a cell? Draw & label phases of cardiac action potential? 3+2

3. Name four cell membranous organelles with one function of each. How does Sodium - Potassium pump control cell volume? 4+1
4. Describe the mechanism of skeletal muscle contraction & relaxation. What is sarcomere? 4+1
5. Name important plasma proteins with their normal values. Write down the functions of plasma proteins. 2+3
6. What are the steps of erythropoiesis on the basis of staining? How does hypoxia affect erythropoiesis? 3+2
7. Define homeostasis. State its steps. Mention the role of platelet in hemostasis. 2+3
8. Give differential & absolute count of WBC. Write down four causes of neutrophilia. 3+2
9. Classify blood groups with example. Why does acute renal failure occur in mismatched blood transfusion? 2.5+2.5
10. Write short notes on: 2.5+2.5
    i. Tests of bleeding disorder
    ii. Fate of RBC

Batch: K-71

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Define Homeostasis.Name four constituents of ECF with their normal range. Explain- "Positive feedback is better known as a viscious cycle."
2. Define resting membrane potential and action potential.Draw and level the action potential of cardiac muscle and large nerve fibers.
3. Classify cell membrane transport process with example.Write about the Na+-K+ pump.
4. Name the contractile units of muscle.State the molecular mechanism of skeletal muscle constraction.
5. Name four plasma proteins mentioning their normal values.Enumerate the functions of plasma protein.
6. Define erythropoiesis.Discuss the fate of RBC.

7. Give the total count & differential count of WBC.Discuss the proprerties of WBC.
8. How is prothrombin activated?What are the fates of a clot?
9. What is Land Steiner's Law?Discuss the mechanism of acute renal shut down that occurs due to mismatched blood transfusion.
10. Write short notes on:

i. Osmosis ii. Fibrinolysis

Batch: K-70

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Mention the function of cell membrane protein. How does active transport differ from passive transport?
2. Why is ECF is called the internal environment? How does negative feedback mechanism help in homeostasis?
3. Define action potential. Draw & label an action potential of skeletal muscle. How does Na-K pump control cell volume?
4. Name the contractile unit of muscle. State the general mechanism of muscle contraction & relaxation.
5. Name four plasma proteins and two important functions of each them.
6. Write down the normal count of RBC. Mention the role of hypoxia on erythropoiesis.
7. Mention the events of haemostasis. How is prothrombin activator formed by intrinsic pathway of coagulation?
8. What is erythoblastosis foetalis? Mention the hazards of mismatched blood transfusion.
9. Write the different types of WBC with their percentage. Mention the functions of aggranulocytes.
10. Write short notes on:

a. Anaemia
b. Thrombocytopenic purpura

Batch: K-69

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer any TEN of the following.

1. Define homeostasis. Name four important constituents in ECF with their normal range. 'Negative feedback mechanism is useful in our body"- Explain. 2+3
2. Define resting membrane potential & action potential. How is membrane potential generated in a cell? 2+3
3. Mention the transport process of micro-molecules across the cell membrane with one example of each. Discuss Na^+-K^+ pump with its importance. 3+2
4. Name the contractile units of muscle. Discuss the general mechanism of skeletal muscle contraction. 2+3
5. Name the plasma proteins with their normal value. Mention one important function of each plasma protein. What is iso-electric point of plasma protein?
6. What is Land Steiner's law? Discuss the mechanism of acute renal shut down due to mismatched blood transfusion.
7. How is erythropoiesis regulated? What are the changes that take place during the development of RBC? 2+3
8. What are the components of innate immunity? How is cell mediated immunity introduced in our body?2+3
9. Define haemostasis. Enumerate the essential factors of Coagulation. What are
   the steps of Coagulation.? 1+2+2
10. Give the total count & differential count of WBC. Discuss the properties of WBC. 2+3
11. Write short note on: (any two) 2.5+2.5
    i. Anaemia
    ii. Rh incompitability
    iii. Purpura & Haemophilia

Batch: K-68

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Classify cell membrane transport process with example. Write about Na^+-K^+ ATPase. (3+2)
2. Define resting membrane potential and action potential. How is resting membrane potential generated? (3+2)

3. Name the contractile units of muscle. Discuss the molecular basis the skeletal muscle contraction. (2+3)
4. Discuss the fate of RBC. What are the hemoglobinopathics? (3+2)
5. Write down the function of each variety of WBC. How is cell mediated immunity produced in our body? (1+4)
6. Write short notes on: (2.5+2.5)
    i. Feedback mechanism
    ii. Plasma protein
7. How is prothormbin activator formed? What is the fate of a clot? (3+2)
8. What is Landsteiner's law? Mention the hazards of blood transfusion. (2+3)
9. State the morphology and functions of platelet. List the tests to be done in bleeding disorders with interpretation. (2+3)
10. Write short notes on:(2.5+2.5)
    i. Rh incompatibility
    ii. Erythropoiesis

Batch: K-67

Full Marks: 40 Time: 1 Hour 10 Minutes

Answer all questions

1. Define membrane potential and action potential. Discuss the phases of action potential with diagram.
2. What is homeostasis? ECF is called the internal environment - why? Give normal range of Na, K, Ca and HCO_3 concentration in ECF.(1+2+2)
3. Name the muscle contractile proteins. Write down the steps of skeletal muscle contraction and its importance.
4. Mention the properties of WBC. Write down about component of WBC.
5. Name the essential coagulation factors. Write down the basic steps of coagulation. Discuss fibrinolysis.
6. Define Landsteiner's law. Name the importance of blood grouping. Write down the hazards of mismatched blood transfusion.
7. Plasma proteins with their concentration. write down the principles of separation of plasma protein.
8. Write short notes on: (any two) 2.5+2.5
    i. Hemostasis ii. Immunity iii. Erythroblastosis foetalis

Batch: K-65

Full Marks: 40 Time: 1 Hour 10 Minutes

Answer any EIGHT of the following.

1. Name the membrane transport processes. Discuss about active transport process. (2+3)
2. How membrane potential is generated? Draw and label different phases of action potential.
3. What is Sarcomere? Discuss about the mechanism of skeletal muscle contraction. (1+4).
4. Name the important plasma proteins with their concentration. Discuss any two methods of separation of plasma proteins. (2 +3)
5. Name the essential factors of coagulation. Write down about extrinsic pathway of coagulation.
6. Define and discuss about Erythropoiesis. (1+4)
7. What is Landsteiner's law? If blood group "A" person get blood transfusion from blood B what will be the delayed consequences? (1+4).
8. Define Immunity. Discuss about cellular and humoral immunity. (1+4).
9. Write short notes on: (2.5+2.5)
    a. Hemostasis
    b. Anemia

Cardiovascular System

Batch: K-74

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1.Enumerate the properties of cardiac muscle. Explain the Frank-Starling law in relation to normal cardiac function. 2+3

2.Write down the conduction of cardiac impulse throughout the heart with diagram. 5

3.Define cardiac cycle and cardiac cycle time. Show the left ventricular pressure changes during cardiac cycle in a diagram.1+1+3

4.Give the normal value of heart rate at different ages. Write down the effects of sympathetic and parasympathetic stimulation on the heart. What is vagal tone? 2+1.5+1.5

5.Draw and label a normal ECG with its interpretations. What are the importance of P-R interval? 3+2

6.Define stroke volume and cardiac output. Write down the factors regulating cardiac output. 2+3

7.Classify blood pressure with their normal ranges. Give the role of renin-angiotensin-aldosterone mechanism in the regulation of blood pressure. 2+3

8.State briefly the Starling equilibrium for systemic capillary fluid exchange mechanism. 5

9.Define shock. Write in brief about the compensatory reactions activated by hypovolemic shock. 2+3

10.Write short notes on: (i) Pulse (ii) Heart sounds 2.5+2.5

Batch: K-73

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer any TEN questions

1. How does the action potential of cardiac muscle fiber differ from SA node? Explain with diagram.
2. Name the junctional tissues of heart. What is AV nodal delay? Give its significance.
3. What are the changes during cardiac cycle? Briefly discuss ventricular pressure changes during different phases of cardiac cycle with diagram.
4. Write down the components of microcirculation. Explain the mechanism of capillary fluid exchange in microcirculatory bed.
5. Mention normal value of different types of blood pressure. How does baroreceptor reflex mechanism control blood pressure?
6. What do you mean by cardiac output & cardiac index? Write down the regulation of cardiac output.
7. State the factors affecting heart rate. What is physiological bradycardia?
8. Define ECG. Draw & label a typical ECG. Mention the effects of first & second-degree heart block on ECG.

9. Define shock. How is hypovolemic shock compensated?
10. Write short notes on:

a. Pulse
b. Venous return

Batch: K-72

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer all questions

1. Enumerate the properties of cardiac muscle. Explain the Frank-Starling law in relation to normal heart function. 2+3
2. Mention the significance of AV nodal delay. How does the action potential of cardiac muscle differ from SA node with diagram? 2+3
3. How is cardiac impulse transmitted through the heart? What is ventricular escape? 4+1
4. Name the components of microcirculation with diagram. State the ventricular theory of acute local blood flow control. 2+3
5. Enumerate the changes that occur during cardiac cycle. Describe the diastolic phases of left ventricle with diagram. 2+3
6. Discuss the baroreceptor feedback mechanism of blood pressure regulation. What is peripheral resistance? 3+2
7. Draw & explain normal ECG. What is the significance of P-R interval. 3+2
8. What is preload & afterload? State the factors influencing diastolic volume. 2+3
9. Define shock. Write in brief about compensatory reactions activated by hemorrhagic shock. 2+3
10. Write short notes on: 2.5+2.5

    a. Fick principle of cardiac output measurement
    b. Heart sound

Batch: K-71

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer any TEN questions

1. Enumerate the properties of cardiac muscle.“Frank starling law is an important device in left ventricular function”-explain.
2. Why is SA node called the pacemaker ofthe heart?Draw and label hte cardiac impulse conducted throughout the heart.
3. Define cardiac cycle and cardiac cycle time.Discuss the left ventricular pressure changes in cardiac cycle with a diagram.
4. Define cardiac output and cardiac reserve.How is heart rate regulated?
5. What is preload and afterload? State the factors influencing venous return?
6. Classify blood vessels functionally.Show the relationship along the blood flow,pressure and resistance of blood vessels.Name the venoconstrictor agents.
7. Classify blood pressure with their normal values.How is blood pressure regulated by baroreceptor feedback mechanism.
8. Define shock.Enumerate the stages of shovk.
9. Draw and label a niormal ECG with it’s interpretetion.What is the importance of PR interval?
10. Write short notes on:
    a) Ficks principle
    b) Pulse

Batch: K-70

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer any TEN questions

1. Name the junctional tissue of the heart. What is A-V nodal delay? Give its significance.
2. Draw and label the ventricular presser and volume changes occurring during cardiac cycle. What are the other changes that occur during cardiac cycle?
3. State the Frank-Starling law of cardiac output. What is the importance of refractory period of cardiac muscle?
4. What are the baroreceptors? Discuss their role in maintenance of normal blood pressure.

5. Write down the normal heart rate in different age groups. State the factors affecting heart rate.
6. What is peripheral resistance? What are the factors affecting peripheral resistance?
7. Define stroke volume, ESD and EDV with their normal values. List the factors affecting ESV.
8. Define cardiac output. How can cardiac output be measured?
9. Define ECG. Draw and label a normal ECG. What is the importance of P-R interval?
10. Write short notes on:
    i) Pulse
    ii) Physiological basis of circulatory shock.

Batch: K-69

Full Marks: 50 Time: 1 Hour 30 Minutes

Answer any TEN questions

1. Name the properties of cardiac muscle. explain any two properties of cardiac muscle.
2. Mention the significance of A-V nodal delay. How does the action potential of cardiac muscle differ from SA node with diagram? 2+3
3. Define cardiac cycle and cardiac cycle time. Diagrammatically discuss the left ventricular pressure changes in cardiac cycle. 1+1+3
4. What is physiological bradycardia? How is heart rate regulated?
5. Define EDV, ESV. Discuss the factors regulating cardiac output. 2+3
6. Classify blood vessels. Show the relationship among the blood flow, pressure and resistance of blood vessel. Name the vasoconstrictor agents. 2+2+1
7. Give the normal ranges of different types of blood pressure. How does the renin angiotensin aldosterone mechanism regulate blood Pressure? 2+3
8. Define shock. How is hypovolemic shock compensated?
9. Draw and label a normal ECG with it's interpretation. What is sinus arrhythmia? 4+1

10. Write short notes on: 2.5+2.5
    a) Heart sound
    b) Pulse

Batch: K-65

Full Marks: 50 Time: 60 Minutes

Answer any TEN questions

1. Name the properties of cardiac muscle. Explain refractory period and Frank Starling's law. (2+3)
2. How the cardiac impulse is transmitted throughout the heart? SA node is the pacemaker of the heart- explain. (3+2)
3. Define cardiac cycle. What are the changes take place in left ventricle during cardiac cycle? (1+4)
4. What do you mean by ESV and EDV? Mention the factors affecting them. What is Frick's principle? (1.5+1.5)
5. Write down the normal values of different blood pressure. Discuss about the regulation of blood pressure by Baroreceptor mechanism. (2+3)
6. Define arterial pulse. Draw and label arterial Pulse wave. Name two physiological causes of tachycardia and bradycardia. (1+2+2)
7. Name the different types of heart sound. Write down the criteria of 1 st heart sound. (2+3)
8. Classify blood vessels physiologically. Write down the name of seven vasoconstrictor and vasodilator agents. (2+3)
9. Define and classify heart block. What is ventricular escape? (3+2)
10. Write down the effects of sympathetic and parasympathetic stimulation on heart. What do you mean by sinus tachycardia? (4+1)
11. Write short notes on: (2.5+2.5)
    a. ECG
    b. Poiseuille's Law

Batch: K-63

Full Marks: 50 Time: 60 Minutes

Answer any TEN questions

1. Name the properties of cardiac muscle. Discuss about refractory period. (2+3)
2. Define cardiac cycle. What are the changes that occur during cardiac cycle? What do you mean by isometric contraction period? (1+2+2)

3. How cardiac impulse is conducted throughout the heart? (5)
4. What is cardiac output? Discuss about Fick's principle method. (1+4)
5. Describe pressure change in the left ventricle during cardiac cycle.(5)
6. Name the different types of blood pressure. Describe regulation of blood pressure by baroreceptor feedback mechanism. (1+4)
7. Define ECG. Draw and label a normal ECG.(1+4)
8. Name the different types of heart sound. What are the causes of 1st & 2nd heart sound? (1+4)
9. Define SV, ESV & EDV with their normal values. What are the factors affecting EDV? (3+2)
10. SA node is called the pacemaker of the heart – Why?
11. Short Note (any two). (2.5+2.5)
    (i) Pulse
    (ii) Venous return
    (iii)Heart block

1st Term Physiology

Batch: K-74

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1.Draw and label a typical cell. Write down the functions of cell membrane protein and carbohydrates. 2+3

2.Define action potential. How is membrane potential generated in a cell? 2+3

3.State the general mechanism of skeletal muscle contraction and relaxation. What is power stroke? 4+1

4.Define erythropoiesis. Mention its stages. Write the fate of RBC in a flow chart. 1+1+3

5.Give the differential count of WBC. Write down the functions of WBC. 2+3

6.Give the morphology of platelet. Write down the role of platelet in platelet plug formation. 2+3

7.Define coagulation. What are the steps of coagulation? Write about fibrinolysis. 1+2+2

8.Write short notes on: (i) Na+-K+ pump (ii) Plasma proteins 2.5+2.5

Group A

1.Enumerate the properties of cardiac muscle. Explain any two of them. 1+4

2.Name the junctional tissues of the heart. Write down the mode of transmission of impulse through the heart with diagram. 1+4

3.Define cardiac cycle. Mention the changes that occur in the heart during cardiac cycle. Show the left ventricular volume changes during cardiac cycle in a diagram. 1+2+2

4.Define cardiac output and cardiac reserve. How is heart rate regulated? 2+3

5.Classify blood pressure with their normal ranges. How is blood pressure regulated by baroreceptor reflex mechanism? 2+3

6.State briefly the Starling equilibrium for systemic capillary fluid exchange mechanism. 5

7.List the vasodilator and vasoconstrictor agents in the circulation. Mention the effects of Ca++ & K+ on the heart. 2+3

8.Write short notes on: (i) Pulse (ii) Shock 2.5+2.5

Batch: K-73

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Draw & label a typical cell membrane. Write down the functions of cell membrane protein & carbohydrate.
2. Define homeostasis. Explain-'Positive feedback can sometimes cause vicious cycle & death.
3. Define active transport. Describe Na-K pump mechanism with its importance.
4. Give the morphology of RBC. What is erythropoiesis? Mention the site of erythropoiesis in different stages of life.

5. Give the differential count & absolute count of WBC in blood. Write down four causes of neutrophilia.
6. Define coagulation. What are the basic steps of coagulation? Write about the intrinsic pathway of prothrombin activator formation showing the use of Ca++ in it.
7. What is erythroblastosis foetalis? How can it be prevented? What are the points we consider before blood transfusion?
8. Write short notes on-
    a. Pacemaker potential b. Hemophilia

Group B

1. Cycle & cardiac cycle time. Draw the volume changed in left ventricle Define that occur during cardiac cycle.
2. Cardiac What is preload & afterload? State the factors affecting systolic volume.
3. What is peripheral resistance? Mention the factors affecting peripheral resistance.
4. List the vasodilator agents in circulation. Mention the effects of calcium & potassium on heart.
5. List the mechanism of blood pressure regulation. State the role of CNS ischemic mechanism in regulation of blood pressure.
6. Define shock. Write in brief about compensatory reactions activated by hemorrhagic shock.
7. Write short note on:
    a. Functional syncytium
    b. Name the conducting tissues of heart with their rate of impulse generation & speed of conduction velocity. What is Frank-Sterling law of cardiac muscle?
    c. Heart sounds

Batch: K-72

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Define homeostasis. Explain – positive feedback can sometimes cause vicious cycle & death. 1+4
2. Mention normal value off Na+, K+, HCO3- in ECF & ICF. How does Na+-K+ pump control cell volume? 2+3
3. Define resting membrane potential & action potential. Compare the action potential of cardiac muscle & large nerve fiber. 2+3
4. Name the contractile units of muscle. State the molecular mechanism of skeletal muscle contraction & relaxation. 1+4
5. How is erythropoiesis regulated? What are the changes that take places in RBC during its development? 2+3
6. Define homeostasis. Name its events. Explain the role of Ca++ in coagulation. 1+2+2
7. Enumerate agglutinogen & agglutinins of ABO blood group system. Briefly state the hazards of mismatched blood transfusion. 2+3
8. Write short notes on:
    a. Functions of plasma protein
    b. Properties of WBC

Group B

1. Name the junctional tissues of heart. Explain the refractory period of heart muscle. Give its significance. 2+3
2. Define cardiac cycle & cardiac cycle time. Draw the volume & pressure changes occurring in left ventricle during cardiac cycle. 2+3
3. What is sinus tachycardia? How is heart rate regulated? 1+4
4. Explain the mechanism of fluid exchange in microcirculatory bed. 5
5. List the vasodilator & vasoconstrictor agents in circulation. Mention the effect of calcium & potassium on heart. 3+2
6. Define blood pressure. How does renin angiotensin aldosterone mechanism regulate blood pressure? 1+4
7. What is ESV & EDV? State the factors affecting them. 2+3
8. Write short notes on:
    a. Pulse
    b. Factors affecting venous return

Batch: K-71

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Draw and label a typical cell.What are the functions of ribosome and cytoskeleton?
2. Classify cell membrane transport process with example.How does Na^+-K^+ pump contrpl cell volume?
3. Why is ECF termed as internal environment?Explain the positive feedback mechanism.
4. how is erythropoesis regulated?What are the changes in that take place in RBC during its development?
5. Classify anemia morphologically.How does the deficiency of maturation factor causes anemia?
6. Define haemostasis.Mention the effects of haemostasis.Explain the role of Ca^{2+} in coagulation.
7. State the morphology and normal count of platelet.Explain their role in platelet plug formation.
8. Write short notes on:
    a. Rh incompability
    b. Functions of plasma protein

Group-B

9. Name the junctional tissues of heart.What is AV nodal delay?Give its significance.
10. How does the action potential of cardiac muscle differ from SA node-explain with diagram.
11. What are the changes take place during cardiac cycle?Draw the volume and pressure changes occur in left ventricle during cardiac cycle.
12. Draw and explain a normal ECG.What are the significance of PR interval?
13. define and classify blood pressure with their normal range.Write about the long term regulation of blood pressure in a flow chart.
14. Define stroke volume,ESV and EDV with their normal values.List the factors affecting ESV.

15. Define shock.How is hypovolumic shock compensated?
16. write short notes on:
    a) Heart block
    b) Pulse

Batch: K-70

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group-A

1. Define resting membrane potential and action potential. How is membrane potential generates in a cell.
2. Why is ECF called as the internal environment? How does negative feedback mechanism help in homeostasis?
3. Name the contractile unit of muscle. State the general mechanism of muscle contraction & relaxation.
4. Classify cell membrane transport process. Differentiate between osmosis and simple diffusion with example.
5. Write down the normal count of RBC. Discuss the fate of RBC.
6. Write the different types of WBC with their percentage. Mention the functions of aggranulocytes.
7. Define hemostasis. Name it's event. Explain the role of Ca++ in coagulation.
8. Classify anaemia morphologically. How does the deficiency of maturation factor cause megaloblastic anaemia.
9. Write short notes on:
    i) Function of plasma protein
    ii) Test for bleeding disorder

Group-B

10. Name the properties of cardiac muscle. Explain any two properties of cardiac muscle.
11. Mention the significance of AV nodal delay. How does the action potential of cardiac muscle differ from SA node with diagram.
12. What is stroke volume? Explain the factors affecting cardiac output.
13. Define blood presser. State the role of Angiotensin II in blood pressure regulation.
14. Describe the pressure and volume changes in the left ventricle during cardiac cycle with diagram.

15. List the vasoconstrictor and vasodialator agents in circulation. Mention the effects of Ca, K on heart.
16. Define shock. How is hypovolemic shock compensated?
17. What is peripheral resistance? What are the factors affecting peripheral resistance?
18. Write short notes on:
    i) Heart Sound
    ii) Heart block

Batch: K-69

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group-A

1. Define homeostasis. Discuss the systems regulating homeostasis with one example of each. 1+4
2. Mention the phases of action potential of S.A node and cardiac muscle with figure. How is resting membrane potential is generated?
3. What are the functions of membrane potential. What are the difference between secondary active transport and facilitated diffusion? 2+3
4. Define haemostasis. Name its events. Explain the role of Ca^{2+} in blood coagulation. 1+2+2
5. Innumerate the steps of erythropoiesis on the basis of staining characteristics of cells. How does hypoxia regulate erythropoiesis? What are the criterias of mature RBC? 2+2+1
6. Classify anaemia morphologically with their MCV & MCH concentration. How does deficiency of maturation factor causes megaloblastic anaemia? 2.5+2.5
7. List the lifespan of blood cells. List the role of lymphocyte in cellular immunity. 1 + 4
8. Write short notes on : (any two) 2.5+2.5
   (i) Gene
   (ii) plasma protein
   (iii) bleeding disorder

Group B

9. Innumerate the properties of cardiac muscle. Explain refractory period of cardiac muscle. 2+3
10. Why is SA node called the pacemaker of the heart? How is cardiac impulse conducted throughout the heart? 2+3

11. Define cardiac output & cardiac reserve with their values. Explain the factors which regulate end- Diastolic Volume. 2+3
12. Write down the types of blood pressure with their normal ranges. State the role of renin-angiotensin mechanism in the regulation of blood pressure. 2+3
13. Name the vasodilator & vasoconstrictor agents. Write about humoral regulation of blood flow. 3+2
14. Mention the changes during cardiac cycle. What are the differences between first & second heart sounds? Draw and level the volume changes during cardiac sycle. 2+1+2
15. Define shock. Enumerate the stages of shock. Discuss how hypovolumic shock is compensated Physiologically? 1 + 1+3
16. Write short notes (any two): 2.5+2.5
    (i) Frick's principle.
    (ii) ECG
    (iii) Venous return

Batch: K-65

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Define homeostasis. How is homeostasis maintained in the body? give the normal value of Na^+, K^+, Ca^{++} and HCO_3^- in ECF. (1+2+2)
2. Name the transport processes through the cell membrane. Discuss active transport. (2+3)
3. Define membrane potential and action potential. What are the phases of action potential? Draw and label the action potential in cardiac muscle. (2+1+2)
4. What is sarcomere? Draw and label the Sarcomere. What is the role of calcium in muscle contraction? (1+2+2)
5. Mention 4 important plasma proteins with their normal values. Discus the functions of plasma protein. (2+3)
6. What are the changes take place during erythropoesis? Discuss the role of vitamin B_{12} and folic acid in erythropoesis? (2+3)
7. What are the basic steps of blood coagulation? Why blood does not clot inside blood vessels? (2+3)
8. Write short note on: (any two)
   a) Immunity b) Rh incompatibility c) Anaemia

Group B

9. Name the properties of cardiac muscle. Discuss 'auto-rhythmicity' and 'all or none law'. (2+3)
10. How does impulse spread through the cardiac muscle? Write down the cause and importance of A-V nodal delay. (2.5+2.5)
11. Enumerate the changes that occur in heart during cardiac cycle. Discuss isometric contraction period. Calculate cardiac cycle time if the heart rate is 120 beats/minute. (2+2+1)
12. What is Frick's principle? How cardiac output can be measured by Fick principle method? What is ejection fraction? (1+3+1)
13. Give the normal range of heart rate. How is heart rate regulated by Bainbridge reflex? What is sinus arrhythmia? (1+3+1)
14. Mention the long term mechanisms for regulation of BP. State the rennin angiotensin mechanism in regulation of BP. What is Stroke Adam's Syndrome? (1+3+1)
15. Define EDV, ESV and stroke volume with their normal values. Discuss the factors affecting end diastolic volume. (3+2)
16. Write short note on (any two) (2.5+2.5)
    a) Heart sound
    b) ECG
    c) Heart block

Batch: K-64

Full Marks: 70 Time: 2 hours 40 minutes

Answer any seven questions from each group

Group A

1. Enumerate the transport processes through the cell membrane. What is Na^+-K^+ Pump?
2. Draw and label an action potential produced in skeletal muscle. How resting membrane potential is generated? Mention the normal values of Sodium and Potassium ions in ECF. (2+2+1)
3. Name the plasma proteins. Briefly describe the properties of plasma proteins. What is plasmaphoresis? (1.5+2.5+1)
4. State the functions of platelet. Mention the events of haemostasis. Name the mother cell from which the platelets develop. (2+2+1)
5. How prothrombin activator is formed? Name the vitamin-K dependent clotting factors. Mention three important anticoagulants used in laboratory. (2.5+1.5+1)
6. Define antigen and antibody. Briefly describe the mechanism of action of antibodies. (2+3)
7. What are the chemical hazards of blood transfusion? How can you prevent the erythroblastosis fetalis.(15+1 5+1)
8. Write short notes on (any two) (2.5+2.5)

a) Neutrophil,
b) Translation process
c) Anaemia

Group B

9. Name the properties of cardiac muscle. Discuss Frank-Starling Law and refractory period. (2+3)
10. Expain how SA node can act as a pacemaker of the heart. Write down the imporance of A-V nodal delay. (4+1)
11. Mention the changes that occur in the heart during cardiac cycle. Describe isometric contraction period. Calculate cardiac cycle time if heart rate is 80 beats/min. (2+2+1)
12. Describe left ventricular pressure and volume changes in cardiac cycle with diagram. (2.5+2.5)
13. What is mean pressure? Write down its importance. Discuss about baroreceptorreflex mechanism of blood pressure control. (1+1+3)
14. What is Frick's Principle and how cardiac output can be measured by this principle?Write about regulation of cardiac output. (1+2+2)
15. Define end diastolic volume, end systolic volume and stroke volume. Discuss the factors affecting end diastolic volume. (3+2)
16. Write short note on (any two): (2.5+2.5)
    a) Venous return
    b) Poseuiile's Law
    c) Total peripheral resistance

Biochemistry

Biophysics, Biomolecules & Enzymes

Batch: K-74

Full Marks: 40 Time: 1hour & 30 Minutes

Answers all questions. Each question carries equal marks.

1.Define & classify buffer. How does buffer act?

2.Differentiate colloids & crystalloids by their physical & chemical properties.

3.Define & classify carbohydrates.

4.Classify proteins based on their functions with the example of each.

5.Classify phospholipids. State the functions of phospholipids.

6.Discuss about the factors affecting enzyme activity.

7.Define isotope. Give the medical importance of isotopes.

8.Write short notes on: (a) GAGs (b) Dialysis

Batch: K-73

Full Marks: 40 Time: 1hour & 30 Minutes

Answers all questions. Each question carries equal marks.

1. Define pH & buffer. Write down the mechanism of action of buffer.
2. Define & classify fatty acid. Draw & label structure of a lipoprotein.
3. Classify protein functionally with example of each. What is peptide bond & how it is formed?
4. Define & classify polysaccharides. State the importance of GAGS.
5. What is isotope? Classify it. Write down importance of isotope.

6. Define enzyme & cofactor. Classify enzyme with example of each.
7. Define crystalloid & colloid. State the importance of collod.
8. Write short notes on:
    a. Eicosanoid
    b. Isoenzyme

Batch: K-72

Full Marks: 40 Time: 1hour & 30 Minutes

Answers all questions. Each question carries equal marks.

1. Define crystalloid & colloid with example. State the five important properties of colloid. What is dialysis?
2. Define pH & buffer. Name the blood buffers. Give the mechanism of action of buffer.
3. Define enzyme, coenzyme & cofactor with one example of each. Explain the effect of pH & temperature on enzyme action.
4. Define & classify monosaccharide. Give the importance of glycosaminoglycans.
5. Give the functional classification of protein with example. Write on denaturation of protein.
6. Classify fatty acid. What is ω_6 fatty acid? Mention the importance of essential fatty acid.
7. Classify lipid. Differentiate steroid & sterol.
8. Write short notes on(any two):
    1. Isotope
    2. Zwitter-ion
    3. Handerson-Hasselbach equation

Batch: K-71

Full Marks: 40 Time: 1hour & 30 Minutes

Answers all questions. Each question carries equal marks.

1. Define colloid & crystalloid. How colloid differ from crystalloids.
2. Define &classify protein functionally. State the peptide bond.
3. Define & classify polysaccharide. Write down the importance of glycose amino glycans(GAGs).

4. Define enzyme & co-enzyme. What are the factors that affect enzyme action?
5. What is isotope? Classify it. Give the importance of isotope in medicine.
6. Define p^H & buffer. Name the blood buffers. How buffer acts?
7. Define & classify lipoprotein. Mention its structure & importance.
8. Write short notes on: (any two)
   a) Fatty acids b) Phospholipids c) Dialysis

Batch: K-70

Full Marks: 40 Time: 1hour & 15 Minutes

Answers all questions. Each question carries equal marks.

1. Define colloid and crystalloid with example. How colloids differ from crystalloids. Give the importance of Gibbs Donnan Equilibrium.
2. Define & Classify protein functionally. Mention the biological importance of it.
3. Define & classify carbohydrate. Write down the importance of GAGs.
4. Define enzyme & co-enzyme. What are the factors that affect enzyme action.
5. Define & classify isotope. Give the importance of isotope in medicine.
6. Define PH ,PK and buffer. Give the basic mechanism of buffer action .
7. Define and classify phospholipids. Mention its importance.
8. Write short notes on :(any two)
   i) Fatty acid ii) Denaturation of protein iii) Reducing sugar

Batch: K-69

Full Marks: 40 Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. Define pH & Buffer. Name the buffer system in human body with example. Describe the basic mechanism of buffer action.
2. Define Crystalloid & Colloid with example. State the properties of Colloid. What is Dialysis?
3. Defiine & Classify carbohydrate. Mention the importance of pentose sugar.

4. Define enzyme, coenzyme & isoenzyme. Classify enzyme as given by IUBMB with example of each class.
5. Mention the factors that affect enzyme activity. What are the effects of temperature &pH on enzyme action? What is enzyme inhibition?
6. Write the functional classification of protein. What are the essential amino acids? Why they are called so?
7. Define & classify lipid. Write down the function of phospholipids.
8. Write short notes on (Any two):
   a) Na^+ -K^+ pump
   b) Nucleotide
   c) GAGs

Batch: K-67

Full Marks: 40 Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. Define crystalloid, colloid and dialysis. Write about three properties of colloid. (3+2)
2. Define and classify polysaccharide. Mention the importance of glycosaminoglycans.(3+2)
3. Classify complex lipids. Mention the importance of phospholipids. (2+3)
4. Define pH & Buffer. Name the blood buffer & explain the meclenism of buffer action in brief. (3+2)
5. Give the funtional classification of protein with example. (1+4)
6. Define enzyme & co-enzyme. Name the factors that affect enzyme action & explain the effect of temperature &pH on enzyme action. (2.5+2.5)
7. What do you mean by non functional plasma enzyme? Write down the importance of isoenzyme. (3+2)
8. Short note: (2+3)
   (i) Isotope
   (ii) Glycoprotein

Batch: K-66

Full Marks: 40Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. Name the lipolytic enzymes. How lipid is digested in the intestine?

2. What are the sources of blood glucose? How pyruvate is converted into glucose?
3. Name the ketone bodies. Show the pathways of ketogenesis. Write down the fates of ketone bodies.
4. Write down the sources and disposal of NH_3. Write short notes on Deamination.
5. Name the metabolic pathways occur in the mitochondria. Why TCA cycle is amphibolic in nature?
6. Name the blood lipids with their normal levels. Write down the origin and fate of lipoproteins.
7. Define Electron transport chain (ETC). Write down the complexes and inhibitor of ETC.
8. Write short notes on
   i) Local hormones of GIT
   ii) Apoproteins

Digestion, Absorption, Food, Nutrition & Vitamins

Batch: K-74

Food, Nutrition & Vitamins

Full Marks: 40 Time: 1 hour & 15 Minutes

Answers all questions. Each question carries equal marks

1.Define & classify nutrients. Calculate the daily calorie requirement of a 60kg lactating mother.

2.Enumerate the proximate principles of food. Give the importance of dietary fibers.

3.Name the vitamin B complex with their active forms. Mention the functions of vitamin B12 & folic acid.

4.Show the flow chart of synthesis of active form of vitamin D. Why calcitriol is called a hormone?

5.Name the common nutritional disorders in Bangladesh. Differentiate between marasmus and kwashiorkor.

6.What is trace element? Write down the functions & deficiency features of iron & iodine.

7.Mention the sources & functions of vitamin A. Write down about visual cycle.
8.Write in short about: (a) Glycemic index (b) Obesity

Batch: K-73

Food, Nutrition & Vitamins

Full Marks: 40 Time: 1 hour & 15 Minutes

Answers all questions. Each question carries equal marks

1. Define food & diet calculate the calorie requirements 60 kg adult male moderate worker.
2. What is BMR? Write the effects of different factors on BMR.
3. Define BMI. Write down importance of BMI with obesity scale & complications of obesity.
4. What are the common nutritional disorders of Bangladesh? Differentiate between kwashiorkor & marasmus.
5. Name the macro-minerals & micro-minerals. How iron is absorbed?
6. Name the coenzymes derived from vitamin B complex. State the biochemical importance of vitamin C.
7. Write down the synthesis of vitamin D in a flow chart. Enumerate the function of vitamin D.
8. Write short notes on:
    a. Folate trap
    b. Visual cycle

Batch: K-72

Food, Nutrition & Vitamins

Full Marks: 40 Time: 1 hour & 15 Minutes

Answers all questions. Each question carries equal marks

1. What is balanced diet? Calculate the energy requirement of a pregnant woman.
2. Classify PEM according to WHO. Differentiate between kwashiorkor & marasmus.
3. Name the endogenously synthesized vitamins. How vit-D is synthesized in the body? Give its deficiency disorders.
4. Name the coenzymes derived from vitamin B complex. State the biochemical function of vit-C.
5. Classify minerals. How iron is metabolized in the body?
6. Write down the deficiency disorders of vit-A. Mention the role of vitamin K in coagulation.
7. Give the importance of dietary fibre. Mention the complications of obesity.
8. Write short notes on (any two):
   a) Visual cycle
   b) SDA
   c) Folate trap

Batch: K-71

Food, Nutrition & Vitamins

Full Marks: 40 Time: 1 hour & 15 Minutes

Answers all questions. Each question carries equal marks

1. Define balanced diet. What are the factors considered in preparing a balanced diet chart?
2. Classify PEM. Differentiate between Kwashiorkor & Marasmus.
3. Define DRI (Dietary reference intake). Name the components of DRI.
4. Name the Co-enzymes derived from vit-B complex. State the biochemical function of vit-C.
5. Define food & nutrient. Dietary fibre is an essential nutrient… justify.
6. How active vit-D is synthesized? Write down the functions & deficiency disorder of vit-D.

7. Define trace elements. State the function & deficiency disorder of Iron & Iodine.
8. Write short note on: a) Visual cycle b) BMI

Batch: K-70

Food, Nutrition & Vitamins

Full Marks: 40 Time: 1 hour & 15 Minutes

Answers all questions. Each question carries equal marks.

1. What is balanced diet? Prepare a diet chart for you showing the calorie calculation.
2. Name the fat soluble vitamins. How vitamin D is synthesized? Mention the role of calcitriol in calcium homeostasis.
3. Define & classify malnutrition. Name the common nutritional disorders of Bangladesh. Justify dietary fiber as an essential nutrient.
4. Name the active forms of vitamin A with their function. Draw & discuss about visual cycle.
5. Define trace elements. Write down the source, function, absorption & metabolism of iron.
6. Name the B complex vitamins with their active forms. Write down the basic mechanism of action & deficiency disorder of vitamin C and vitamin B1
7. What is BMR & SDA ? What are the factors that may affect BMR?
8. Short notes:(any two)
   i) BMI & Obesity ii) Folic acid iii) DRI

Batch: K-69

Digestion, Absorption, Food, Nutrition & Vitamins

Full Marks: 40 Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. Name the pancreatic enzymes. Write down the functions of saliva.

2. What are the four major components of gastric juice? State the function of gastric HCl.
3. Write down the WHO classification of PEM. Differentiate between kwashiorkor and marasmas.
4. What is thermic effect of food (SDA)? Prepare a diet chart for you showing the energy calculation.
5. Anti-oxidant vitamins with their active form. Give the functions of Vit-A &Vit-B_{12}
6. Write down the function, source and deficiency features of iron and iodine.
7. What is calcitriol? How it is synthesized? justify- ‘‘Calcitriol is a hormone’’.
8. Write Short note on:
   a) Hormones of GlT
   b) Scurvy

Batch: K-68

Food, Nutrition & Vitamins

Full Marks: 40 Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. What are the common nutritional disorders in Bangladesh? Difference between kwashiorkor and marasmus. (3+2)
2. What are the different forms of vitamin-A? Write down its functions and deficiency features. (3+2)
3. What is the active form of Vit-D? How it is formed. Explain- ‘‘Calcitriol is a hormone’’. (2+3)
4. What is BMR? Prepare a diet chart showing the calorie demand for a medical student. (3+2)
5. What are the endogenously synthesized vitamins? Mention the co-enzymes derived from vitamin B complex. Explain folate trap. (1+4)
6. Define and classify nutrients. Mention the advantages and disadvantages of dietary fibre. Write down the functions of zinc. (2.5+2.5)

7. What are the trace elements? Give the sources, functions, absorption and metabolism of iron. (3+2)
8. Short note: (2+3)
   (i) Vitamin C
   (ii) BMI and Obesity

Batch: K-67

Food, Nutrition & Vitamins

Full Marks: 40 Time: 50 Minutes

Answers all questions. Each question carries equal marks.

1. Define diet, food & nutrients. Write down the importance of dietary fibers. (3+2)
2. Mention the functional forms of Vit-A. How its help the vision. Write down the function of Vit-K. (3+2)
3. Name the antioxidant vitamins. Write down the functions & deficiency disorders of Vit-C. (2+3)
4. Name the trace elements. State the functions & deficiency disorders of iron & Zn. (3+2)
5. Define BMR & SDA. Write are the factors that affect BMR? (1+4)
6. Define & classify malnutrition. Calculate the diet chart of a medical student. (2.5+2.5)
7. Briefly discuss the biosynthesis of calcitriol. Write down the function of Vit-D (3+2)
8. Write Short notes on: (2+3)
   (i) Folate trap
   (ii) BMI

1st Term Biochemistry

Batch: K-74

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group- A

1.Name the blood buffers. Deduce the H-H-E with its importance.
2.Define normal solution, molar solution, osmolar solution, colloid & crystalloid. Mention the importance of colloids.
3.Define and classify polysaccharides. Enumerate the characteristic features and functions of muco-polysaccharides.
4.Write the functional classification of proteins with example of each. What is peptide bond?
5.Define & classify complex lipids. State the importance of phospholipids and essential fatty acids.
6.Define co-enzyme, co-factor, holoenzyme, apo-enzyme and iso-enzyme. Give two examples of iso-enzymes with their importance.
7.What is sterol and steroid? Write a note on eicosanoids.
8.Write short notes on (any two): (i)Isotope (ii)Denaturation of protein (iii)Enzyme specificity

Group- A

1.Define food, diet & balanced diet. Mention the nutritional importance of carbohydrates.
2.Name the processes by which energy is consumed in our body. Calculate the energy requirement and make a diet chart of a 55kg adult female home-maker.
3.Write the sources and biological forms of vitamin A. State the role of vitamin A in dark vision.
4.Write the mechanism of development of megaloblastic anemia in vitamin B12 & folic acid deficiency. What is folate trap?
5.Write down the sources & biological functions of iron. State the mechanism of iron absorption in a flow chart.
6.What is DRI? Enumerate different components of DRI and compare the components.

7.Define RMR and Thermic effect of food. Write down the factors considered to measure the RMR with its normal values.
8.Write short notes on (any two): (i) Ascorbic acid (ii) BMI (iii) Glycemic index.

Batch: K-73

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group- A

1. Define pH & buffer. Name the blood buffers. How buffer acts?
2. Define crystalloids & colloids with examples. Write down 5 important differences between crystalloids & colloids.
3. Classify carbohydrates with example. Give biochemical importance of glucose.
4. Give the functional classification of protein with example of each. How peptide bond is formed?
5. Define & classify fatty acid. Name the essential fatty acids & mention their importance.
6. What is isotope? Classify it. Mention the biochemical importance of isotope.
7. Define enzyme & coenzyme with example of each. Explain the effect of pH & temperature on enzyme action.
8. Write short notes on:
    a. Glycosaminoglycans (GAGS)
    b. Denaturation of protein

Group- B

1. Define diet & food. Calculate energy requirements of a 60 kg lactating woman.
2. Name the vitamin B complex with their active forms. Mention the source, functions & deficiency disorders of folic acid.
3. Classify malnutrition according to WHO. Differentiate kwashiorkor & marasmus.

4. Write down active form, source & functions of vitamin A. What is visual cycle?
5. Enumerate the anti-oxidant vitamins. Mention the source, functions & deficiency disorders of ascorbic acid.
6. Classify minerals. Mention the functions & deficiency features of zinc & iodine.
7. Write down the synthesis of solar vitamin in a flow chart. Justify- solar vitamin is a hormone.
8. Write short notes on:
    a. Dietary fiber
    b. BMI

Batch: K-72

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define buffer & conjugate base. Deduce H-H-E with its importance.
2. Define & classify polysaccharide with examples. Write down the properties & importance of GAGs.
3. Define & classify lipid with example. Differentiate among simple, complex & derived lipid.
4. Define enzyme. Enumerate the factors affecting enzyme activity. Mention the effects of pH & temperature on it.
5. Define protein. Give the functional classification of protein with one example of each.
6. Define crystalloid & colloid with examples. Write down the properties of colloid.
7. Define Coenzyme, Cofactor, Holo-enzyme, Apo-enzyme & Iso-enzyme. Give two examples of iso-enzymes with its importance.
8. Write short notes on (any two):
    i) Eicosanoids
    ii) Isotopes
    iii) Enzyme specificity

Group B

1. Define nutrition, food, diet & balanced diet. Mention nutritional importance of carbohydrate.
2. Name the processes by which energy is consumed in our body. Calculate energy requirement of a light working lactating mother having body weight 65 Kg.
3. Enumerate the energy yielding vitamins. How vitamin B_{12} is absorbed? Mention the differences between megaloblastic anemia & pernicious anemia.
4. What is DRI? Enumerate different components of DRI & compare the components.
5. Write down the sources & biological forms of vitamin A. State the role of vitamin-A in dark vision.
6. "Vit-D is a hormone" - justify your answer. Enumerate the deficiency disorders of vitamin D.
7. Write down the sources & biochemical functions of Iron. Mention the common causes of Iron deficiency anemia.
8. Write short notes on (any two):
   i) Ascorbic acid
   ii) BMI
   iii) Glycemic Index

Batch: K-71

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. What is buffer & conjugate base? Name the blood buffers. Mention the importance of Henderson-hasselbalch Equation.
2. Define & classify polysaccharide. Write down the name of four important GAGs with their functions.
3. What do you mean by sterol & steroid? Write a brief note on cholesterol.
4. Define Enzyme, co-enzyme & iso-enzyme. Mention the biomedical importance of enzyme.

5. Enumerate the functional classification of protein with one example of each. What do you mean by denaturation of protein? Name some protein denaturing agents.
6. Define crystalloid & colloid with examples. State the important 6 properties of colloid.
7. What is isotope? Classify it. Enumerate the bio-medical importance of isotopes.
8. Write short notes on (any two):
   a) Dialysis b) Eicosanoids c) Phospholipids

Group B

1. Define diet & balanced diet. Calculate the calorie requirements of a 60 kg adult male heavy worker with diet chart.
2. How vit B12 is absorbed? Write down the of vit-B12 .
3. Write the chemical names of anti-oxidant vitamins. Enumerate the source, functions & deficiency disorders of Vitamin C.
4. Define BMR & SDA with their synonyms. Write down the Importance of BMI with obesity scale.
5. Name the different forms of vit-A. Enumerate the function of vit-A with ocular changes in vit-A deficiency.
6. Write down the synthesis of solar vitamin in a flow chart. Justify solar vitamin is a hormone.
7. Name the common nutritional disorders in Bangladesh. Enumerate the functions of Zn & Cu.
8. Write short notes on (Any two) :
   a) Folate trap
   b) DRI
   c) Dietary fibres

Batch: K-70

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define & classify carbohydrate with example.
2. Name the buffer systems in human body with examples. What is Henderson-Hassselbalch equation?

3. How will you classify complex lipids? Give examples. Mention the important function of phospholipids.
4. Differentiate crystalloids, colloids and suspension with examples present in our blood. What is dialysis.
5. Classify amino acids. Draw a peptide bond. How proteins are formed from amino acid?
6. Define enzyme, co-enzyme and co-factors. Mention various types of enzyme inhibition.
7. Draw & label a biological membrane. Name various transport mechanisms acting across it.
8. Write short notes (any two):
   i) Iso enzyme
   ii) Muco-polysaccharides
   iii) Isotope

Group B

1. How much calories are required for you? Calculate it.
2. What is DRI? Mention its main component.
3. Define & classify dietary fibers with examples. Mention their effect on health.
4. Mention the common nutritional disorder in Bangladesh. Write the WHO classification of PEM with their characteristic features. Why edema occurs in kwashiorkor?
5. Write down the source, daily requirement, absorption and function of iron in our body.
6. Name the water soluble vitamins with active forms. How do folic acid and vitamin B_{12} play role in maturation of red blood cells?
7. Write the active forms, sources, function and deficiency disorder of vitamin A. What is dark adaptation time?
8. Write short notes on (any two):
   i) Solar vitamin
   ii) GI of food
   iv) BMI & Obesity

Batch: K-69

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define and classify polysaccharide with example. State the importance of dietary fiber.
2. Define pH & buffer. Name the plasma buffers. Give the criteria of HCO_3 buffer.
3. Define and classify fatty acid. Give the importance of PUFA with speciality of w-3 & w-6 FA.
4. Define normal solution and normal saline. Give the properties of colloid & crystalloid.
5. Differentiate among peptide, polypeptide & protein. Describe denaturation of protein.
6. Define enzyme, co-enzyme & Km. State the effects of temperature & pH on enzyme action.
7. What is iso-enzyme? Give two examples with their clinical importance.
8. Write short notes on (any two):
   i) Biological membrane
   ii) Isotope
   iii) Cholesterol

Group B

1. Name the digestive juices with their pH. Discuss about digestion and absorption of fat.
2. Define & categorize trace elements. Write about absorption, transport & storage of iron.
3. What is solar vitamin? How active vitamin D is formed? Name its deficiency disorders.
4. Name the water soluble vitamins with chemical & coenzyme form. What is folate trap?
5. Define and classify malnutrition. Give the differences between Marasmus & Kwashiorkor.
6. Define RDA & SDA of food. Give the RDA for protein, fat and carbohydrate for an adult.

7. Differentiate fat soluble & water soluble vitamins. State the role of Vitamin A in vision.
8. Write short notes on (any two):
   I) Proximate principle of food
   ii) HDL
   iii) Obesity

Batch: K-68

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define pH & buffers. Name the blood buffers. Write the basic mechanisms of buffer actions.
2. Define normal solution, molar solution, & normal saline. Write down the importance of Henderson-Hasselbalch Equation.
3. Define and classify polysaccharides with examples. Write down the importance of GAGs.
4. Define protein. Give the functional classification of proteins. What is peptide bond?
5. Define & classify enzyme as permitted by IUBMB with examples. State the biomedical importance of enzymes.
6. Define and classify lipid with examples. Name the essential fatty acids with their importance.
7. Define and classify phospholipids. Write down the importance of phospholipids.
8. Write short notes on (any two):
   i) Isotope
   ii) Eicosanoids
   iii) Active Transport

Group B

1. Enumerate the digestive juices with their pH. How bile helps in digestion & absorption of fat?
2. Define Respiratory Chain. Show in flow charts the components, arrangement & sites of ATP synthesis in the chain. Name two inhibitors of respiratory chain.

3. Name the metabolic pathways occurring in mitochondria. Calculate the ATP production on complete oxidation of 1 mole of glucose. State the importance of HMP shunt.
4. Classify the lipoproteins. State the metabolism of chylomicron.
5. Define transamination & deamination. Show the urea cycle in a flow chart.
6. Name the pathways of CHO metabolism. How pyruvate & lactate is formed from glucose?
7. Define cytogenesis & ketosis. How ketone bodies are synthesized in our body
8. Write short notes on:
   i) β Oxidation
   ii) Local hormones of GIT

Batch: K-67

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define normal solution, molar solution, osmolar solution & normal saline. Write down the importance of Henderson-Hesselbalch Equation. Why bicarbonate buffer is considered as most important buffer. (3+2)
2. What do mean by sterol & steroid? Write a brief note on cholesterol. Name five derived lipid. (3+2)
3. Define protein. Mention the functional classification of protein & give one example of each. Name the protein denaturing agents. (2+3)
4. Define enzyme & co-enzyme. Give the IUBMB classification of enzymes & write down the effect of pH & temperature on enzyme action. (3+2)
5. Define isotope, isomer & isobar. Classify isotopes & give it's importance. (1+4)
6. Classify membrane transport system. Name the methods of separation of colloids from crystalloid. Write a brief note on active transport system. (2.5+2.5)

7. Write Short notes on: (2+3)
    i) SI unit
    ii) Isoenzyme

Group B

1. Name the metabolic pathways that occur inside the mitochondria. Show the reaction of T.C.A Cycle in a flow chart. (3+2)
2. What are the ketone bodies? Discuss about the origin & fate of the ketone bodies. What is ketosis? (3+2)
3. Name the ways of ammonia disposal. Show the urea cycle with cellular compartment in a flow chat. (2+3)
4. What is hyperglycemia & hypoglycemia? How blood glucose level is maintained? (3+2)
5. What is Beta oxidation? Show in a flow chart the pathway of beta oxidation. How many molecules of ATP are generated? When a 18 carbon fatty acid is oxidized? (1+4)
6. Name the apropotein of different lipoprotein. Discuss about the origin, course, fate & function of HDL. (2.5+2.5)
7. Write Short notes on: (2+3)
    i) Cori cycle
    ii) Amino acid pool

Batch: K-66

Full Marks: 80 Time: 2 hours 40 minutes

Answer all questions. Each question carries equal marks.

Group A

1. Define pH, pK & Buffer. Explain Blood pH is 7.4 (Apply H-H equation & use
   HCO_3 buffer system.
2. Define & classify polysaccharide. Write down the difference between starch &
   glycogen.
3. Name the phospholipids with their importance.
4. Define enzyme. Write down the role of pH in enzyme action. Write in short about allosteric effectors.

5. Define normal saline, normal solution, molar, molal & osmolar solution. Write
   down the importance of normal saline.
6. Define protein. Give the functional classification of protein with example. What are the denaturing agents for protein?
7. Name the blood lipids with their normal level. Write in short about eicosanoids.
8. Write short notes on:
   i) Membrane transport system
   ii) Biomedical importance of glucose

Group B

1. Define digestion. Write down the important constituents of gastric juice and pancreatic juice. What is achlorhydria?
2. Define hypoglycemia and hyperglycemia. How blood glucose level is maintained in prolonged starvation.
3. Name the ketone bodies with their metabolism. Define ketosis. Ketonemia & ketonurea.
4. Name the metabolic pathways for carbohydrates. Write down the difference between gluco-kinase & hexokinase.
5. Define deamination. Show the urea cycle with cellular compartment. What is uremia?
6. What is apo-protein? Mentions the apo-proteins with their functions. Write down the difference between apo-B-48 & apo-B-100.
7. Write briefly about the digestion & absorption of fat.
8. Write short notes on:
   I) Oxidative Phosphorylation
   II) Inborn Errors of Metabolism

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

Dhaka Medical College