

**R. C. B. S. E.**  
**FIRST PRE BOARD EXAMINATION 2018-19**

**SCIENCE**

**MARKS: 50**  
**TIME: 2 HRS.**

**General Instructions.**

1. This question paper comprises of four sections – Section-A, Section-B, Section-C and Section-D. You are to attempt all the sections.
2. All questions are compulsory.
3. All questions of Section-A, Section-B, Section-C and Section-D are to be attempted separately.
4. Question number 1 and 2 in Section A is one mark question. These are to be answered in one word or one sentence.
5. Question numbers 3 to 5 in Section B are two mark questions. These are to be answered in about 30 words each. Whereas question numbers 6 to 11 in Section B are based on practical skills. These carry two marks each.
6. Question numbers 12 to 16 of Section C are three mark questions. These are to be answered in about 50 words each.
7. Question numbers 17 to 19 of Section D are five mark questions. These are to be answered in about 70 words each.

**SECTION - A**

$$P = \frac{V^2}{R}$$

$$P = I^2 R$$

1. Out of 60 W and 40 W lamps, which one has a higher electrical resistance when in use?  $P$

[1]

2. What is the role of decomposers in the ecosystem?  $B$

[1]

**SECTION - B**

3. An electrical bulb is rated as 50W, 220 V. Calculate the energy consumed by the bulb in 20 minutes. Express your answer in commercial unit of electric energy.  $P$

[2]

4. What is electromagnetic induction?  $P$

[2]

5. "Burning fossil fuels is a cause of global warming." Justify this statement.  $B$

[2]

6. What is geothermal energy?  $P$

[2]

7. For the same angle of incidence in media, P, Q and R, the angles of refraction are  $45^\circ$ ,  $35^\circ$  and  $15^\circ$  respectively. In which medium will the velocity of light be minimum? Give reason for your answer.  $P$

[2]



8. A solution of potassium chloride when mixed with silver nitrate solution, an insoluble white precipitate is formed. Write balanced chemical equation involved and also mention the type of the reaction. C ✓

9. Write the electronic configuration of element X and element Y with atomic number 20 and 17 respectively. Write the molecular formula of the compound formed when element X reacts with element Y. Draw the electron dot structure of the product formed. C ✓  $X + Y \rightarrow XY_2$  [2]

10. Diagrammatically explain the process of nutrition in Amoeba. B ✓ [2]

11. Which organ secretes a hormone when blood sugar rises in our body? Name the hormone and name one enzyme released by this organ. B ✓ [2]

Pancreas      Insulin      Amylase

SECTION - C

12. The image of a candle flame placed at a distance of 40 cm from a spherical lens is formed on a screen placed on the other side of the lens at a distance of 40 cm from the lens. Identify the type of lens and write its focal length. What will be the nature of the image formed if the candle flame is shifted 25 cm towards the lens? Draw a ray diagram to justify. P ✓ [3]

13. What is meant by the term 'power of accommodation' of human eye? How does it help a person to see nearby as well as distant objects? P ✓ [3]

14. i) Explain how mercury is extracted from cinnabar, give equation for the reaction. C ✓  $2HgS + 3O_2 \rightarrow 2HgO + 2SO_2$   $HgO + CO \rightarrow Hg + CO_2$  [3]

ii) Name the method used for refining of impure copper. What would you take as anode, cathode and electrolyte in this reaction? C ✓ electrolytic refining [3]

impure Cu → pure Cu → CuSO<sub>4</sub> solution

15. i) How does the electronic configuration of an atom relates the position in the modern periodic table. C ✓ [3]

ii) Why do all elements of same group have similar properties? C ✓ [3]

iii) How does the tendency of element to gain electron change as we move from left to right in a period? C ✓ increase [3]

16. How are fossils formed? Describe, in brief, two methods of determining the age of fossils. B ✓ [3]

## SECTION - D

17. i) A person's image when seen through a stream of hot air arising above a fire disperses to waver. Explain.  $\rho$  due to change in R.I. due to hot steam [5]

ii) Define dispersion. How does a prism disperse white light?  $\rightarrow$  ?

iii) Which color of light bends the most and the least?  $\rightarrow$  scattering of light  
 $\downarrow$  violet  $\rightarrow$  red

18. i) The molecular formula of 2 carbon compound are  $C_4H_8$  and  $C_3H_8$ . Which one of the two is most likely to show addition reaction? Justify your answer, also give chemical equation to explain the process of addition reaction in this case.

ii) Write the mechanism of cleansing action of soap. [5]

19. a) Draw a diagram of human female reproductive system and label the parts.

i) that produces egg *ovary*

ii) where fusion of egg and sperm take place *uterus*

iii) where zygote is implanted *oviduct*

iv) birth canal *Vagina*

b) What happens to human egg when it is not fertilized? [5]

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