

VIVEK TUTORIALS

Biology Preliminary Examination Max Marks: 80

Date : 05/Feb/2019

Grade: 10th (ICSE)

Time: 2 Hours

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SECTION I (40 Marks) Attempt all questions from this Section

Question 1

(a) Name the following :

- (i) The collective term used for all the nuclear changes that occur in the mitotic cell division.
- (ii) An instrument used for measuring the rate of transpiration.
- (iii) The first human ancestor who walked upright.
- (iv) The day celebrated as World Health Day.
- (v) The phase of the cardiac cycle in which the ventricles get filled with blood from the atrium.
 (b) State whether the following statements are True or False. If false write the correct statement.
- (i) (Round) seed shape and green seed colour in the garden pea are dominant traits.
- (ii) In atrial systole, the semilunar valves are opened.
- (iii) Penicillin obtained from Penicillium notatum is an antibody.
- (iv) Lysosome is a part of the cell in which chromosomes are present.
- (v) A plant cell placed in hypotonic solution gets plasmolysed.

(c) Study the diagram given below and then answer the questions that follow:

The diagram below represents circulation in the human body. Answer the questions that follow



- (i) Name the blood vessels labelled 1,3, 6 and 7.
- (ii) Name the blood vessel that supplies the walls of the heart with oxygen.
- (iii) Draw a neat labelled diagram of the blood vessel numbered '2' as seen in a cross section.
- (iv) Mention one structural difference between blood vessels numbered 4 and 5.

(d) Choose the correct answer from the options given below:

- (i) During photosynthesis, the oxygen in glucose comes from (a) CO_2 (b) water (c) both CO_2 and water (d) oxygen via air
- (ii) Ultra filtration occurs in :

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	(a) Bowman's capsule (b) Proximal convoluted tubule	
	(c) Henle's loop (d) Distal convoluted tubule	
(iii)	World Health Day is celebrated on	1
	(a) April 7 (b) February 21 (c) October 10 (d) January 15	
(iv)	Wooden doors swell during the rainy season due to	1
· /	(a)Osmosis (b)Diffusion (c)Imbibition	
(v)	The site of fertilization in human female is	1
	(a)vagina, (b)oviduct, (c)uterus.	
	(e) Choose the odd one in each of the following questions:	
(i)	Chromatid, centromere, spindle and centriole.	1
(ii)	Cyton, Photon, Axon, Dendron.	1
(iii)	Cell wall, Vacuole, Centrosome, Plastids, Mitochondria.	1
(iv)	Cyton, Axon, Dendron, Cerebrum	1
(v)	Diplococcus, Salmonella typhi, Plasmodium, Vibrio cholerae.	1
	(f) Mention the exact location of the following and give their function.	
(i)	Give the exact location and one function of lenticels.	1
(ii)	Where is heart located?	1
(iii)	Mitral valve.	1
(iv)	Pituitary	1
(v)	Give the exact location and one function of amnion.	1
	(g) Given below are five groups of four or five terms each. Arrange the terms in a proper	
	sequence:	
(i)	Soil water, endodermis, root hair, cortical cells, epidermis, xylem.	1
(ii)	Puberty, menopause, menstruals, menarche, reproductive age.	1
(iii)	Interphase, Anaphase, Prophase, Telo-phase, Metaphase	1
(iv)	Destarched plant, iodine added, washed in water, a leaf boiled in alcohol, placed in sunlight (testing	1
	the presence of starch).	
(v)	(i)Motor neuron, Receptor, Sensory neuron, Effector, Association neuron, (pathway of a nerve	1
	impulse)	
	(ii)Pupil, Yellow spot, Cornea, Lens, Aqueous humor, (path of entry of light into the eye from an	
	object)	
<i>(</i> •)	(h) Explain the following terms:	
(1)	Gene	1
(11)	Uricotelic	1
(111)	Age ratio	1
(1V)	Parturition.	1
(v)	Reflex action	1

SECTION II (40 Marks) Attempt any FOUR questions from this Section

Question 2

(a) Answer the following

Draw a diagram of the nucleus of a cell, having chromosome number 6, as it would appear in the 5 metaphase stage of mitosis and label the following parts

- (a) Aster
- (b) Acromatic spindle
- (c) Chromatid
- (d) Centromere.

(b) Differentiate between the following pairs on the basis of what is given in brackets:

- (i) genotype and phenotype.
- (ii) Chlorophyll and chloroplast.
- (iii) Excretion and Secretion.
- (iv) Nervous control and Hormonal control

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(v) Mitosis and Meiosis

(Number of daughter cells formed)

Question 3

(a) Study the diagram given below and then answer the questions that follow:

Study the diagram below and answer the questions that follow.



- 1. Explain the physiological process being studied.
- 2. What will be observed in the two test tubes after two to three days?
- 3. Give a reason for your answer in (2) above.
- 4. Why is the surface of water covered with oil?
- 5. State the purpose offsetting up test tube B.

(b) Answer the following:

- (i) Describe the structural differences between an artery and a vein.
- (ii) Dark reaction involves utilization of CO_2 in producing $C_6H_{12}O_6$ (glucose). Why is this called dark 3 phase?

Question 4

(a) Study the diagram given below and then answer the questions that follow:

A well watered healthy potted plant with variegated leaves was kept in darkness for about 24 hours. It was then set up as shown in the diagram below and exposed to light for about 12 hours. At the end of this time, leaf X and leaf Y were tested for starch. Study the diagram and answer the questions that follow :

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(a) Why was the plant initially kept in darkness for 24 hours ?

(b) What is the function of sodium hydroxide solution in the flask?

(c) Select the correct leaf from the five available choices shown in the diagram as A, B, C, D and E. Rewrite the correct answer by filling in the appropriate letter for the questions that follow :

1. After the starch test, leaf X would look like.....

2. After the starch test, leaf Y would look like.....

(d) The experiment with leaf Y shows that photosynthesis requires the presence of certain factors. Mention any one factor.

(b) Study the diagram given below and then answer the questions that follow:

There is the diagram of a part of the nephron of the kidney. Study the same and answer the questions that follow:



(i) Name the parts labelled 1, 2 and 3.

- (ii) What is the collective term used for 2 and 3?
- (iii) Why is the right kidney at a slightly lower level than the left?
- (iv) Explain the term homeostasis. What is the role of the kidney in this?

Question 5

(a) Answer the following:

Complete the following table by filling in the blank spaces numbered 1 to 8.



- (ii) Only the veins and not the arteries are provided with valves.
- (iii) Urine is slightly thicker in summer than in winter.
- (iv) Twins may or may not be identical.
- (v) Animals owe their existence to Chlorophyll. **Question 6**

Study the diagram given below and then answer the questions that follow:

- (a) The diagram given here represents the organs of female reproductive system:
- (b) The diagram shows how carbon compounds are recycled.



(a) Name the processes shown by the arrows B, C, D and E.

(b) Name a type of organism you expect to be named in box A.

(c) State one other way in which the amount of carbon dioxide can be increased.

Question 7

(a) **Define the following:**

- (i) Double circulation
- (ii) Endocrine gland.
- (iii) Gestation
- (iv) Linkage
- (v) Mitosis.

(\mathbf{b}) Study the diagram given below and then answer the questions that follow:

Study the diagram given below and then answer the questions that follow :

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(i) Name the cells of the pancreas that produce (1) glucagon (2) insulin.

(ii) State the main function of (1) glucagon (2) insulin.

(iii) Why is the pancreas referred to as an exo- endocrine gland?

- (iv) Why is insulin not given orally but is injected into the body?
- (v) What is the technical term for the cells of the pancreas that produce endocrine hormones ?

(vi) Where in the body is the pancreas located ?

----- All the Best ------