



Dr. Bbosa Science

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NAME:.....

STREAM:.....

SENIOR FOUR

553/1

BIOLOGY

PAPER 1

EXAM 12

TIME: 1 ½ HOURS

Instructions:

Answer all questions.

- Which one of the following is the least important reason why plants need to ensure efficient seed dispersal in nature?
A: increasing chances of finding a better habitat for multiplication
B; ensuring better colonization of different places
C: Escape being eaten by animals in its original habitat
D: Reducing competition for food, resulting from overcrowding.
- Which of the following parts of the flower is non essential?
A: corolla B: stigma C: embryo sac D: Anther
- Internal respiration may be defined as
A: breathing in and releasing of oxygen in the tissues
B: the oxidation of food substances to release energy
C: the building up (synthesis) of complex substances
D: getting rid of carbondioxide that would accumulate in the tissues
- Respiratory energy is believed to be used in absorption of mineral salts by plant roots. Which of the following observations best supports that hypothesis
A: carbohydrate is stored in the root
B: chloride uptake is reduced in lower oxygen concentrations
C: The root hairs provide a large surface area for gas exchange
D: living roots give off carbon dioxide.

Active transport requires energy produced in presence of oxygen

5. People living in high altitudes have more red blood cells than those in low altitudes. Which of the following best accounts for this phenomenon?
 - A: the cold temperature stimulates the production of red blood cells to keep the body warm
 - B: Inhabitants of high mountains breathe more quickly
 - C: The low air pressure requires more red corpuscles to supply the body cells with oxygen**
 - D: the low air pressure in high mountains speeds the blood circulation so that more red corpuscles are needed.

6. Which of the following activities can take place together in the skin?
 - A: vasodilatation, increase in sweating, contraction of erector pili muscles**
 - B: vasodilatation, increase in sweating, shivering
 - C: increase in sweating, vasodilatation, relaxation of erector pili muscles
 - D: vasoconstriction, increase in sweating, shivering

7. The main value of sweating in man is that during the process
 - A: Excess water is removed from the body
 - B: latent heat of vaporization of water helps to cool**
 - C: Excess mineral salts are removed from the body
 - D: the body gets rid of excess nitrogenous wastes

8. Which of the following best explains why plant shoots bend towards unidirectional light?
 - A: a higher auxin concentration on the dark side promotes faster elongation than on the illuminated side**
 - B: there is greater concentration of auxin on the illuminated side than dark side
 - C: there is equal auxin concentration on both sides
 - D: A higher auxin concentration on the illuminated side promotes faster elongation than the dark side

9. Which of the following is the correct sequence for successful completion of a reflex action?
 - A: **stimulus** – receptor – impulse – motor neurone – central nervous system – sensory nerve – effector
 - B: impulse – receptor – stimulus – motor neurone – central nervous system – sensory neurone – effector
 - C: impulse – receptor – stimulus – sensory neurone – central nervous system – motor neurone – effector
 - D: stimulus** – receptor – impulse – sensory neurone – central nervous system – motor neurone – effector

10. Which of the following changes occurs when you walk out of bright sunshine into a poorly lit room?

A: the pupils become larger	B: the lens becomes thicker
C: the ciliary muscle relaxes	D: the eyes become blind

Pupil become larger to allow in much light

11. Which part of the ear is responsible for the detection of the positions of the body when the body is rotating?

A: Perilymph	B: semi circular canals	C: Cochlea	D: Ossicles
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C: poor root system

D: thin layer of cuticle

Large airspaces promote buoyance and evaporation of excess water

24. The rate of glomerular filtration is highest in

A: man

B: Amphibians

C: fresh water fishes

D: marine fishes

To promote removal of excess water

25. Which of the following features are most useful to amphibians in living an aquatic habitat?

A: moist skin, membrane round eggs and gills

B: membrane round eggs, gills and webbed feet

C: long hind limbs, short forelimbs and gills

D: webbed feet, moist skin and gills.

26. Which one of the following does not occur when the floor of the buccal cavity is raised during breathing in a fish?

A: mouth closes

B: opercula valve closes

C: opercula volume increases

D: mouth opens

27. Which one of the following belongs to a different phylum?

A: Octopus

B: scorpion

C: millipede

D: crab

Octopus belong to phylum Mollusca the rest belong to phylum Arthropoda

28. Which one of the following concentrations of proteins in mammals is correctly indicated?

High in

A: the glomerular filtrate and urine

B: the blood plasma, absent in glomerular and filtrate urine

C: both blood plasma and glomerular filtrate but in urine

D: blood plasma, glomerular filtrate and urine

29. The hormone secretin stimulates the release of

A: bile from gall bladder to duodenum

B: insulin from the pancreas

C: intestinal juice

D: gastric juice

30. The lymphatic system is important in

A: promoting blood clotting

B: distribution of heat

C: transporting hormones around the body

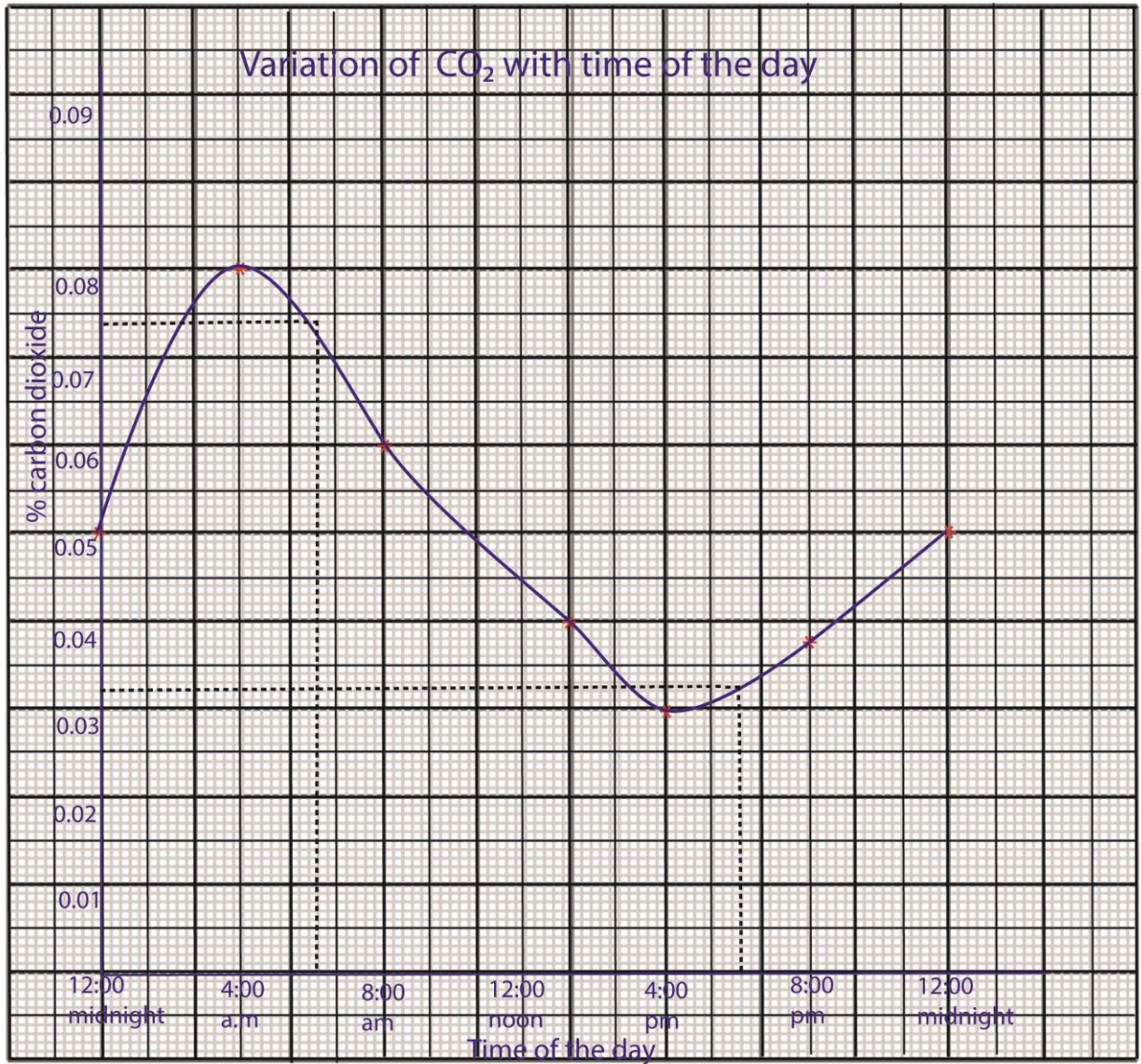
D: draining excess tissue fluid into the blood circulating system.

SECTION B:

31. The concentration of carbon dioxide in the air of a tropical rainforest was measured over a 24 hour period and the results are obtained below

Time of day	12:00 midnight	4:00 a.m.	8:00 a.m.	12:00 noon	4:00 p.m.	8:00 p.m.	12:00 midnight
% carbon dioxide	0.050	0.080	0.060	0.040	0.030	0.038	0.050

(a) Plot a Graph of percentage carbon dioxide concentration against time



(b) From the graph, determine the carbon dioxide concentrations at 6.00 a.m. and 6.00 p.m.

6.00a.m: 0.074%

6.00pm: 0.032%

(c) Explain why the concentration of carbon dioxide was high at 4.00 a.m.

Due to respiration at night

(d) Explain why the concentration of carbon dioxide was decreasing between 8.00 a.m. and 4 p.m.

Because carbon dioxide is used for photosynthesis

SECTION C:

32. Describe the mechanism of hearing in man.

Hearing

1. Sound funnels into the ear canal and causes the eardrum to move.
2. The eardrum vibrates with sound.
3. Sound vibrations move through the ossicles to the cochlea.
4. Sound vibrations cause the fluid in the cochlea to move.
5. Fluid movement causes the hair cells in Organ of Corti to distort.
6. Distortion of hair cells causes firing of impulses through Auditory nerves to the brain that interprets the nature of sound.