GUESS QP - BIOLOGY PART

CLASS: X SUB: SCIENCE Marks: 80 Time: 3 Hours

General Instructions:

i. This question paper consists of 39 questions in 5 sections.
ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
iii. Section A consists of 20 objective-type questions carrying 1 mark each.
iv. Section B consists of 6 Very Short questions carrying 2 marks each. Answers to these questions should be in the range of 30 to 50 words.
v. Section C consists of 7 Short Answer type questions carrying 3 marks each. Answers to these questions should be in the range of 50 to 80 words.
vi. Section D consists of 3 Long Answer type questions carrying 5 marks each. Answers to these questions should be in the range of 80 to 120 words.
vii. Section E consists of 3 source-based/case-based units of assessment of 4 marks each with sub-parts.
viii. Draw appropriately labelled diagrams where ever required. Use a pencil for drawing.

SECTION A

Q. No

Select & write one most appropriate option out of the four options given for each of the questions 1-20

1 Chem. Q.

2 Chem. Q.

3 Chem. Q.

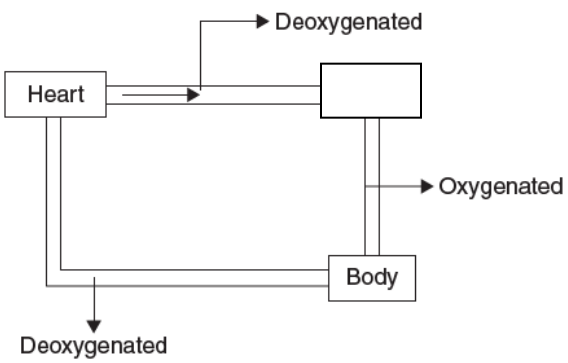
4 Chem. Q.

5 Chem. Q.

6 Chem. Q.

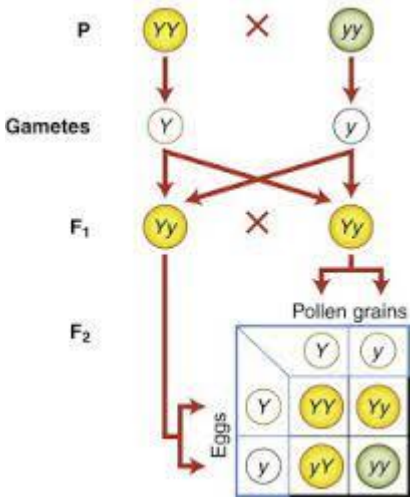
7 Chem. Q.

8 The given diagram represent circulation in:



(a) Human beings (b) Fishes (c) Amphibians (d) Birds

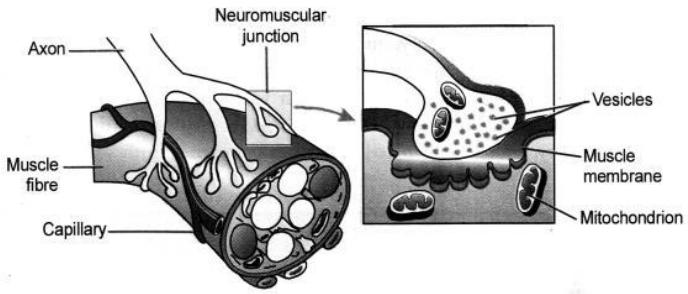
9 In a monohybrid cross, 120 plants are obtained with yellow and green seeds.



The ratio of homozygous and heterozygous will be:

(a) 40: 80 (b) 60: 60 (c) 20: 100 (d) 10: 110

10 The neuromuscular junction and synapse are shown in the below figure.



Identify the correct statement regarding the nerve impulse transmission through the synapse.

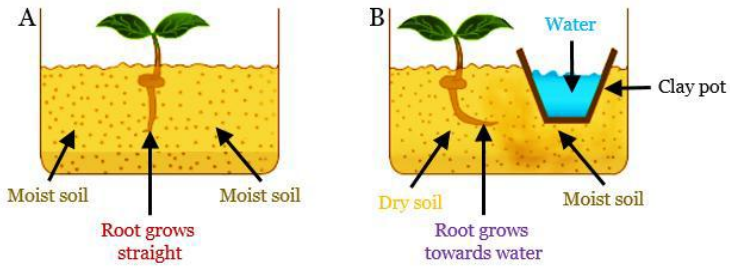
A. Nerve impulses cross the synapse with the help of electrical impulse

B. Nerve impulses cross the synapse with the help of axons

C. Nerve impulses cross the synapse with the help of chemicals

D. Nerve impulses cross the synapse with the help of hormones

11 Carefully study the experimental setup A and B.

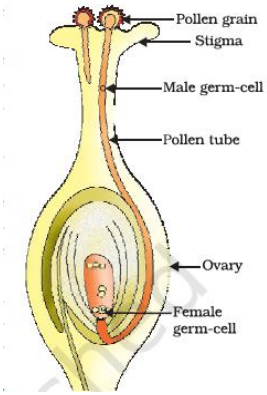


Based on the given experimental setup, which type of tropic movement is shown by root in setup B?

(a) Chemotropism (b) Hydrotropism (c) Geotropism (d) Phototropism

OR

Which type of tropic movement is shown in figure?



(a) Chemotropism (b) Hydrotropism (c) Geotropism (d) Phototropism

12 Given below are three food chains.

I	
II	
III	

Out of three food chains, which one is more energy efficient?

(a) I (b) II (c) III (d) All

13 Phy. Q.

14 Phy. Q.

15 Phy. Q.

16 Phy. Q.

Q. no 17 to 20 are Assertion - Reasoning based questions.

These consist of two statements – **Assertion (A) and Reason (R).** Answer these questions by selecting the appropriate option given below:

(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and R is not the correct explanation of A
(c) A is true but R is false
(d) A is False but R is true

17 **Assertion (A)**: Chem Q.

Reason(B):

18 **Assertion (A):** The greatest number of individuals are generally present at the highest trophic level of an ecosystem.
Reason (R): Organisms in the highest trophic levels of an ecosystem show the maximum extent of biological magnification.

19 **Assertion (A):** Mendel chose garden peas as the material for his experiments.
Reason (R): Garden pea has well-defined contrasting traits and is bisexual.

20 **Assertion (A):** Phy. Q.
Reason (B):

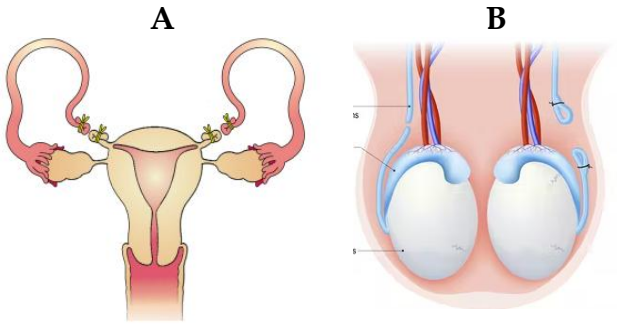
SECTION B

Q. no. 21 to 26 are very short answer questions.

21 Chem Q.

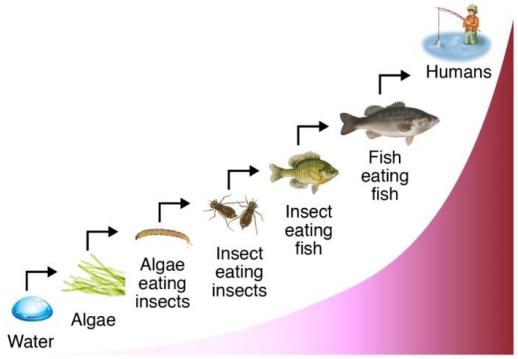
OR

22 During a family planning session, the doctor recommended one of the following surgical methods to a couple as a contraceptive method.



(a) Name the surgical methods shown in diagrams 'A' and 'B'. Also, mention the tubes which are cut in each of these surgical methods. Why are these surgical methods adopted?
(b) What are sexually transmitted diseases? Is the above method can prevent STDs? Mention contraceptive method which is found safe towards preventinfg HIV to a certain extent.

23 A water body (eg. a river) contains organisms like algae (phytoplankton), algae-eating insects, insects, small fishes and fish-eating fish are depicted in the figure.

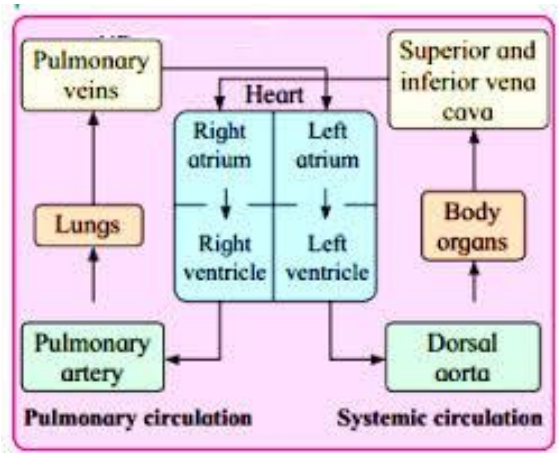


If the water body was contaminated with mercury, which among the organisms will have the maximum amount of the chemical? Name and define the phenomenon involved and its effect on organisms of higher tropic levels.

24 (a) Which is the nature of blood passing through following blood vessels:

(i) Pulmonary vien (ii) Pulmonary artery

(iii) Seperior and inferior vena cava (iv) Aorta



(b) How does heart prevent the flow the blood from right and left ventricle to their respective atrium?

(c) What the nature of the walls of the ventricle and atrium? Why is such an antomical feature required?

25 Phy. Q.

26 Phy. Q

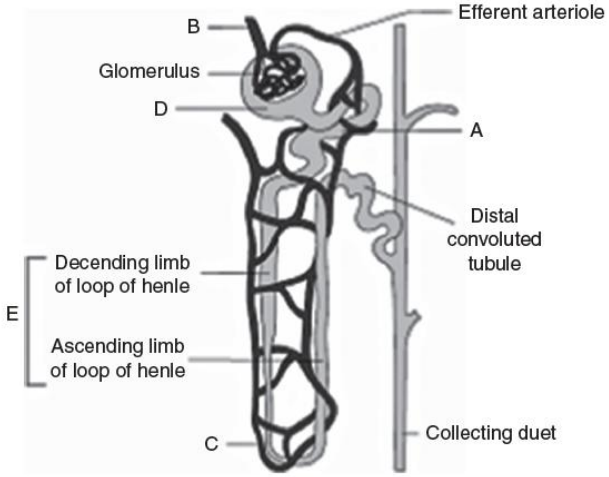
SECTION C

Q.no. 27 to 33 are short answer questions.

27 Chem. Q.

28 Chem. Q.

29 (a) Name the substances reabsorbed from the location 'C'.

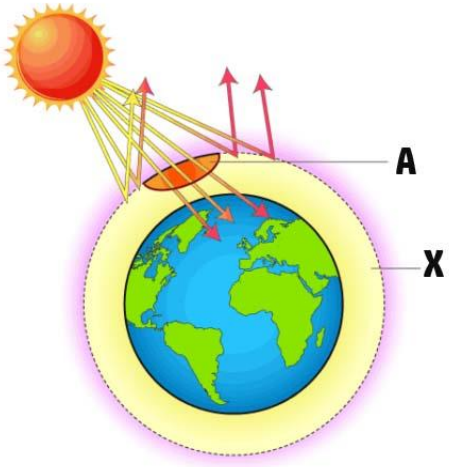


(b) In case of kidney failure, what is the alternative source?

(c) Write e a flow cahrt for the flow of initial filtrate, urine and sperms from their origin to till leave the body.

OR

Study the diagram given below:



(a) Name the harmful rays which are coming from the sun and their effects on living organisms.
(b) Name the damage that happens in the upper layer of the atmosphere which is represented as 'A".
(c) Name a chemical that is responsible for the increased entry of harmful rays to the Earth.
(d) Name the gas 'X' which can block the entry of harmful rays from the Sun to the Earth and represent the chemical reaction that leads to the formation of the gas 'X'.

30 Phy. Q.

31 Phy. Q.

32 Phy. Q.

33 B

SECTION D

Q.no. 34 to 36 are Long answer questions.

34 Chem. Q.

35 **A cross is made between two purebred tall pea plants with violet flowers (TTWW) and dwarf pea plants with white flowers (ttww).**

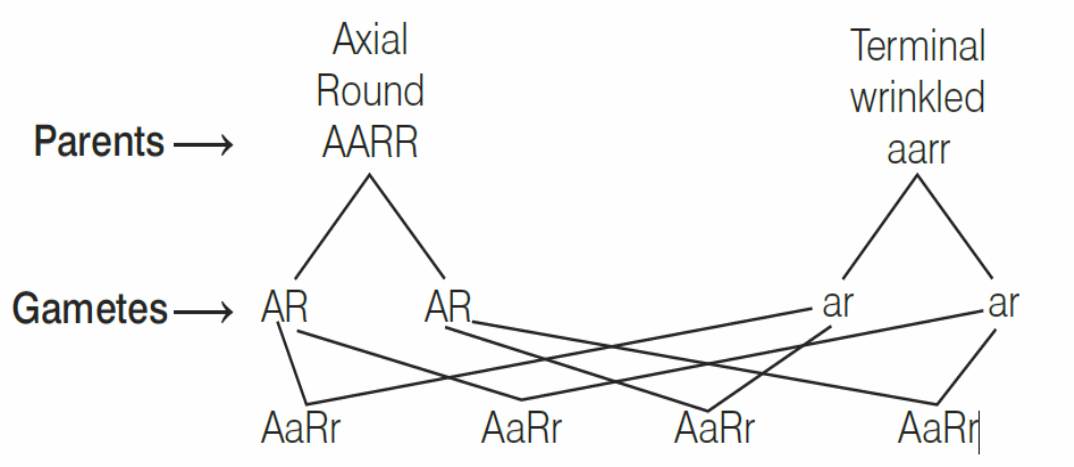
(a) What will be the phenotype of first-generation plants? Why?

(b) On selfing, the first generation plants, 4 types of phenotypes appear in the second generation plants. Mention the new combinations/hybrids that appear in the phenotypes of the F_2 generation.

(c) How many seeds with these new combinations of characters will be produced when a total of 160 seeds are produced in the F2 generation? Explain with reason.

OR

Mendel's experiment on sweet pea plants having Axial flowers with round seeds (AARR) and terminal flowers with wrinkled seeds (aarr) is shown below.



(a) Phenotype of F1 progeny is:

(b) Phenotype of F2progeny produced upon by the self-pollination of F1 progeny:

(i) axial round and axial winkled

(ii) terminal round

(iii) terminal wrinkled

(iv) All of the above

(c) A cross between two individuals results in 9 : 3 : 3 :1 for four possible phenotypes of progeny. This is an example of a ..... cross.

(d) Make a Punnett square for the possible combination of gametes in the F2 generation. (Genotype only)

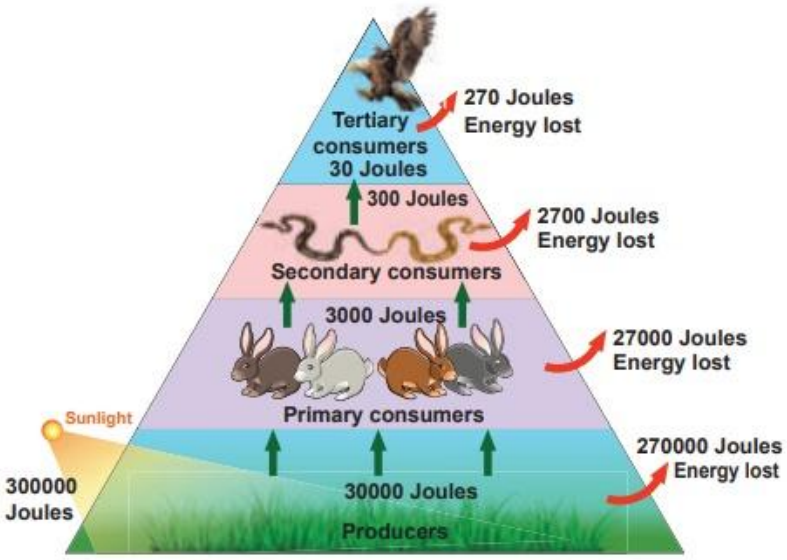
36 Phy. Q.

SECTION E

Q.no. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts (i- iv).

37 Phy. Q.

38 **(i) What is depicted in the scheme? Define.**

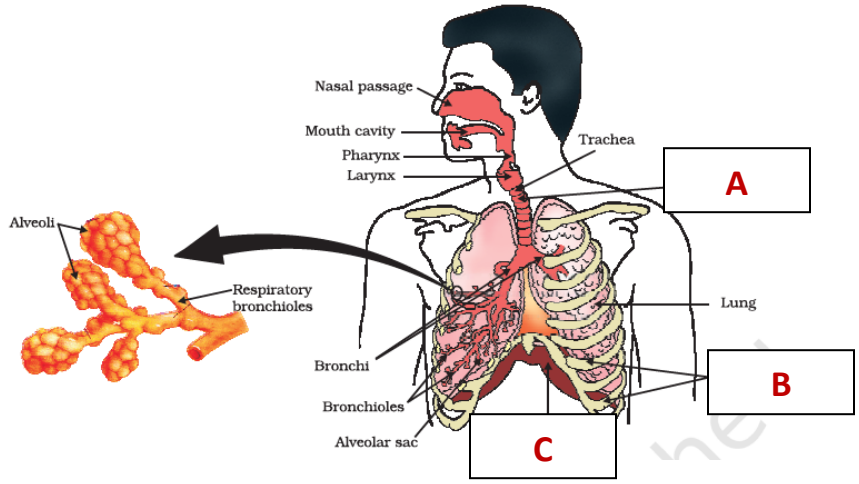


(ii) Why do tertiary consumers get only 30 J of energy?

(iii) Even though the 300000 J energy of sunlight falls on plants, only 30000 J energy is only shown at the producers level. Why?

(iv) What is the trend you can notice in each tropic level in terms of energy loss? Is the energy flow in the above food chain unidirectional? If yes what is the rationale behind it?

OR



(i) Mention the role of hairs and mucus present in nasal passage. Also, write the role of 'A' in the respiration.

(ii) What type of movements the parts labelled as 'B' and 'C' performs during respiration.

(iii) Why it is required to maintain a residual volume of air in the lungs always?

(iv) Alveoli has special anatomical features for increasing the rate of diffusion of oxygen and carbon dioxide. Point out it.

OR

If diffusion were to move oxygen in our body, it is estimated that it would take 3 years for a molecule of oxygen to get to our toes from our lungs. Then how does our body transport oxygen so quick and effficeintly to different parts of the body?