MaximumMarks:80

Time allowed:Two 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.

Section-A (40 Marks)

(Attempt all questions from this section)

Answer all questions from this section.

Q1(a) Name the following : **[5]**

(i)The layer of the eyeball that consists of two types of photoreceptor cells known as rods and cones.

(ii)The phenomenon of gradual increase in the average temperature cells known as rod and cones.

(iii)Thin , double layered membranous structure enclosing an embryo.

(iv)The molecule through which genetic information is transferred from one generation to another.

(v)The process of RBCs (Red Blood corpuscles) formation.

(b) Correct the rewrite the following statements by changing the biological term that is underlined for each statement: **[5]**

(i)Jean Baptiste de Lamarck published his observations and conclusions in a book 'Origin of species'

(ii)Yolk sac, a membrane that surrounds the yolk is an embryonic membrane.

(iii)The part of the brain that mainly controls all the voluntary actions is cerebellum.

(iv)Henle's loop is the U-shaped region of nephron existing in the cortex region of the kidney.

(v)The condition of the eye in which the crystalline lens of the eye becomes milky and cloudy is called presbyopia.

(c) Give suitable biological reasons for the following statements: [5]

(i)High mortality rate in infants is a major cause of population explosion in india .

(ii)Brick kilns cause air pollution.

(iii)Microorganisms like bacteria and fungi do not grow in pickles, jams and squashes,ect.

(iv)Acid rain is highly acidic.

(v)Plants manufacture their own food with the help of sunlight.

(d) Match the items in column A with those which are most appropriate` in column B and rewrite the correct matching pairs: **[5]**

Column A	Column B
(i) Spinal nerves in thorax	1. Progesterone
(ii) Piacenta	2. Natural reflex
(iii) Synapse	3. 12 pairs
(iv) Spinal nerves in lumbar region	4. Oxytocin
(v) Coughing	5. Neurotransmitter release
	6. 5 pairs
	7. 6 pairs
	8. Conditioned reflex

(e). Choose the correct answers from the four options given below : **[5]**

(i) A type of valve located at the point of origin of aorta from left ventricle is

I. Pulmonary II. Mitral valve III. tricuspid valve IV. aortic semilunar valve

(ii) Colour blindness and haemophilia, the sex-linked inherited diseases occur due to the occurrence of

I. recessive genes on the X- chromosome
II. dominant genes on the X-chromosome
III. recessive genes on the Y- chromosome
IV. dominants genes on the Y- chromosome

(iii) Lymphocytes are concentrated in the
I. tonsils II. Spleen III. Lymph nodes IV. all of these

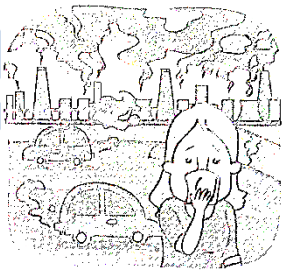
(iv)If there is no fertilisation during luteal phase, the uterus lining again starts shedding on
I. 24th day II. 28th day III. 31st day IV. 26st day

(v)Which of the following is an external factor that affects the rate of transpiration?
I. leaf area II. age of plants III. Water content valve IV. Carbon dioxide concentration ?

(f) Identity the odd term in each set and name the category to which the remaining three belong. **[5]**
(i).Simple goiter, cretinism , Myxedema, Exophthalmic, goite
(ii). Cortisone, somatotropin, Adrenocorticotropic hormone , vasopressin
(iii).Dendrites, Medullary sheath, Axon, Spinal cord
(iv).Ovary, Fallopian tube, Ureyter, Uterus
(v).Auxin, Gibberellin, Cytokinin ,Ethylene

(g) Expand the following biological abbreviations: **[5]**
(i)RNA (ii) NADP (iii)GA (iv)ADH (v) LH

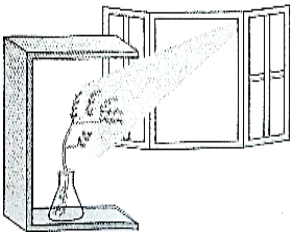
(h) Study the picture given and answer the following question. **[5]**
(i)Name the type of pollution shown in the picture.
(ii)Mention two causes of this pollution.
(iii)How does this pollution affect plants?
(iv)Defined smog in relation with the pollution show in the picture
(v)Give examples of gaseous pollution causing this pollution.



SECTION – II (40 MARKS)

Answer any four questions from this section.

Q2(a). Diagram given demonstrates a particular tropic movement in the plant part. Study the diagram and answer the question that following: [5]
(i)What does the diagram show ?
(ii)Which type of tropic movement is being shown by the plant?
(iii)On the basis of the diagram, define positive phototropism .
(iv)On the basis of the diagram , define negative phototropism .
(v)Define tropic movement and mention two other types of tropic moments.



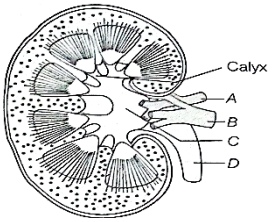
(b) Mention the exact location of following : **[5]**
(i)Seminal vesicle (ii)Dendrites (iii)Guard cells
(iv)Prostate gland (v)Occipital lobe of cerebral cortex

Q3.(a) Given diagram is an experiment setup to prove the necessity of a factor required for photosynthesis. Study the diagram and answer the question that following : **[5]**

(i)What is the aim of the experiment?
(ii)Name the solution that is filled in a corked bottle and labeled as A.
(iii)Why is the solution required in the experimental setup shown in the diagram?
(iv)Label the parts of the leaf which are shown by a and b in the diagram.
(v).Why does the portion inside the bottle and within the cork give a negative test for starch?

(b) State the main function of following : **[5]**
(i). Sertoli cells (ii).Insulin (iii).Auxin (iv).Sensory neurons (v).Neutrophils

Q4.(a) The given diagram below is a section of an organ in the human body. Observe the diagram and answer the question that follows: **[5]**

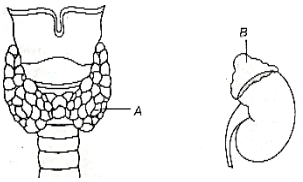


(i)Identity the section and organ shown in the diagram.
(ii)Label the parts of section labeled as A-D
(iii)Name the region of section show in diagram which is dotted in appearance.

(iv)In which region of diagram nephrons are highly coiled?
(v)Which part of diagram is composed of finely stripped substance arranged in several conical projections. What is the term used for these conical projections?

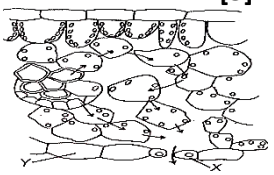
(b) The given figure shows the location of important endocrine glands in the human body. Observe the figure and answer the question that following : **[5]**

(i)Label the glands indicated by A and B.
(ii)Specify the exact location of glands A and B.
(iii)Name the one hormone secreted by each glands.
(iv)Give an important function of one hormone secreted by glands A.
(v)Give am important function of one hormone secreted by glands B.



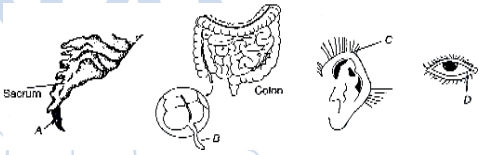
Q5(a) The given figure shows the movement of water through a leaf. Study the figure and answer the question that following: **[5]**

(i)What do the arrows represent ?
(ii)Explain the process shown in the figure.
(iii)What does X depict?
(iv)What is the role of X in the process?
(v)Name the structure Y



(b) In the given figure, certain human organs are shown which have evolutionary significance. Study them and answer the question that following: [5]

(i)Identify the organs labeled as A,B,C and D
(ii)What type of organs are these?
(iii)Defined types of organs .
(iv)What is their significance in the studies regarding evolution ?
(v)Mention one example of such a type of organ in human beings. Other than those given in figure.

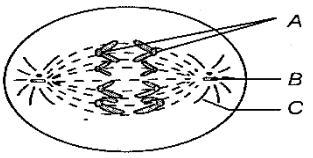


Q6(a)A plant round with yellow seeds (RRYY) was crossed with another variety having wrinkled and green seeds (rryy). **[5]**

(i)Give the genotype and phenotype of F_1-generation.
(ii)Give the possible combination of gametes that can be obtained from F_1 hybrid.
(iii)Give the dihybrid ratio and the phenotype of the offspring of F_2-generation when two plants of above F_1-generation are crossed.
(iv)State Mendel' s law of segregation.
(v)What is a dihybrid cross?

(b) Study the given figure and answer the following question : **[5]**

(i)Name the state shown in the figure.
(ii)Write two identification points of the stage.
(iii)Write two differences between mitosis and meiosis.
(iv)How many chromatids are shown in the figure ?
(v)Name the structure A-C in the figure.



Q7(a) Answer the following questions briefly: **[5]**

(i)What are the synaptic knobs?
(ii)Which part of the inner ear converts pressure variation into electrical singles?
(iii)Defined social forestry .
(iv)What is the function of cowper's glands?
(v)Give two applications of Mendel's laws.

(b) The given diagram represents a system in the human body. Study the diagram and the following question**[5]**

(i)Identify the system.
(ii)Name the parts labeled A-D
(iii)Mention the function of the part labeled as D.
(iv)Name the structure of the functional unit of C.
(v)Which cells regulate and maintain male sex characteristics?