BIOLOGY

BOOKS - NAVBODH BIOLOGY (HINGLISH)

LONG ANSWER QUESTIONS

Genetic Basis Of Inheritance

1. Explain "the law of independent assortment" with a suitable example.

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2. A pea plant homozygous for yellow round seed is crossed with its recessive parents. Calculate the phenotypic and genotypic ratio the help of checker board .

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3. What is codominance ? Explain it with the help of a suitable example.

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4. Which phenomenon gives 2 :1 ratio instead of 3:1 ratio ? Describe with graphical representation.

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5. Describe the inheritance of human skin colour.

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6. Describe the cross between a homozygous tall round seeded pea plant and a dwarf wrinkled seeded pea plant, what will be types of propency in the F_2 generation of this cross and in what proportion will it be ?

Name and state the law which is explained by this example.

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7. What is Neo- Mendelian genetics ? Describe the quantitative inheritance controlled by two pairs of genes.

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8. A homozygous pea plant bearing axial flowers crossed with another pea plant terminal flower. Work out a cross to verify the genotype of F_1 hybrid. What is your conclusion ?

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9. State the Mendel's law of inheritance that is universally acceptable.

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Gene Its Nature Expression And Regulation

1. With the help of a neat and labelled diagram, describe Wastson and Crick's model of DNA.

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2. Explain semiconservative mode of DNA replication.

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3. Describe the process of transcription in protein synthesis.

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4. What is translation in protein synthesis ? Describe any two steps of translations.

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5. Describe any two steps of formation of polypeptide chain.

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6. How is a polypeptide chain formed during protein synthesis ?

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Photosynthesis

1. Explain the source of oxygen in photosynthesis

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2. Describe the different types of photosynthetic pigments and explain their role .

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3. What is photophosphorylation ? Describe noncyclic photophosphorylation with schematic representation. Give its significance.

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4. Suggest the type of photophosphorylation, during which oxygen is evolved. Explain the process and draw its diagrammatic representation.

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5. Identify and explain with the help of diagrammatidc represention type of photophosphorylation in which P_{700}(PS II) and P_{680}(PSI) both are involved.

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6. Describe HSK pathway of photosynthesis.

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7. In tropical plants like maize and sugarcane, during light independent reaction, Co_2 is not directly absorbed by RuBisco. The follow another pathway. Explain that pathway.

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8. With the help of a suitable diagram, describe ultra-structure of the cell organelle, which is essential for photo-shynthesis.

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9. During photosysnthesis O_2 is evolved from water molecule and not from CO_2, Give the experimental proof given by Rebert Hill.

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10. Give the diagrammatic representation of HSK-path-way and answer the following questions :

Why is photorespiration avoided in C_4 pathways ?

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11. Give the diagrammatic representation of HSK-path-way and answer the following questions :

Give any two examples of C_4 Plants'.

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12. Give the diagrammatic representation of HSK-path-way and answer the following questions :

Name the CO_2 acceptor in mesophyll cells during HSK pothway.

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13. What is dark reaction of photosynthesis ? Describe C_3 pathway ?

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14. What is chemiosomosis ? Describe the role of chemiosmosis in generation of ATP.

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15. Give an account of chemiosmosis.

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Respiration

1. What is glycolysis ? Describe various steps involved in glycolysis using schematic representation.

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2. Explain cytoplasmic respiration which is common to aerobic and anaerobic respiration.

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3. Illustrate the mechanism of electron transport system.

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4. During glycolysis and Krebs cycle neither oxygen is used nor large number of ATP are released. Explain that process in which oxygen is utilized and a large number of ATP are produced during aerobic repiration.

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Reproduction In Plants

1. Explain three main techniques of artificial methods of vegetative propagation.

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2. What is vegetative reproduction ? Describe any three natural methods of vegetative reproduction with examples.

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3. Enlist advantages and disavantages of cross pollination. Add a note on pollination mechanism in Salvia.

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4. With the help of a neat and labelled diagram, describe the development of female gamletophyte of angiospersms.

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5. Describe the development of embryo in angiosperms.

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6. Explain the development of dicot embryo in angiosperms.

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7. What is double fertilization? Descirbe the process in brief.

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8. What is double fertilization? Describe fertilized embryo sac with a neat labelled diagram.

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9. Which properties of seed help the distribution and dominance of Angiosperms on the earth ?

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Circulation

1. Describe five types of leucocytesm,with the help of diagrames,Add a note on their functions.

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3. Explain with the help of a suitable diagram conducting system of human heart.

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4. With the help of well labelled diagram describe the internal structure of human heart .

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5. Sketch and label internal view of heart.

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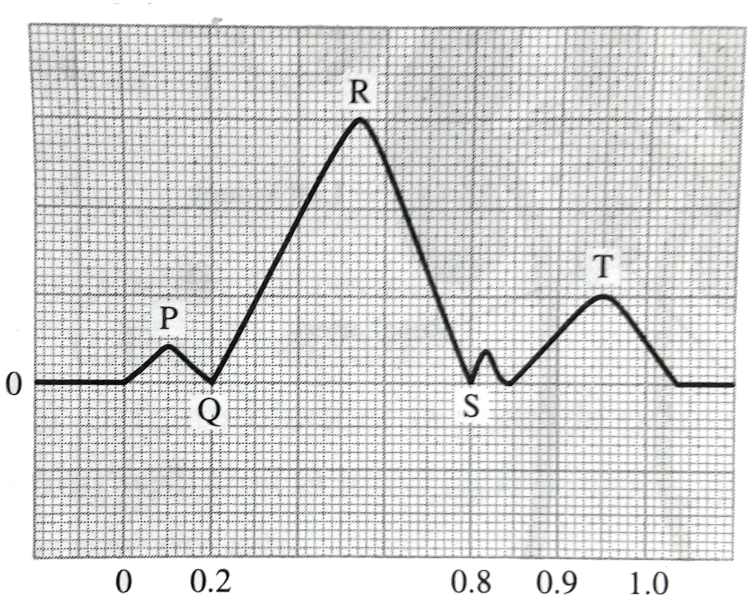
6. Look at the diagram and answer the following questions :



Is the ECG of normal healthy person

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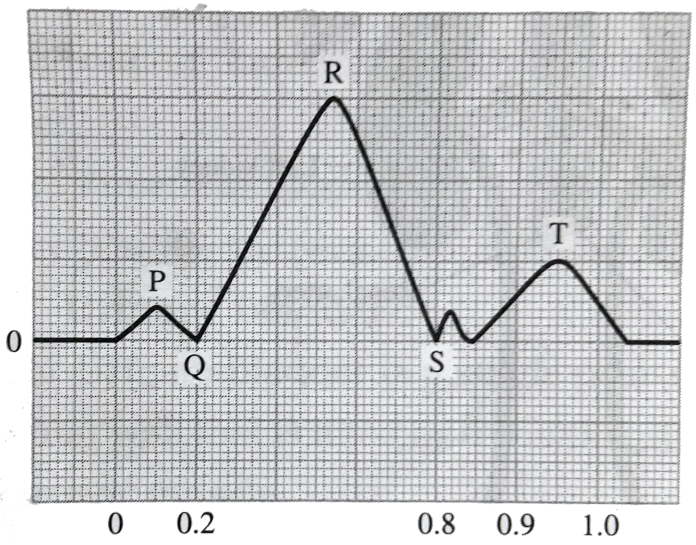
7. Look at the diagram and answer the following questions :



Which electrical activity does QRS wave represent ?

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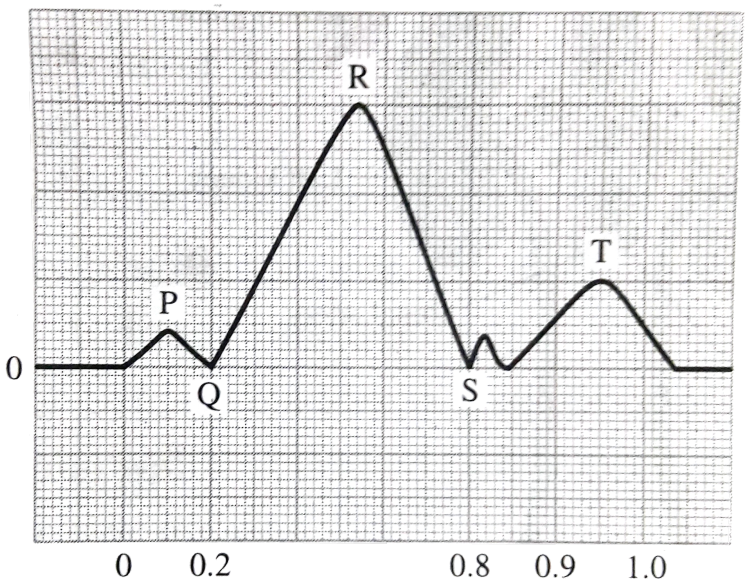
8. Look at the diagram and answer the following questions :



From which part of the heart does QRS signal initiate ?

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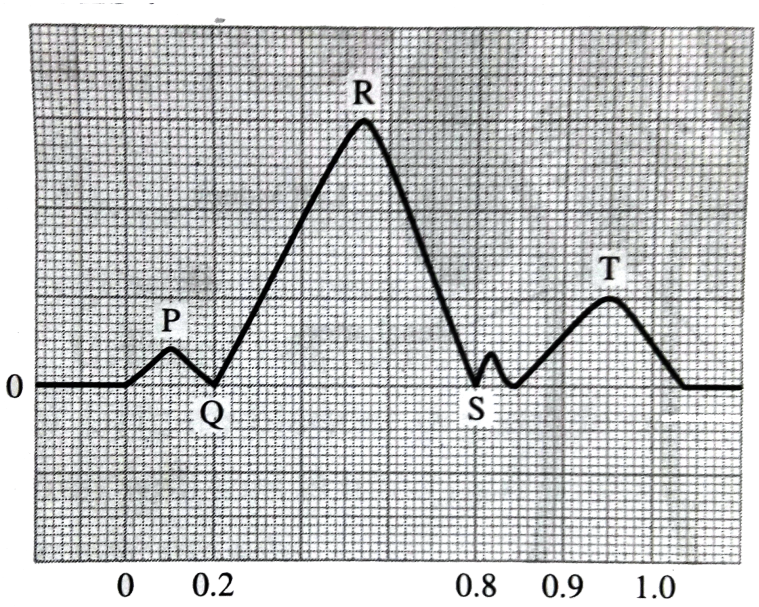
9. Look at the diagram and answer the following questions :



Describe structure of the same.

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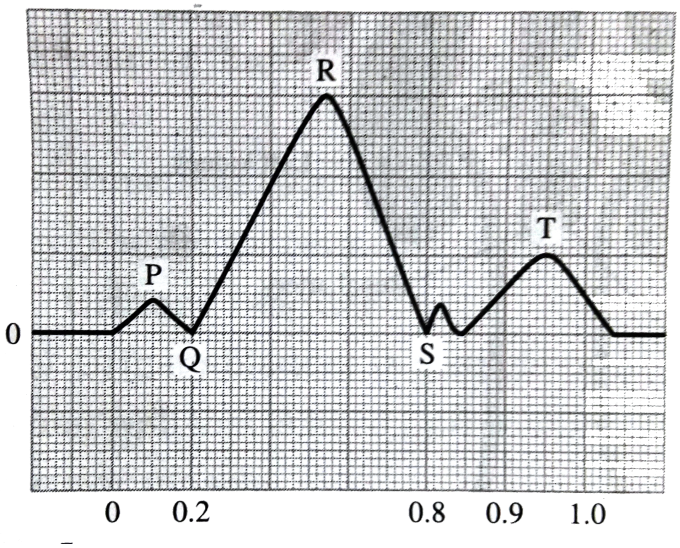
10. Look at the diagram and answer the following questions :



Give the significance.

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Excretion And Osmoregulation

1. With a well labelled diagram , describe human excretory system.

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2. Describe the physiology or mechnism of urine formation.

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Control And Coodination

1. Describe the structure of cerebrum add a note on its functions.

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2. With the help of labelled diagram of lateral view of cerebrum. Describe its structure and give any two functions of cerebrum.

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3. Each cerebral hemisphere is designed for specific function. Give details of these functions. Support your answer with a well labelled diagram .

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4. Describe functional areas of cerebrum with the help of neat and labelled diagram .

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5. Given an account of structure and functions of hind brain.

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6. Describe the internal structure of human ear.

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7. Briefly describe the structure of ear with the help of a suitable diagram.

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8. Ear is one of the important sense organ known for its role in hearing and balancing. Describe those structures presents in the internal ear which helps in these functions.

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9. Describe the different parts of human eyes.

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10. With the help of a neat and labelled diagram, describe anatomy of human eye. Explain the mechanism of vision .

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11. In a person, Pars distalis part of the Pituitary gland is not producing hormones in sufficient quantity. Explain the effects it will produce with respect to the different hormones.

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12. Pituitary gland, through termed as master endocrine gland, operates under instructions

from hypothalamus , by which this control is kept on pituitary glands.

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13. Describe the morphology of thyroid gland. Add a note on functions of thyroid hormones in humans.

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Human Reproduction

1. (a) Draw diagram of female reproductive system of human. Label the following parts:

(1) Site of secondary oocyte development

(2) Structures help in collection of ovum.

(3) Site of fertilization.

(4) Site where implantation of embryo occurs.

(b) Name the hormones secreted by ovary. Also state their functions.

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2. With the help of a neat and labelled diagram, describe the human male reproductive system.

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3. Describe the histology of human testis. Write a note on human sperm.

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4. Describe the T.S. of testis and explain the process of spermatogenesis.

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5. Draw a neat labelled diagram of T.S. of ovary and describe various phases of menstural cycle.

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6. After puberty human female shows cyclic changes in her reproductive system . Explain structural and hormonal changes in the uterus .

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7. Explain the process of early cleavage till the formation of morula.

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8. With the help of labelled diagrams describe the structure of human sperm and unfertilized ovum. A couple is unable to conceive. Which modern techniques are available to overcome this problem?

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Additional Important Questions For Self Practice

1. Explain the merits and demerits of self and cross pollination.

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