



BIOLOGY

BOOKS - NAVBODH BIOLOGY (HINGLISH)

SHORT ANSWER QUESTIONS - I

Chapter 1 Genetic Basis Of Inheritance

1. Enlist the seven traits in pea selected by Mendel.



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2. Mendel selected the garden pea plants for his experiments. Explain OR

What are the reasons for Mendel's success?



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3. The gene for sickle-cell anaemia in homozygous condition is lethal and produces sickle cell trait in heterozygous carrier. Explain.



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4. Write a short note on multiple alleles considering the example of human blood group.



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5. A farmer found more demand for pink coloured *Mirabilis* flower. Explain the pattern of inheritance which will help him achieve this.



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6. What is one gene-one enzyme hypothesis?

Explain in short.



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Chapter 2 Gene Its Nature Expression And Regulation

1. Explain any four characteristics of genetic code.



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2. Describe the structure of operon.



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Chapter 3 Biotechnology Process And Application

1. Enlist the basic steps involved in recombinant DNA technology.



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2. Explain different biosafety issues which may arise due to genetically modified (GM) organisms.



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3. What is a biopatent? Give any two examples.

OR

What is biopatent? Explain it with a suitable example.



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Chapter 4 Enhancement In Food Production

1. Give the objectives of plant breeding.



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2. Describe the breeding of crop plants for disease resistance and high yield.



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3. Enlist the applications of tissue culture.



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4. Give the names of two insect resistant crop varieties.



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5. Write about mutation breeding in short.





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6. Name any two edible varieties of mushrooms.

Give nutritional values of these mushrooms.



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7. With the help of diagrams describe emasculation and bagging.



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8. Large scale cultivation of Spirulina is highly advantageous to human population. Explain giving two reasons.



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9. Explain with suitable example somatic hybridisation as an application of tissue culture.



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Chapter 5 Microbes In Human Welfare

1. Describe microbes as source of food.



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2. What are antibiotics? How are they produced?



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3. Name any two antibiotics with their microbial source.



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4. What are enzymes? Give the names of any four enzymes and their microbial source.



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5. Enlist the advantages of biogas.



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6. Explain in brief biogas production process with the help of a labelled figure.

OR

What is biogas? Write in brief about the production process.



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7. Define biofertilizer. Give two types of fungal biofertilizers.



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8. What are 'biofertilizers' ? Explain them with suitable examples.



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9. What are gibberelins? Give the applications of gibberellins.



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10. Give two examples of microbial pesticides with their hosts



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1. Describe any two factors affecting the rate of photosynthesis.



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2. Rearrange the electron acceptors of cyclic photophosphorylation in sequential order:

1. Plastocyanin 2. FRS 3. Ferredoxin 4. Cytochrome-f.



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3. Why is chlorophyll-a called an essential pigment?



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4. Light and dark reactions are interdependent. Explain



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1. What is respiration? Give the overall equations of aerobic and anaerobic respiration.



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2. Define Respiratory Quotient (RQ) and calculate the respiratory quotient of carbohydrate.



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3. Give the balance sheet of ATP formed during aerobic respiration.



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4. Describe the structure of ATP.



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Chapter 8 Reproduction In Plants

1. Define pollination. Enlist agents for pollination.



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2. Give floral adaptations for chiropterophily.



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3. Give floral adaptations for entomophily.



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4. Floral adaptations for entomophily:

1. Flowers are large and attractive. When small, they are clustered into an inflorescence (e.g. sunflower)
2. Flowers are brightly coloured, with pleasant fragrance.
3. Production of nectar which serves as food for the insects.
4. Additional modifications for attraction of insects, such as corona in passion flower and petaloid bracts in Bougainvillea.

5. Pollen grains spiny and sticky for each adherence to the stigma. Stigma is sticky.

6. Development of special mechanism such as lever mechanism in *Salvia* to favour insect pollination.



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5. Describe the formation of helobial endosperm.



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6. Farmers have to buy hybrid seeds every year because the characters segregate in the progeny. It is very expensive for the farmers. Which reproductive process can help them get seeds that can be used every year? How?



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7. Sketch and label the structure of male gamatophyte in angiosperm. What is siphonogamy?



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8. Explain outbreeding devises in angiospermic plants.



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Chapter 9 Organisms And Environment I

1. What are the different ways of solid waste management?



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2. Suggest measures to conserve the forests.



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3. What is global warming? On what does it depend?



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4. There is a hole in the ozone layer. What do you understand by this?



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5. Give the hazardous effects of agrochemicals.



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6. Enlist causes of deforestation.



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7. Explain carbon cycle.



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8. Explain energy pyramid.



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Chapter 10 Origin And Evolution Of Life

1. All organisms produce more young ones.



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2. Describe the concept of Survival of the fittest.



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3. Explain the concept of struggle for existence.



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4. Enlist any four sequential evolutionary names of human ancestors.



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5. Human evolution passed through four stages as Ape stage, Ape-man stage, Primitive men stage and Modern man stage. Give name

of one representative ancestor from each stage.



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6. Give the graphical representation of Hardy-Weinberg's principle in the form of Punnet Square.



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7. Give any two factors responsible for genetic variation.



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Chapter 11 Chromosomal Basis Of Inheritance

1. Classify the chromosomes on the basis of position of centromere.



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2. Explain the chromosomal theory of inheritance. OR Explain the chromosomal theory.



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3. Rakesh's parents have normal colour vision. But his maternal grandfather is colour -blind. What is the possibility of Rakesh and his siblings becoming colour-blind?



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4. Write a brief account of Turner's syndrome.



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5. What are the characteristic symptoms of Down's syndrome.



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1. What is the goal of Human Genome Project?



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2. Animal used by Dr. Lalji Singh to develop DNA finger printing technique.



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3. Expand the following:

(i) RELP (ii) TPA (iii) TGF-B (iv) HUMULIN



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4. Give the types of blood proteins and human hormones produced by recombinant DNA - technique.



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5. Give the role of

a. Tissue plasminogen activator (TPA)

b. Tissue growth factor-Beta(TGF- β) in Gene therapy.



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6. Write any two scientific and commercial values of transgenic animals in favour of human beings .



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7. Explain -Transgenic animals would also be useful as bioreactors.



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8. Give the applications of DNA fingerprinting technique .



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9. Enlist the genes used in gene therapy.



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10. Give applications of vaccine.



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11. What are the uses of vaccine?



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1. Write a note on artificial acquired active immunity.



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2. Explain in brief the mechanism of antibody antigen complexed formation with a neat labelled diagram.



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3. Why prevention is better than cure for AIDS?



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4. Explain the unique features of acquired immunity.



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5. Enlist the preventive measures of dermatophytosis.



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6. What are the symptoms of cancer?



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7. Enlist the various types of cancer .



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8. Give any one adverse effect each of the following drugs on human health. 1. Opioids, 2. Cannabinoids and 3. Morphines on human health.



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Chapter 14 Animal Husbandry

1. Enlist the principles of farm management.



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2. Give the economic importance of fisheries



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3. Give the economic importance of lac.



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4. Explain the technique of multiple ovulation embryo transfer (MOET) in animal breeding.



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5. Define apiculture . Name the products obtained from it .



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6. Your friend wants to start a business of apiculture.

Enlist the equipment he would need.



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Chapter 15 Circulation

1. Describe agranulocytes with the help of diagrams.



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2. Describe the structure of the heart wall.



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3. How is cardiac activity regulated?



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4. What are the factors affecting the pulse rate?



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5. Explain the term atherosclerosis.



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6. How does excessive eating of salt and fats make one susceptible to heart disease?



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7. Dilip and Mohsin measured their blood pressure. Dilip's B.P. is 120/80 mmHg and Mohsin's B.P. is 160/100 mmHg. Who is suffering from hypertension? What are its causes?





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8. Give the location of following valves within human heart:

- a. Eustachian valve
- b. Thebesian valve
- c. Bicuspid valve
- d. Tricuspid valve



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9. Lymph nodes are known for their role in production of lymphocytes. What is their

other role in providing immunity? How are lymph nodes arranged in the body?



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Chapter 16 Excretion And Osmoregulation

1. Write down the functions of kidney.



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2. Kidneys produce about 180 litres of filtrate per day, but the actual urine production is about 1.2 to 1.5 litres per day. How does this reduction take place?



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3. Kidneys diseases or kidney failure has a side effect. These patients also show decreased RBC production. Why?



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4. Describe the process of ultrafiltration that takes place in nephron.



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Chapter 17 Control And Coordination

1. What are the three divisions of nervous system? What are their chief functions?



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2. What are the types of nerves according to their functions?



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3. Enlist the number and names of motor cranial nerves in human beings.



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4. Enlist any four mixed cranial nerves.



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5. How is blood glucose level maintained?



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6. What is the role of thymosin?



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7. From what chemical compounds are all steroid hormones derived ? Mention at least two examples of steroid hormones.



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8. Describe adrenal glands with respect to morphology, histology and secretions?



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1. Explain the structure of balstula.



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2. Explain the process of budding in Hydra with the help of labelled diagram.



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3. Give the fate of mesoderm.





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4. What is ovulation? What happens to Graafian follicle after ovulation?



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5. Why proliferative phase is called follicular phase?



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6. Name the oral pill used as a contraceptive by human females. Explain how does it prevent pregnancy



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7. What is RCH program ? What are their goals?



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1. 1. What are physicochemical techniques for removal of radiobiological pollutants from water? Which will be useful to desalinate brackish water?



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2. How do Lead and Arsenic affect human health?



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3. Define conservation. What is the main aim of conservation.



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4. Which are the four categories of species classified by IUCN?



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5. Why is conservation of wildlife necessary?





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6. A panel of planning commission experts to discuss the infrastructural needs for the years to come. Will the number of people belonging to different age groups help them? Explain how.



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7. Explain how natality and mortality are calculated.



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