

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
Physiology (MCQs)

Model Paper

Total No. of MCQs 45
Marks 45

01 Minute for Each MCQ
Time 45 minutes

MCQ.1 The cell organelle which increase their number by self replication are:

- a) Endoplasmic reticulum.
- b) Golgi apparatus.
- c) Lysosomes.
- d) Mitochondria.
- e) Nuclei.

Key: d

Topic Specification: Cell adhesions (organelle)

MCQ.2 The intercellular connections having high permeability for ions are:

- a) Desmosomes.
- b) Focal adhesions.
- c) Hemidesmosomes.
- d) Gap junctions.
- e) Tight junctions.

Key: d

Topic Specification: Cell adhesions (connections)

MCQ.3 Facilitated diffusion differs from simple diffusion because it:

- a) is according to the concentration gradient.
- b) Is a passive transport.
- c) Involves a carrier protein.
- d) Involves expenditure of energy.
- e) Occurs due to electrical gradient.

Key: c

Topic Specification: Transport through cell membrane

MCQ.4 The plasma proteins are not involved in:

- a) Blood clotting.
- b) Blood viscosity.
- c) Plasma colloid osmotic pressure.
- d) Transport of oxygen.
- e) Transport of hormones.

Key: d

Topic Specification: Blood – Plasma Proteins

MCQ.5 During intrauterine life, formation of the red blood cells begins in:

- a) Bone marrow.
- b) Liver.
- c) Lymph nodes.
- d) Mesoderm of the yolk sac.
- e) Spleen.

Key: d

Topic Specification: Red Blood Cells

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
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Model Paper

MCQ.6 One molecule of hemoglobin contains:

- a) one heme + one polypeptide chain.
- b) One heme + two polypeptide chains.
- c) Four heme + two polypeptide chains.
- d) Four heme + four polypeptide chains.
- e) Two heme + four polypeptide chains.

Key: d

Topic Specification: Blood – Hemoglobin

MCQ.7 In a woman with iron deficiency anemia, there is an increase in:

- a) MCV (mean corpuscle volume).
- b) MCH (mean corpuscle hemoglobin).
- c) MCHC (mean corpuscle hemoglobin concentration).
- d) Serum ferritin concentration.
- e) Serum total iron binding capacity (TIBC).

Key: e

Topic Specification: Blood – Anemias

MCQ.8 In a patient having vitamin K deficiency, there is:

- a) Anemia.
- b) Normal clotting time.
- c) Prolonged bleeding time.
- d) Prolonged clotting time.
- e) Thrombocytopenia.

Key: d

Topic Specification: Blood Clotting

MCQ.9 The white blood cells having receptors for IgE on their membrane are:

- a) Basophils.
- b) Eosinophils.
- c) Lymphocytes.
- d) Neutrophils.
- e) Monocytes.

Key: a

Topic Specification: Blood - WBCs

MCQ.10 The white blood cells actively involved in phagocytosis are:

- a) Basophils and eosinophils.
- b) Basophils and neutrophils.
- c) Lymphocytes and eosinophils.
- d) Neutrophils and monocytes.
- e) Monocytes and lymphocytes.

Key: d

Topic Specification: Blood - WBCs

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
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Model Paper

- MCQ.11 A blood transfusion reaction is likely to occur if a patient with blood group A+ is transfused with blood of group:**
- a) A+
 - b) A-
 - c) O+
 - d) O-
 - e) AB-
- Key: e**

Topic Specification: Blood Groups

- MCQ.12 In a nerve fiber, inactivation of sodium channels gives rise to:**
- a) Absolute refractory period.
 - b) Depolarization.
 - c) Hyperpolarization.
 - d) Repolarization.
 - e) Relative refractive period.
- Key: a**

Topic Specification: Nerve Action Potential

- MCQ.13 Hyperpolarization results if in the extracellular fluid, there is decreased concentration of:**
- a) Calcium.
 - b) Chloride.
 - c) Magnesium.
 - d) Potassium.
 - e) Sodium.
- Key: d**

Topic Specification: Resting Membrane Potential

- MCQ.14 Compound action potential is recorded from a:**
- a) Motor nerve fiber.
 - b) Myelinated nerve fiber.
 - c) Nerve trunk.
 - d) Sensory nerve fiber.
 - e) Single nerve fiber.
- Key: c**

Topic Specification: Compound Action Potential

- MCQ.15 The muscle protein which covers the active sites on the actin filament at rest is:**
- a) Actinin.
 - b) Myosin.
 - c) Tropomyosin.
 - d) Troponin-T.
 - e) Troponin-I
- Key: c**

Topic Specification: Skeletal muscle - Structure

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
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MCQ.16 **During the muscle contraction, there is shortening of:**

- a) A-band.
- b) Actin filaments.
- c) Myosin.
- d) Sarcomere.
- e) Z-disc.

Key: d

Topic Specification: Muscle Contraction Mechanism

MCQ.17 **The visceral smooth muscle:**

- a) Control is mainly through nervous stimuli.
- b) Has contact type of neuromuscular junctions.
- c) Is composed of individual muscle fibers.
- d) Is present in the iris of eye.
- e) Shows contraction when it is stretched.

Key: e

Topic Specification: Smooth Muscle

MCQ.18 **During the neuromuscular transmission, end plate potential is produced. It is:**

- a) Due to Ca^{++} influx.
- b) Having a refractory period.
- c) Localized hyperpolarization.
- d) Obeys all or none law.
- e) Of low amplitude in myasthenia gravis.

Key: e

Topic Specification:

MCQ.19 **In isometric muscle contraction:**

- a) ATP is utilized in large amount.
- b) Muscle length decreases during the contraction.
- c) Much work is performed by the muscle.
- d) Shortening of the contractile component does not occur.
- e) There is stretching of the elastic component.

Key: e

Topic Specification: Types of Muscle Contraction

MCQ.20 **Intestinal motility is increased by:**

- a) Cholecystokinin.
- b) Gastrin.
- c) Gastric inhibitory peptide.
- d) Secretin.
- e) Vasoactive intestinal peptide.

Key: a

Topic Specification: Motility of the Intestine

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
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- MCQ.21 The myenteric plexus:**
a) Controls motility of the intestines.
b) Controls secretion of the intestines.
c) Consists of sympathetic nerve fibers.
d) Consists of parasympathetic nerve fibers.
e) Has normal functions in achlasia of esophagus.
Key: a

Topic Specification: Enteric Nervous System

- MCQ.22 Defecation is accomplished by mainly the:**
a) Gastrocolic reflex.
b) Mass reflex.
c) Myenteric reflex.
d) Parasympathetic reflex.
e) Sympathetic reflex.
Key: d

Topic Specification: GIT – Defecation

- MCQ.23 The event not likely to occur during the pharyngeal stage of swallowing is:**
a) Deglutition apnea.
b) Closure of the posterior nares.
c) Narrowing the palatopharyngeal folds.
d) Opening of the glottis.
e) Upward movement of the larynx.
Key: d

Topic Specification: GIT – Swallowing

- MCQ.24 Contraction of the gall bladder and stimulation of enzyme rich pancreatic secretion are the function of:**
a) Cholecystokinin.
b) Gastrin.
c) Motilin.
d) Secretin.
e) Vasoactive intestinal peptide.
Key: a

Topic Specification: GIT- Contraction of the Gall Bladder

- MCQ.25 Cardiac muscle acts as a functional syncytium because it:**
a) Consists of single nucleated cells.
b) Has a long refractory period.
c) Has larger T-tubules.
d) Has gap junctions between adjacent cells.
e) Is involuntary.
Key: d

Topic Specification: CVS - Cardiac Muscle

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
Physiology (MCQs)

Model Paper

- MCQ.26** **During the cardiac cycle, the maximal right ventricular systolic pressure (mmHg) is:**
- a) 5
 - b) 8
 - c) 25
 - d) 80
 - e) 120
- Key: c**

Topic Specification: CVS – Pressure changes during cardiac cycle

- MCQ.27** **Vagal stimulation results into slowing of the heart rate. This is due to increased permeability of the sinoatrial nodal fiber membrane to:**
- a) Calcium.
 - b) Chloride.
 - c) Potassium.
 - d) Sodium.
 - e) Sodium and calcium.
- Key: c**

Topic Specification: CVS – Pace Maker Potential

- MCQ.28** **The phase of the cardiac cycle during which third heart sound production occurs is:**
- a) Atrial systole.
 - b) Isovolumic relaxation.
 - c) Isovolumic contraction.
 - d) Rapid inflow (filling).
 - e) Slow inflow (filling).
- Key: d**

Topic Specification: CVS – Heart Sound

- MCQ.29** **In a patient having first degree atrioventricular block, the ECG shows prolonged:**
- a) PR interval.
 - b) QRS interval.
 - c) QT interval.
 - d) RR interval.
 - e) VAT (ventricular activation time).
- Key: a**

Topic Specification: ECG – AV Blocks

- MCQ.30** **QRS complex is the ECG:**
- a) Has a normal duration of 0.3 second.
 - b) Has a normal shape in cases of bundle branch block.
 - c) Is due to ventricular depolarization.
 - d) Is due to ventricular systole.
 - e) Represents atrial repolarization.
- Key: c**

Topic Specification: CVS – ECG (normal)

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
Physiology (MCQs)

Model Paper

- MCQ.31 The cardiac index is:**
a) Cardiac output per square meter body surface area.
b) Increased in old age.
c) Normally about 5 litre/minute/m².
d) Stroke volume multiplied by the heart rate.
e) Stroke volume per square meter body surface area.
Key: a

Topic Specification: CVS - Cardiac Output

- MCQ.32 Normally about 65% of the total blood volume is present in:**
a) Capillaries.
b) Arteries.
c) Arteriovenous anastomoses.
d) Arterioles.
e) Veins.
Key: e

Topic Specification: CVS – Functional Types of Blood Vessels

- MCQ.33 When arterial blood pressure falls to very low level (50 mmHg), the nervous mechanism which helps to regulate it is mainly:**
a) Baroreceptor reflex.
b) Chemoreceptors.
c) CNS ischemic response.
d) Cushing's reflex.
e) Venoconstriction.
Key: c

Topic Specification: CVS – Regulation of Arterial Blood Pressure

- MCQ.34 Coronary blood flow is regulated mainly by:**
a) Autonomic nerve.
b) Diastolic aortic pressure.
c) Heart rate.
d) Hormones.
e) Local metabolism.
Key: e

Topic Specification: CVS – Coronary Circulation

- MCQ.35 A patient having valvular heart disease shows collapsing pulse (water hammer). He is most likely to have:**
a) Aortic regurgitation.
b) Aortic stenosis.
c) Mitral regurgitation.
d) Pulmonary stenosis.
e) Tricuspid regurgitation.
Key: a

Topic Specification: CVS – Arterial Pulse

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
Physiology (MCQs)

Model Paper

MCQ.36 During fetal life, the blood vessel having maximally oxygenated blood is:

- a) Aorta.
- b) Ductus arteriosus.
- c) Inferior vena cava.
- d) Pulmonary artery.
- e) Umbilical vein.

Key: e

Topic Specification: CVS – Fetal Circulation

MCQ.37 During the exercise, skeletal muscle blood flow increases 15-25 times the resting value. This increase is mainly due to:

- a) Increased arterial blood pressure.
- b) Increased secretion of catecholamines.
- c) Local metabolic factors.
- d) Stimulation of sympathetic vasoconstrictor nerves.
- e) Stimulation of sympathetic vasodilator nerves.

Key: c

Topic Specification: Exercise Physiology

MCQ.38 During the inspiration, the vertical dimension of the thoracic cavity is increased due to contraction of:

- a) Diaphragm.
- b) External intercostals.
- c) Scalene.
- d) Serritus anterior.
- e) Sternocleidomastoid.

Key: a

Topic Specification: Respiration – Mechanics of Breathing

MCQ.39 Surfactant deficiency is not likely to produce:

- a) Collapse of alveoli.
- b) Increased surface tension of the fluid lining alveoli.
- c) Increased compliance of the lungs.
- d) Pulmonary edema.
- e) Respiratory distress syndrome in newborns.

Key: c

Topic Specification: Surfactant

MCQ.40 The difference of total lung capacity and vital capacity is:

- a) Expiratory reserve volume.
- b) Functional residual capacity.
- c) Inspiratory reserve volume.
- d) Residual volume.
- e) Tidal volume.

Key: d

Topic Specification: Lung Volumes, Capacities

MBBS FIRST PROFESSIONAL PART- I EXAMINATION 2007
Physiology (MCQs)

Model Paper

- MCQ.41 The rate of diffusion of gases through the respiratory membrane is inversely proportional to:**
- a) Diffusion capacity of the respiratory membrane for the gas.
 - b) Pressure gradient across the respiratory membrane.
 - c) Surface area of the respiratory membrane.
 - d) Solubility of the gas.
 - e) Thickness of the respiratory membrane.
- Key: e**

Topic Specification: Respiration – Exchange of Gas through the respiratory membrane

- MCQ.42 Dissociation of oxygen from oxyhemoglobin facilitated by:**
- a) Decreased temperature.
 - b) Decreased 2:3 diphosphoglycerate concentration.
 - c) Decreased H^+ concentration.
 - d) Decreased PCO_2 .
 - e) Exercise.
- Key: e**

Topic Specification: Respiration – Transport of O_2

- MCQ.43 The rate and duration of inspiratory ramp signals from the dorsal respiratory medullary neurons is controlled by impulses from:**
- a) Cerebral cortex.
 - b) Hypothalamus.
 - c) Peripheral chemoreceptors.
 - d) Pneumotaxic center.
 - e) Ventral respiratory neurons.
- Key: d**

Topic Specification: Respiration – Nervous Control

- MCQ.44 A patient having hypoxia shows his arterial PO_2 – 60mmHg and hemoglobin concentration 15 g/dl. He is most likely suffering from:**
- a) Anemic hypoxia.
 - b) Carbon monoxide poisoning.
 - c) Histotoxic hypoxia.
 - d) Hypoxic hypoxia.
 - e) Stagnant hypoxia.
- Key: d**

Topic Specification: Respiration – Types of Hypoxia

- MCQ.45 During the acclimatization at high altitude, the change not likely to occur is:**
- a) Accelerated erythropoiesis.
 - b) Increased hemoglobin concentration.
 - c) Increased rate of pulmonary ventilation.
 - d) Increased concentration of 2:3 diphosphoglycerate.
 - e) Respiratory acidosis.
- Key: e**

Topic Specification: Respiration – High Altitude Physiology