



BIOLOGY

BOOKS - HT Olympiad Previous Year Paper

THE WORLD OF LIVING

Multiple Choice Questions

1. Read the following statements and select the option that correctly identifies true (T) and

false (F) ones.

(i) The number of petals and sepals in a flower is always equal.

(ii) Stilt roots grow downwards and provide extra support to the plant.

(iii) Calyx forms the innermost whorl of a flower.

(iv) Leaf tendrils are found in Gloriosa plant and sweet pea plant.

(v) Calyx and corolla form essential whorls of

the flower.

	(i)	(ii)	(iii)	(iv)	(v)
(A)	T	T	F	T	F
(B)	F	T	F	T	F
(C)	F	T	T	T	F
(D)	T	T	F	F	T



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2. Suman categorised organisms on the basis of their habitat. She made three groups of three organisms each and by mistake she placed one odd member in each group. Identify the odd member of each group and select the incorrect statement.

Group 1 : Arctic fox, Penguin, Macaw

Group II: Kangaroo rat, Rattle snake, Weasel

Group III : Toucan, Gorilla, Polar bear

A. Macaw of group I should be
interchanged with polar bear of group
III.

B. Weasel of group I should be
interchanged with toucan of group III.

C. Polar bear of group III should be
replaced with red eyed tree frog.

D. Macaw of group I should be replaced
with reindeer.

Answer: B



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3. Select the incorrect match.

	Type of vertebrae	No. of vertebrae
(i)	Cervical vertebrae	7
(ii)	Thoracic vertebrae	12
(iii)	Lumbar vertebrae	4
(iv)	Sacral vertebrae	5
(v)	Caudal vertebrae	5

- A. (iii) and (v) only
- B. (ii), (iii) and (iv) only
- C. (i), (iii) and (v) only
- D. (ii) and (v) only

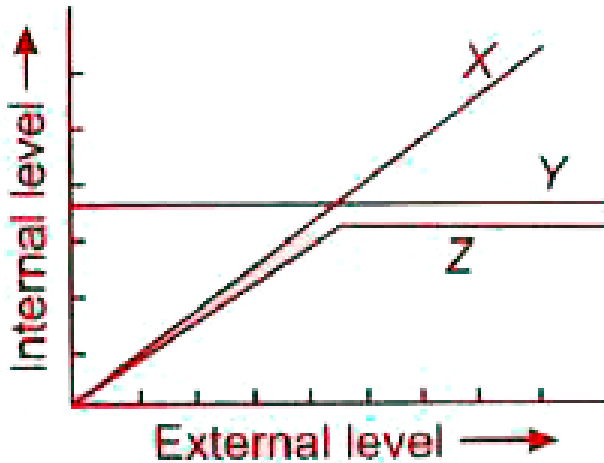
Answer: A



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4. The given graph represents how three different living organisms (X, Y and Z) cope with the external environmental conditions,

Study the graph and select the correct option regarding X, Y and Z.



- A. X could be a mammal.
- B. Y could be a bird.
- C. Z could be a fish
- D. X could be a bird.

Answer: B



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5. Which of the following is a mismatched pair?

A. Fibrous root - Wheat, Maize

B. Parallel Venation - Banana, Sugarcane

C. Reticulate venation - Mustard, Hibiscus

D. Creeper - Watermelon, Pea plant

Answer: D



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6. Match column I with column II and select the correct option from the given codes.

Column I

- (a) Hinge joint
- (b) Gliding joint
- (c) Pivot joint
- (d) Ball and socket joint

Column II

- (i) Neck joint
- (ii) Shoulder joint
- (iii) Elbow joint
- (iv) Wrist joint

A. (a) - (iii), (b) - (iv), (c) - (i), (d) - (ii)

B. (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)

C. (a) - (i), (b) - (ii), (c) - (iv), (d) - (iii)

D. (a) - (i), (b) - (iii), (c) - (i), (d) - (iv)

Answer: A



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7. Read the following statements (i)-(v), each with one or two blanks.

(i) _____ have liquid skeletons.

(ii) The first cervical vertebrae is called _____

(iii) The longest bone of human body is _____

(iv) _____ is strong, flexible band that holds bones together at the joints.

(v) _____ is a soft tissue that covers and protects the ends of long bones at the joints.

Which of the following options correctly fills any two of these blanks?

A. (i)-Earthworm, (iii)-Humerus

B. (iv)-Ligament, (v)-Cartilage

C. (ii)-Axis, (iii)-Femur

D. (iv)-Tendon, (v)-Ligament

Answer: B



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8. Study the given list of adaptations in plants.

- (i) Fleshy stem
- (ii) Leaves reduced into spine
- (iii) Buttress root
- (iv) Long root
- (v) Drip tips
- (vi) Broad leaves

Which of the given adaptations are of plants inhabiting rainforests (*P*) and deserts (*Q*)?

- | | <i>P</i> | <i>Q</i> |
|-----|-------------------|------------------|
| (A) | (i), (iii), (v) | (ii), (iv), (vi) |
| (B) | (ii), (iii), (iv) | (i), (v), (vi) |
| (C) | (iii), (iv), (v) | (i), (ii), (vi) |
| (D) | (iii), (v), (vi) | (i), (ii), (iv) |



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9. Refer to the given figures X and Y, and select the incorrect statement regarding them.



A. In X, stem is modified to form tendrils whereas in Y leaf is modified to form tendrils.

B. Both X and Y are weak-stemmed plants.

C. X type of tendrils are also found in passion flower whereas Y type of tendrils are also found in Gloriosa.

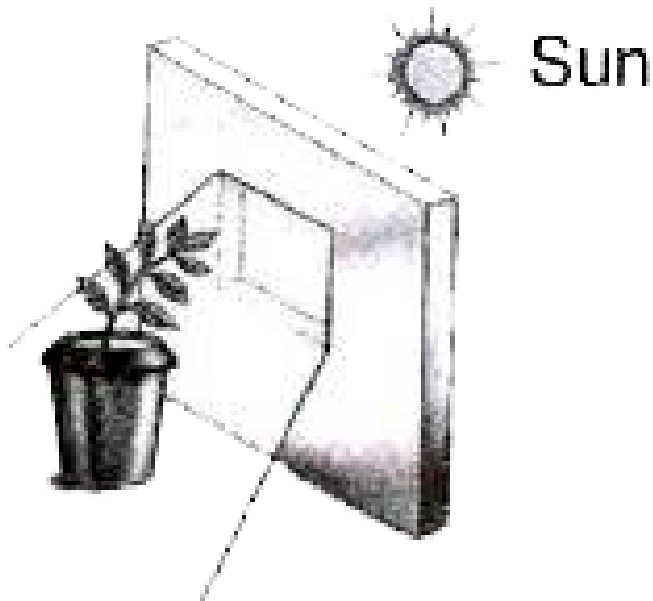
D. In X, leaf is modified to form tendril whereas in Y, stem is modified to form tendril.

Answer: D



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10. The given figure shows an example of



A. Phototropism

B. Geotropism

C. Autotropism

D. Photosynthesis

Answer: A



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11. Which of the following statements is correct?

A. The soft substance present inside the bones is called bone marrow.

B. Pivot joint allows the maximum movement in all planes whereas hinge joint allows the least movement in one plane only.

C. The only movable bone in skull is the upper jaw bone.

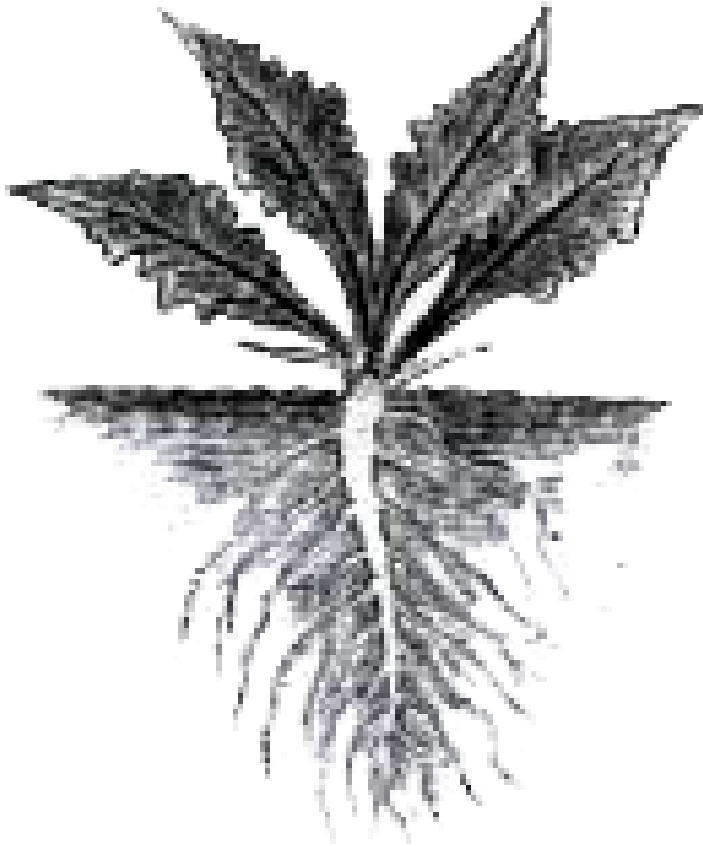
D. Snakes have hollow bones and birds have flexible backbones.

Answer: A



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12. Which of the following statements hold true for the root system shown in the given figure?



(i) It is a fibrous root system.

(ii) The branches that arise from the main root are called fibrous roots.

(iii) It is a tap root system.

(iv) Examples of this type of root system are pea, radish, carrot and turnip.

- A. (i) and (iii) only
- B. (ii) and (iv) only
- C. (iii) and (iv) only
- D. (ii) and (iii) only

Answer: C



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13. The given table shows some characteristics of herbs, shrubs and trees. Which of the given points is/are incorrect ?

	Feature	Herbs	Shrubs	Trees
(i)	Size	Very small, usually less than 1 m high	Medium sized, usually 1-3 m high	Tall, generally more than 3 m high
(ii)	Nature of stem	Green and tender stems with few branches	Hard and very thick stem with branches on the upper part of the stem	Hard stem but not very thick; branches arise near the base of the stem
(iii)	Examples	Grass, tomato, wheat, mint	<i>Hibiscus</i> , lemon, rose, jasmine	Gulmohar, neem, peepal, mango

A. (i) only

B. (ii) only

C. (iii) only

D. (ii) and (iii) only

Answer: B



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14. What is a common character of the above shown animals?



- A. They all live in water
- B. They all lack backbone
- C. They all have scales on their body

D. They all lay eggs to reproduce.

Answer: B

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15. Leaves may be simple or compound. Which of the given figures show(s) compound leaves?



a



b



c



d

A. a only

B. b,c and d only

C. a and d only

D. a,b,c and d

Answer: B



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Achievers Section Hots

1. Refer to the given dichotomous key.

I. (a) It conducts food, water and mineral to different parts of the plant.- Go to II (b) It acts as primary site of photosynthesis - Go to III

II. (a) It is modified to protect the plant. -P

(b) It is modified to store food. - Q

III. (a) It is modified to support the plant. -R

(b) It is modified to trap insects. - S

Select the incorrect option regarding P- S.

A. P could be stem of Bougainvillea

whereas S could be leaves of Nepenthes.

B. Q could be stem of potato whereas R could be tendril of Gloriosa.

C. Q could be stem of onion whereas S could be leaf of Venus flytrap.

D. Q could be stem of ginger whereas R could be tendril of grapevine.

Answer: D



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2. Refer to the given paragraph.

The two main types of root are X and Y. X roots are mostly found in plants having leaves with reticulate venation, while y roots are mostly found in plants having leaves with parallel venation.

Select the incorrect statement regarding X and Y.

A. Radish, turnip and carrot are modifications of X.

B. X is found in gram while Y is found in barley.

C. X spreads horizontally hence cannot provide strong anchorage whereas Y penetrates very deep into the soil hence provides strong anchorage.

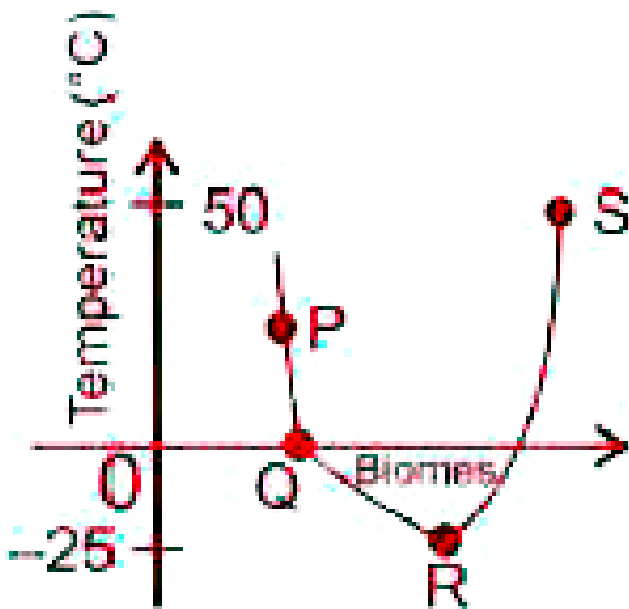
D. In Y, primary root is short-lived while X has persistent primary root.

Answer: C



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3. The given graph shows temperature gradient through different biomes of Earth (P, Q, R and S).



Refer to the given graph and select the incorrect statement regarding P, Q, R and S.

A. Plants inhabiting S may have photosynthetic stems and leaves reduced to spines.

B. Animals inhabiting R possess thick layer of subcutaneous fat .

C. Animals inhabiting P show arboreal adaptations and often use camouflage

and startling colouration for protection against enemies.

D. Plants inhabiting Q have large flat leaves and animals inhabiting Q excrete concentrated urine and are nocturnal.

Answer: D



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4. Refer to the given figures of machines P, Q, R and S which represent different joints of our body. Identify the joints according to movement of these machines and select the correct statement.



P



Q



R



S

A. P type of joint is found between the upper arm bone (humerus) and shoulder.

B. Q type of joint is present in our elbow and knee and allows movement in only one plane.

C. S type of joint allows side to side as well as backward and forward movement, e.g., wrist joint.

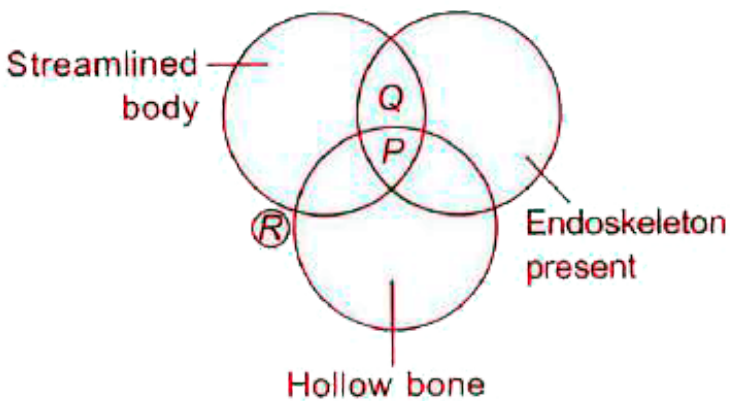
D.R type of joint allows the highest freedom of motion e.g., hip joint.

Answer: C



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5. Refer to the given Venn diagram and select the incorrect statement regarding P, Q and R.



A. R is a shelled animal that possesses a muscular structure called foot which produces a series of wave like movements, pushing its body forward.

B. Q has paired and unpaired fins that help in movement in water.

C. P has special air sacs connected to the lungs which aid in respiration process.

D. Q has three pairs of jointed legs which help it to walk, run and climb.

Answer: D



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