

MID-TERM EXAMINATION 2017
MOTITHANG HIGHER SECONDARY SCHOOL.

Class:11
Biology Theory.

Writing time: 3Hours
Total marks: 100

SECTION A (40 Marks)

Compulsory: To be attempted by all candidates.

Question 1.

(a) From the multiple choice of options provided choose the correct option and copy them in your answer script. (15 x 1=15)

- i) The oxidation of foodstuffs in living organisms to release energy is
A. Pulmonary ventilation B. External respiration C. Cellular respiration
D. Breathing
- ii) In aerobic respiration the complete oxidation of one gram molecule of glucose releases
A. 36 ATP molecules B. 38 ATP molecules C. 34 ATP molecules
D. 32 Atp molecules
- iii) During inspiration the diaphragm
A. Expands B. Shows no change C. Contracts and flattens
D. Relaxes to become dome-shaped
- iv) The partial pressure of oxygen in the alveolar air of a healthy normal person is
A. 110 mm Hg B. 100 mm Hg C. 45 mm Hg
D. 104 mm Hg
- v) Dawa had a serious heart problem where the part which initiates / generates the impulse for the contraction of heart had to be replaced with an artificial one. The part which Dawa replaced was
A. Sino-atrial node B. Atrio-ventricular node C. Bundle of His
D. Purkinje fibres
- vi) The disorders in blood supply to cardiac muscles due to blockage or narrowing of coronary arteries can led to
A. Erythroblastosis foetalis B. Angina pectoris C. Oedema
D. Pericarditis
- vii) While walking in sunshine the face becomes reddish. This is due to
A. Release of more blood by spleen into circulatory system
B. Widening of capillaries of the skin to allow more blood flow under the skin
C. Oozing out of certain blood cells through pores of the skin
D. Breakdown of haemoglobin in the skin
- viii) During transport of carbondiixide blood does not become acidic due to
A. Blood buffers B. Osmoregulation C. Excretion
D. Absorption of carbondioxide by leucocytes

ix) While walking towards the school one morning, sonam comes across a big black snake. He runs away very fast from the place where he encountered the snake. The hormone which helps him to run faster is

- A. ADH
D. Insulin
- B. Thyroxin
- C. Adrenaline

x) In mammals the ovary is also considered to be an endocrine gland. The part of the ovary which acts as an endocrine gland after ovulation is the

- A. Stroma
D. Graafian follicle
- B. Germinal epithelium
- C. Vitelline membrane

xi) The blood calcium level is lowered by the deficiency of

- A. Both calcitonin and parathormone
C. Calcitonin
- B. Parathormone
D. Thyroxine

xii) Dema is having the following symptoms – amenorrhoea, sterility, rise in blood volume, high blood pressure and growth of beard. What is the disorder of Dema?

- A. Addison's disease
D. Gynaecomastia
- B. Conn's syndrome
- C. Cushing's syndrome

xiii) The hormones secreted by the hypothalamus is called

- A. Neurohormones
D. Pheromones
- B. Neurotransmitters
- C. Local hormones

xiv) The hormones which help us to maintain a constant body temperature are

- A. Thyroxine and adrenaline
D. Thyrotrophin releasing factor and thyroxine
- B. Thyroxine
- C. Adrenaline

xv) The regulation of temperature in our body is an example of

- A. Positive feedback
D. Set feedbacks
- B. Negative feedback
- C. Neutral feedback

(b) Fill in the blanks with appropriate word/s and copy them in the answer script. [1x8=8]

1. The blood vessels important in maintaining the appropriate blood pressure are-----
2. The -----valves guard the exit of blood from the heart.
3. The phase of the cardiac cycle during which the heart contracts is referred to as-----
4. When dissolved fibrinogen protein is separated from the collected blood in the form of fibrin, the remaining blood with serum and blood cells is called-----
5. Any substance that inhibits the clotting of blood is called-----
6. Vitamine K is essential for the synthesis of ----- in the liver
7. Lecithin is secreted by the ----- cells present in the alveolar epithelium
8. The opening of the larynx is called -----

- (c) Match the items in column A with the items in column B. Rewrite the correct matching items in the answer script. [1x8=8]

Column A	Column B
1. Pneumotaxic centre	a. hyperglycemia
2. Expiratory centre	b. 5100 ml
3. Biologically useful energy	c. heparin
4. Total lung capacity	d. pons varolli
5. Anticoagulant	e. ATP
6. Thickest wall in heart	f. medulla oblongata
7. Collected tissue fluid	g. left ventricle
8. High glucose level	h. lymph

- (d) Give reasons for the followings: [1x5=5]

1. Nasal breathing is considered better than breathing through the mouth.
2. Bacteria that reach the lungs survive rarely.
3. Biconcave shape of the RBC is considered to be advantageous.
4. Venous blood is more acidic than arterial blood.
5. Insulin and glucagon are antagonistic in nature.

- (e) Define the following terms. [1x4=4]

1. Glycogenolysis
2. Gluconeogenesis
3. Homeostasis
4. Osmoregulation

SECTION B (60 marks)
(Attempt any SIX questions)

Question 2.

- (a) Name the exact part of the uriniferous tubule which is directly influenced by ADH. [2]
- (b) You have taken a carbohydrate rich breakfast. Discuss what homeostatic changes will occur to maintain blood glucose level normal. [3]
- (c) Aap Tshering Dorji worked continuously in his field for three hours in the hot scorching sun. Discuss what changes will take place in his body to maintain osmoregulation. [3]
- (d) Define the terms; [2]
 - i. Vasodilation
 - ii. Vasoconstriction

Question 3.

- (a) Explain Rh-incompatibility with a suitable example. [3]
- (b) Define the terms; [2]
 - i. Universal donors
 - ii. Universal recipients.
- (c) Write down one function each for the following; [3]
 - i. Lymph nodes
 - ii. Spleen
 - iii. Lymph.
- (d) Write down two differences between arteries and veins. [2]

Question 4.

- (a) Explain the loading and unloading of haemoglobin. [4]
- (b) What is Bohr effect? [1]
- (c) Write down two significance of dissociation curve. [2]
- (d) Write down three important functions of the red blood cells. [3]

Question 5.

- (a) Explain the mechanism of blood clotting. [5]
- (b) Explain the different types of white blood cells with their specific functions. [5]

Question 6.

- (a) Explain the following terms: [4]
 - i. Amoeboid movement
 - ii. Diapedesis
 - iii. Phagocytosis
 - iv. Inflammation.
- (b) Explain the mechanism of inspiration and expiration. [3]
- (c) What is chloride shift? [1]
- (d) Explain the mechanism of gaseous exchange in tissues with reference to the partial pressure of oxygen and carbondioxide. [2]

Question 7.

- (a) Write down **two** differences between the following pairs: [5]
 - i. Open and closed type of circulatory system
 - ii. Single circulation and double circulation
 - iii. Neurogenic and myogenic heartbeat
 - iv. Electrocardiogram and electrocardiograph
 - v. Systolic and diastolic blood pressure.
- (b) Draw the structure of the human heart and label the following parts: [4+1=5]
Right auricle, left ventricle, pulmonary vein, pulmonary artery, bicuspid valve, semilunar valve, tricuspid valve, aorta.

Question 8.

- (a) Why is it important to maintain homeostasis in an organism. Explain giving three reasons with examples. [3]
- (b) Explain the mechanism of peptide hormone action. [3]
- (c) Write down three functions of thyroid functions. [3]
- (d) Write down one difference between diabetes mellitus and diabetes insipidus. [1]