

Ashwani Gupta



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Class – X Science (Theory)

Time: 3hrs

MM: 80

General Instructions:

- i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- ii) All questions are compulsory.
- iii) There is no over all choice. However, internal choice has been provided in all the three question of five marks category. Only one option in such question in to be attempted.
- iv) All questions of section A and all questions of section B are to be attempted separately.
- v) Question numbers 1 to 4 in section A are one mark questions. There are to be answered in one word or one sentence.
- vi) Question numbers 5 to 13 are two mark questions, to be answered in about 30 words each.
- vii) Question numbers 14 to 22 are three mark questions, to be answered in about 50 words each.
- viii) Question numbers 23 to 25 are five mark questions, to be answered in about 70 words each.
- ix) Question numbers 26 to 41 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section-A

1. Why do clouds look white?
2. Why are unsaturated hydrocarbons more reactive than saturated hydrocarbons?
3. How much of the solar energy, falling on the leaves of the plants in a terrestrial ecosystem is captured?
4. How does mixing cause pollution?
5. Define angle of prism. What is its usual value?
6. A car-driver uses a rear-view convex mirror of 2.5m focal length to see the traffic behind him. If another car is 10m away from the mirror, find its image position, nature & size.
7. What happens to the speed of light when it undergoes refraction? Explain why?
8. Why do we need to use our resources judiciously?
9. (a) How were the position of the cobalt & nickel resolved in the modern periodic table?
(b) How do you think the tendency to lose electrons will change in a group?
10. (a) Non-metals are electronegative. What do you mean by this statement?
(b) What was the significance of Newland's work?
11. Which people are mainly affected by various developments projects?
12. (a) Mention advantages of sexual reproduction.
(b) What is cervix?
13. How does rhizopus multiply by spores?
14. (a) Why can a virtual image not taken on a screen?

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(b) A convex lens forms a real & inverted image of a needle at a distance of 50cm from it. Where is the needle placed in front of the convex lens if the size of the image is equal to the size of the object? Also find the power of a lens.

15. Why does the sun appear reddish early in the morning?
16. (a) The magnification produced by a plane mirror is +1. What does this mean?
(b) Distinguish between a convex & a concave mirror.
17. Explain why the cleansing action of a detergent is more effective than a soap?
18. Given below is a list of elements from the periodic table:
S, Al, C, Ar, Mg, F, O and B
Choose from the above list:
- (i) The most metallic element.
 - (ii) The most electronegative element.
 - (iii) The elements of Period 3 of the periodic table.
 - (iv) The elements of group 6 of the periodic table.
 - (v) A noble gas.
19. What are fossils? How do we know about the age of fossils?
20. An organ like wings in birds is of advantage to the organism. Did wings arise in stages or were formed due to a single sudden change in the DNA? Explain.
21. A population of red beetles, living in green bushes, is being eaten, by the crows. During sexual reproduction, a green beetles is found in the progeny. What will the fate of the new trait? Will it be able to survive in the habitat?
22. What is the role of seminal vesicles & prostate gland?
23. (a) How do the sign of magnification indicate the nature of image?
(b) Define Snell's law.

OR

- (a) What is the minimum number of rays required for locating the image formed by a concave mirror for an object? Draw a ray diagram to show the formation of a virtual image by a concave mirror.
- (b) Write any two uses of a concave mirror.
24. Give one example of each of the following reaction:
- (a) Dehydration
 - (b) Oxidation of alcohol
 - (c) Combustion
 - (d) Substitution reaction

OR

- (a) What happens when a small piece of sodium is dropped into ethanol?
- (b) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.
- (c) Which gas will be evolved if sodium bicarbonate is added to acetic acid?
25. (a) How does the binary fission differ from multiple fission?
- (b) If a woman is using copper-T, will it help in protecting her from sexually transmitted diseases?
- (c) Why is the scrotum placed outside the body?

OR

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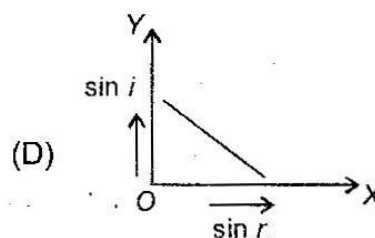
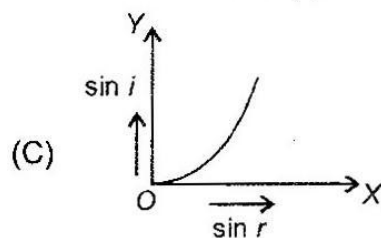
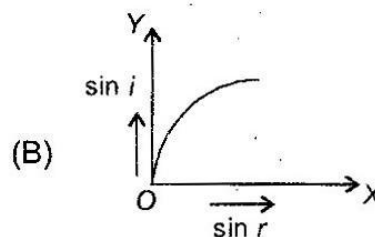
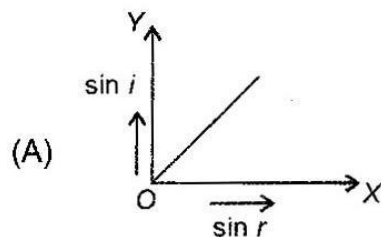
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- (a) Can a child be produced by one parent in the humans?
- (b) What methods will you use for growing jasmine & rose plant?
- (c) What is the main disadvantage of vegetative propagation?

Section-B

26.

Which of the following correctly represents graphical relation between sine of angle of incidence (i) and sine of angle of refraction (r) ?



27.

If x , y , z , t denote object distance, image distance, focal length and radius of curvature in case of a mirror respectively, then the only correct relation connecting these parameters is

- (A) $z = \frac{xy}{x+y}$ (B) $z = \frac{x+y}{xy}$ (C) $z = \frac{xy}{x-y}$ (D) $x = \frac{zy}{x+y}$

28.

Air is not visible because it

- (A) Is nearly a perfectly transparent substance (B) Neither absorbs nor reflects light
(C) Transmits whole of light (D) All of these

29.

When two plane mirrors are placed parallel and facing each other and an object is kept in between them, we get infinite images. But actually only a few images are visible because the intensity of the image is

- (A) Increased after each reflection (B) Decreased after each reflection
(C) Always constant (D) None of these

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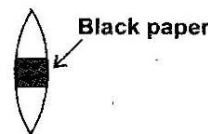
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30.

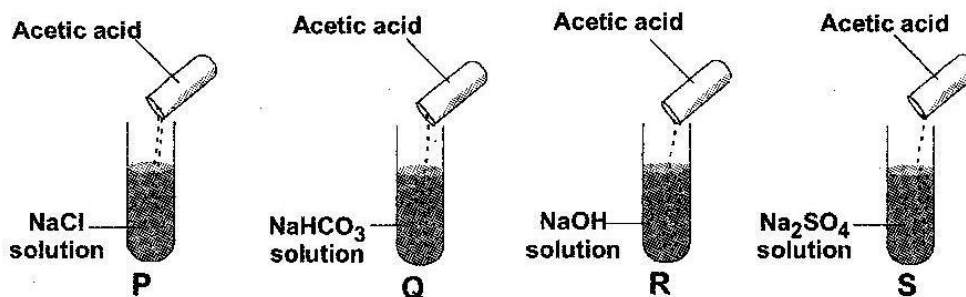
How will the image formed by a convex lens be affected if the central portion of the lens is wrapped in black paper ?

- (A) No image is formed by the remaining portion of the lens
- (B) The central portion of the image will be absent
- (C) There will be no effect
- (D) The full image will be formed but it will be less bright.



31.

In which of the following tubes effervescence will occur ?



- (A) P
- (B) Q
- (C) R
- (D) S.

32. Name the compound that is formed by fermentation of sugar & is volatile liquid:

- (a) Ethanol
- (b) Ethane
- (c) Ethene
- (d) Ethyne

33.

Ethene is produced when

- (A) Ethanol reacts with ethanoic acid in presence of a few drops of conc. H_2SO_4
- (B) Ethanol is oxidised with acidified potassium dichromate
- (C) Ethanol is heated with excess of conc. H_2SO_4 at 443 K
- (D) Ethanol reacts with Na metal.

34.

A double bond between two carbon atoms is formed by

- (A) The transfer of two electrons from one carbon atom to the other
- (B) The transfer of one electron from one carbon atom to the other
- (C) Sharing two electron pairs
- (D) The sharing of two electrons.

35. Process of conversion of wood into coal by biochemical process, taking over millions of years, is called:

- (a) Catenation
- (b) Carbonation
- (c) Pyrolysis
- (d) Destructive distillation

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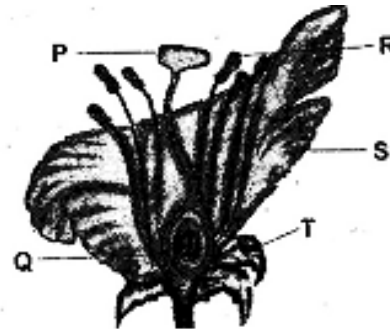
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36.

The figure given below represents the longitudinal section of a flower. Which of the labelled parts are called as accessory whorls of flower?

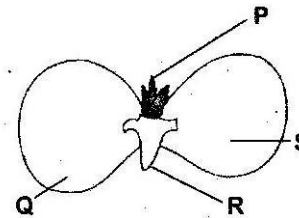
- (A) P & Q
- (B) Q & R
- (C) R & S
- (D) S & T.



37.

In the given figure of gram seed, which labelled part will be used as food in the future?

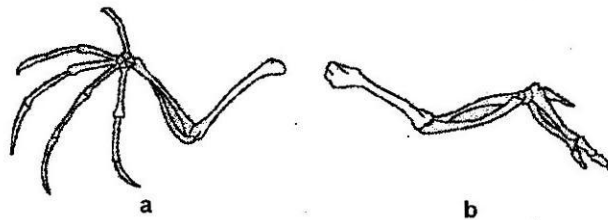
- (A) P
- (B) Q
- (C) R
- (D) Both Q & S.



38.

The given figures show the wings of two animals with analogous organs. Identify them.

- (A) Dinosaur and bird
- (B) Bat and insect
- (C) Bat and bird
- (D) Insect and bird.



39.

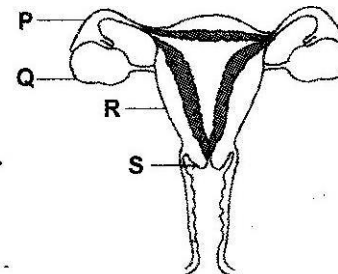
During the early stages of development, the embryos of reptiles, birds and mammals look very similar. This suggests that reptiles, birds and mammals

- (A) Have evolved from common ancestor
- (B) Live in the same types of environment
- (C) Have undergone parallel evolution
- (D) Are no longer undergoing evolution.

40.

In which labelled part of the given figure does the fertilization of an ovum by a sperm take place?

- (A) P
- (B) Q
- (C) R
- (D) S.



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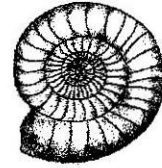
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41.

Preserved traces of living organisms are called fossils.

What type of fossil is shown in the figure?

- (A) Fossil of a tree trunk
- (B) Fossil of Trilobite
- (C) Fossil of Ammonite
- (D) Fossil of Knightia.



Answer Key for MCQ's:

- | | |
|-----|---|
| 26. | a |
| 27. | a |
| 28. | d |
| 29. | b |
| 30. | d |
| 31. | b |
| 32. | a |
| 33. | c |

- | | |
|-----|---|
| 34. | c |
| 35. | b |
| 36. | d |
| 37. | d |
| 38. | c |
| 39. | a |
| 40. | a |
| 41. | c |