

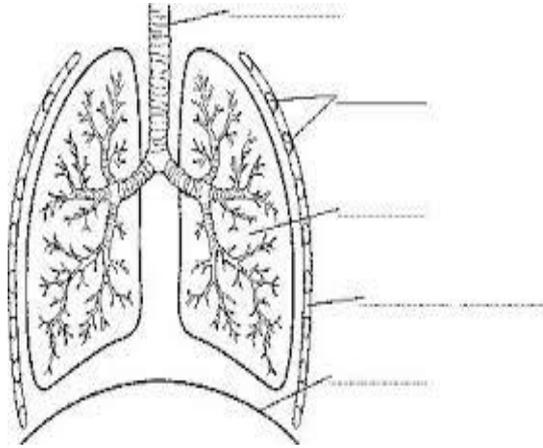


CLASS – X

BIOLOGY- HOTS

Prepared By: Ms. Asha Prabhakar

- 1) Pituitary was said to be the master gland. If pituitary releasing hormones increase in blood would the insulin secretion increase from pancreas?
- 2) What do you understand by the term, Species? Do you consider species a group created by man or is it naturally occurring?
- 3) Label the given diagram and state the role of Alveoli and diaphragm. If diaphragm of man is punctured can breathing continue?



- 4) Mendel is said to be the father of genetics. Name the plant he selected for his experiments. If you were Mendel which plant would you consider for experiments?
- 5) In peas, a pure tall plant TT is crossed with a short plant tt. Establish the ratio of pure tall plant to short plant in F₂ generation. If you were in place of Mendel and during breeding experiments discovered few plants with intermediate height what would be your law of dominance?
- 6) Write the steps of breathing in humans. Which is more energy requiring inhalation or exhalation?
- 7) The axons of nerve fibers may have insulating and protective sheath of myelin. Does non-myelinated neurons responsible for short circuits in brain?
- 8) Thyroxin hormone is released from thyroid gland. Can the size of thyroid gland increase with increase and decrease in thyroxin levels?
- 9) Justify the given statement, “Darwin was able to explain how mammals originated from reptiles or how amphibians originated from fishes.”
- 10) Name the digestive glands present in humans. What would be the fate of carbohydrate digestion if salivary amylase is absent?
- 11) Any surface in the body can act as respiratory surface provided it is thin, richly supplied with blood vessels and exposed to air .Justify the statement

12) How are involuntary muscular actions different from voluntary muscular actions? What may happen if the fore brain starts controlling secretions of the digestive system?

13) Bile juice contains no enzyme then why is it important for digestion? In the given diagram label the organ that produces bile and also the organ that stores bile juice. If the gall bladder is removed, the digestion of fat would be affected or not?



14) Land is very expensive anywhere in India therefore to build a shop 6m long would be very difficult for an optician. Suggest an alternative for the optician for testing the eyes of an individual.

15) In which layer of the eyes maximum refraction of light takes place and why?

16) Name the different chambers and protective layers of human eye. Do you think the skin covers the eyeball or is it broken in the region of eyes?

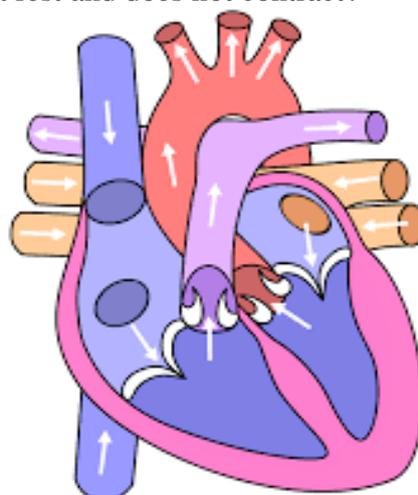
17) Who proposed theory of evolution? What are its main postulates? Do you think evolution is random or purposeful?

18) Name the organ of vision and cells of perception of light and colors. Would vision be affected if eyelids or eyebrows are removed?

19) How are capillaries different from arteries and veins? If veins were chosen instead of capillaries for providing food material to the body what changes in vein structure would you suggest?

20) If trachea is the area of exchange of oxygen and carbon di oxide instead of alveoli, what changes would be required in the structure of trachea?

21) Given below is the diagram of human heart. The direction of blood flow is indicated with the help of arrows. Draw a flow chart to explain double circulation. What creates the pressure in blood when during diastole the heart is at rest and does not contract?



22) Why are leaves green in color and in what form they make and store food? What if the chlorophyll is able to manufacture starch in a human body?

23) Normally pyramids of energy and number have broad base and narrow top, can it be inverted? What would constitute narrow base and broad top?

24) If a single elephant couple are left on the earth with no other animal species around would they populate the entire earth? Why or Why not?

25) A potato is cut into number of pieces, these potato pieces are placed on wet cotton kept in a bag. After a few days green shoots and roots appear only from some potato pieces and not from all potato pieces. Why?

