



SHREE CHANDULAL NANAVATI VINAYMANDIR
SECOND PRELIMINARY EXAMINATION

2018-2019

BIOLOGY

Date: | 14 | 01 | 2019

STD: 10

Reading Time 15 Mins.

Marks: 80

Writing Time 2 Hours.

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Attempt all questions from section A and any four questions from section B.

The intended marks for questions or parts of questions are given in brackets [:].

Section-I [40 Marks]

Attempt all questions from this Section

Question 1

A. Name the following:

[5]

- i. A structure formed with histone protein and DNA together.
- ii. A statistical study of human population of a region.
- iii. The hormone which stimulates cell division.
- iv. High concentration of toxic substances like DDT in the various levels of food chains.
- v. The part of the brain which is concerned with muscular coordination in the body.

B. Choose the correct answer from each of the four options given below:

[5]

- i. The smallest functional unit of the kidney is:
 - a. Glomerulus
 - b. Bowman's capsule
 - c. Collecting tubule
 - d. Nephron
- ii. An artery is:
 - a. Thin-walled in which blood flows under low pressure.
 - b. Thick-walled in which blood flows under high pressure.
 - c. Thin-walled in which blood flows under high pressure.
 - d. Thick-walled in which blood flows under low pressure.
- iii. During blood coagulation, thromboplastin is released by:
 - a. RBC
 - b. Blood plasma
 - c. Clumped platelets and damaged vessels
 - d. Leucocytes
- iv. Leaf fall occurs when the amount of:
 - a. Auxin increases
 - b. Abietic acid increases
 - c. Cytokinin decreases
 - d. Gibberellin decreases
- v. The human ancestor who had a cranial capacity of 800-1125cm³
 - a. Homo habilis
 - b. Homo erectus
 - c. Homo sapiens
 - d. Cro-Magnon

C. Complete the following paragraph by filling in the blanks [i] to [v] with appropriate word/words:

[5]

The blood flows through the [i] _____ under great pressure. The reason for this is that, the [ii] _____ arteriole is narrower than the [iii] _____ arteriole. This high pressure causes the liquid part of the blood to filter out into the [iv] _____. This filtration under extraordinary force is called [v] _____.

D. Match the items given in column A with the most appropriate ones in column B and rewrite the matching pairs: [5]

Column A

- i. Sacculus
- ii. Birth rate - c
- iii. Charles Darwin
- iv. Euro norms
- v. Diabetes mellitus

Column B

- a. Dynamic body balance
- b. Hyperglycemia
- c. Natality
- d. Static body balance
- e. origin of species
- f. Vehicular standards
- g. Hypoglycemia

E. Correct the following statements by changing the underlined word: [5]

- i. Adrenal cortex produces emergency hormone adrenaline.
- ii. Hypermetropia is a defect of the eye caused due to the elongation of the eyeball.
- iii. Ammonia is converted into urea in kidney.
- iv. Chromosomes other than the pair of sex chromosomes are called alleles.
- v. The Graafian follicle, after ovulation turns into a hormone producing tissue called Corpus Callosum.

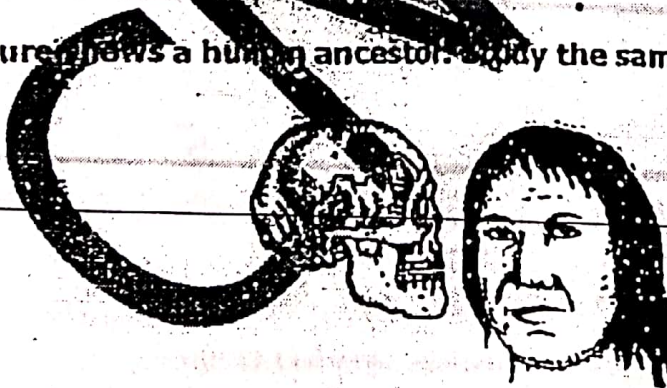
F. Choose between two options to answer the question specified in the brackets for the following: [5]

Example - Corolla or Calyx [Which is the outer whorl?]

Answer - Calyx.

- i. Menarche and Menopause [Which one is the onset of menstruation in a young female?]
- ii. Gyrus and Sulci [Which one makes the folds of cerebrum?]
- iii. Prostate gland and Bulbo-urethral gland [Which gland neutralizes acid in female's vagina?]
- iv. Simple goitre and Exophthalmic goitre [Oversecretion or oversecretion of which hormone causes this disease?]
- v. Thigmotropism and Chemotropism [Growth of pollen tube towards the ovule is an example of which tropism?]

G. The figure shows a human ancestor. Study the same and answer the following: [5]



- i. Identify the figure.
- ii. State two distinguishing features of this evolutionary stage.
- iii. Mention the structures that supported bipedalism.
- iv. Where did they live?

H. Choose the odd one out from the following terms given and name the category to which the others belong: [5]

- i. Goitre, Dwarfism, Acromegaly, Cataract.
- ii. Basophil, Neutrophil, Eosinophil, Lymphocyte.
- iii. Semicircular canals, Malleus, Cochlea, Utriculus.
- iv. Labia majora, Labia minora, Vagina, Vestibula, Clitoris.
- v. Sneezing, Coughing, Blinking, Typing.

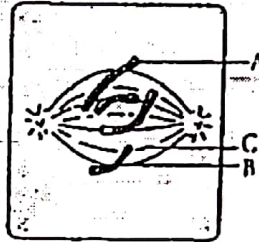
SECTION II [40 Marks]

Attempt any four questions from this section.

Question 2

A. The figure given below shows a certain stage of cell division with four chromosomes. Study the same and answer the following:

[5]



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- Name the parts of the chromosome labelled A and B.
- Name the structure C. What is its function?
- Name the stage of division.
- Name and draw a well-labelled diagram of the cell as it would appear in the next stage.
- What do you mean by Cell Cycle?

B. Mention the exact location of the following:

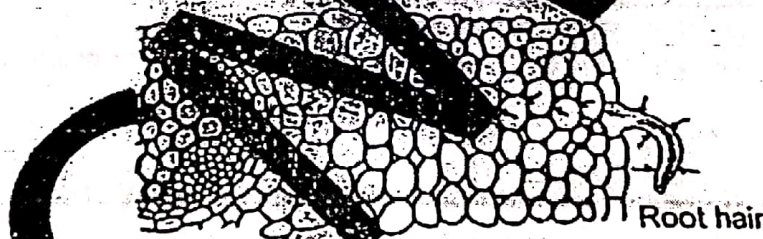
[5]

- Stoma
- Seminiferous tubule
- Myelin sheath
- Islets of langerhans
- Amnion

Question 3

A. The diagram given below shows the movement of certain substances inside the root of plant. Observe the diagram and answer the following questions.

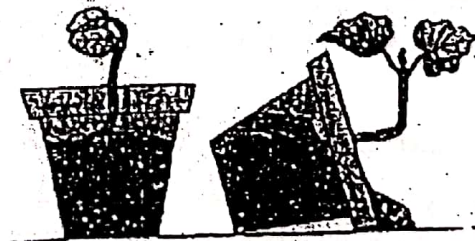
[5]



- What is the function of root hair?
- Name two substances which enter the root hair.
- Define root pressure.
- Are root hairs made of one cell?
- What is the function of the xylem vessels?

B. Study the figure and answer the following:

[5]

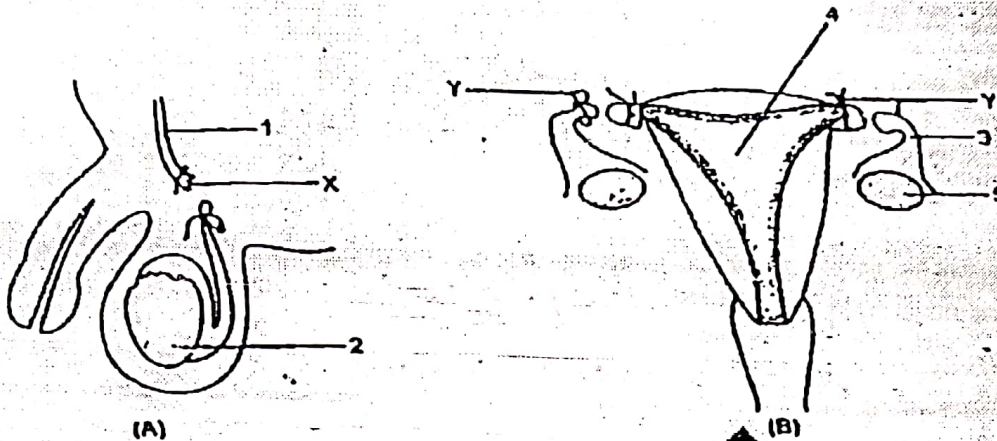


- What is depicted in the figure?
- Explain the process.
- What is meant by positive and negative tropic movements in plants?
- Differentiate between- Thigmotropism and Phototropism. [Define]
- Mention one physiological effect of gibberellins.

Question 4

A. Observe the diagram A and B given below and answer the questions that follow:

[5]



- i. Label the parts 1 – 5.
- ii. What does diagram A depict?
- iii. What does diagram B depict?
- iv. Explain the process in diagram A and B.
- v. State one function of part 4.

B. Give appropriate biological or technical terms for the following:

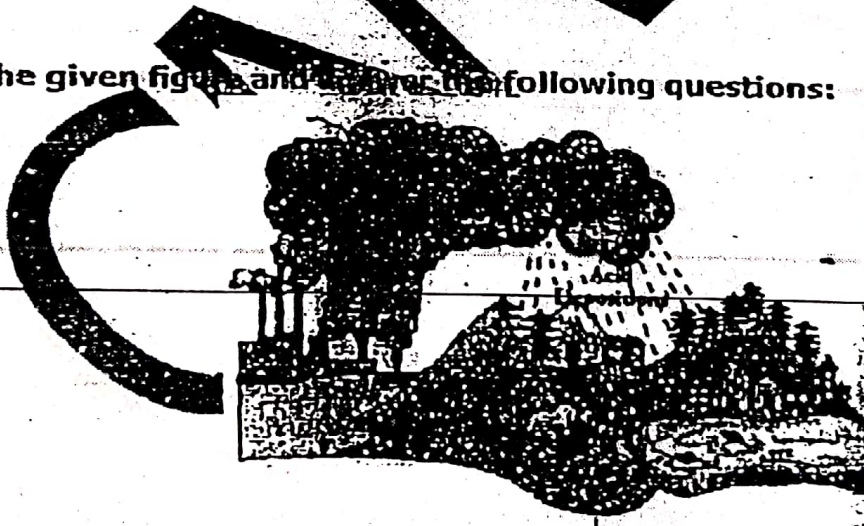
[5]

- i. The canal through which the testes descend into the scrotum just before birth of a human male child.
- ii. The structure that transmits characteristics from parents to offspring.
- iii. The cells in testes which produce testosterone.
- iv. The popular sign in India for Family Welfare.
- v. The person who proposed the theory of 'Use and Disuse' of organs.

Question 5

A. Study the given figure and answer the following questions:

[5]



- i. What does the given image represent?
- ii. Write two effects of it.
- iii. How is it formed in the image? Explain.
- iv. Expand the following: BOD, SPM, ODF, MTP.

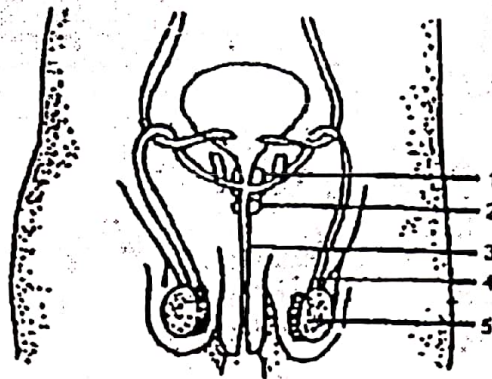
B. Differentiate between the following pairs on the basis of what is indicated in the brackets.

[5]

- i. Ribosome and Mitochondria [Function]
- ii. Monocot leaf and Dicot leaf [Type of venation]
- iii. Choroid and Sclerotic layer [Function]
- iv. Beginning of the ventricular systole and ventricular diastole [Type of heart sound]
- v. Renal cortex and Renal medulla [Parts of the nephrons present]

Question 6

A. Given below is the outline of the male reproductive system. Study the same and answer the following: [5]



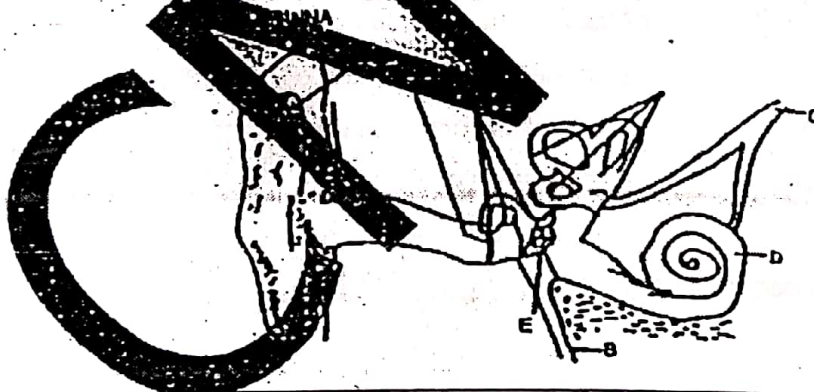
- i. Name the parts labelled 1 to 5.
- ii. State the functions of the parts labelled 1 and 4.
- iii. Why is the structure 5 present outside the body in the scrotal sacs?
- iv. What is semen?

B. Give biological explanations for the following: [5]

- i. When an ovum gets fertilized, menstrual cycle stops temporarily in a woman.
- ii. Blood flows in arteries in spurts and is under pressure.
- iii. Cutting of trees should be discouraged.
- iv. Older people require glasses to read and write.
- v. It is incorrect to call Interphase as a resting phase.

Question 7

A. Given below is the diagram of the human ear. Study the same and answer the questions that follow: [5]



- i. Give the biological term for the part labelled 'A' and state its function.
- ii. Name the part labelled 'B' and state its function.
- iii. Name the part labelled 'C' and state its function.
- iv. Give the function of ear wax.

B.

- i. State Mendel's law of Independent Assortment. [5]
- ii. A homozygous tall plant [T] bearing red coloured [R] flowers is crossed with a homozygous dwarf plant [t] bearing white flowers [r]:
 - a. Give the genotype and phenotype of the F₁ generation.
 - b. Give the possible combinations of the gametes that can be obtained from Self pollination of the F₁ hybrid.
 - c. Give the dihybrid ratio and the phenotype of the offsprings of the F₂ generation when two plants of the F₁ generation above are crossed. [Using a Punnett square]