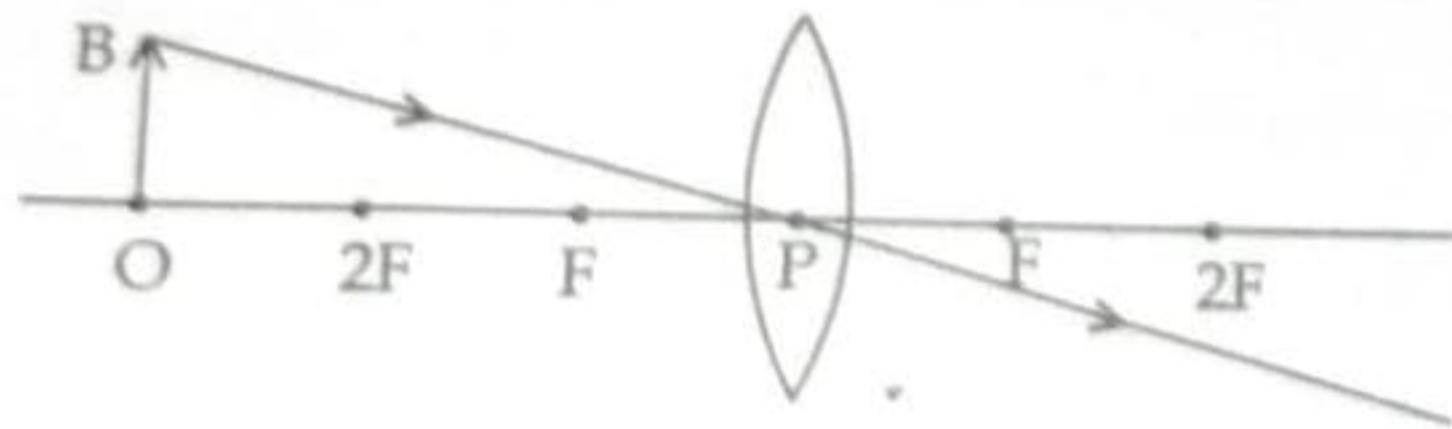Time: 1.30 Hours

Total Score : 40

1. Select the odd one from the group.
[Reflection, Dispersion, Refraction, Persistance of vision] 1

2. Observe the relations between terms in the first pair and complete the second pair.
CNG : Compressed Natural Gas 1
LNG : _____

3. Which phenomenon of light is utilised in optical fibre technology ?
[Refraction, Total internal reflection, Dispersion, Scattering] 1

4. The image formed by a convex lens is inverted and diminished. Then the object must
be placed : 1
[At 2F, Beyond 2F, Between F and 2F, At F]

5. Write the fossil fuel used to extract coke, coal tar and coal gas 1

6. The radius of curvature of a convex lens is 50 cm. What is its focal length ? 1
[+25 cm, +50 cm, −25 cm, −50 cm]

7. 'Green energy is the energy of the future.'
Explain the above statement based on the energy crisis. 2

8. Speed of light in three media are given.

[Glass - 2×10^8 m/s, Water - 2.25×10^8 m/s, Diamond - 1.25×10^8 m/s]

(a) In which medium does the refraction of light occurs more while falling from air ? 1

(b) Arrange the three given media in the increasing order of optical density. 1

9. Write any two situations in daily life that caused by persistance of vision. 2

10. (a) How fossil fuels are formed ? 1
(b) What are the products obtained by fractional distillation of coal ? 2

11. Rainbow is formed due to dispersion of sunlight.
(a) What is dispersion ? 1
(b) Write down the changes in the sunlight in the water droplet as the rainbow forms. 2
Explain.

12. An image is obtained at a distance of 40 cm away from a convex lens when the object
placed at the same distance on the opposite side.
(a) Write any two characteristics of the image obtained. 2
(b) Write the focal length of the given lens. 1

13. (a) Which colour of sunlight is most scattered in the atmosphere ? 1
(b) Explain the reason for the red colour of rising and setting sun. 2

14. Tabulate the following energy sources as green energy and brown energy. 3
(a) Naptha
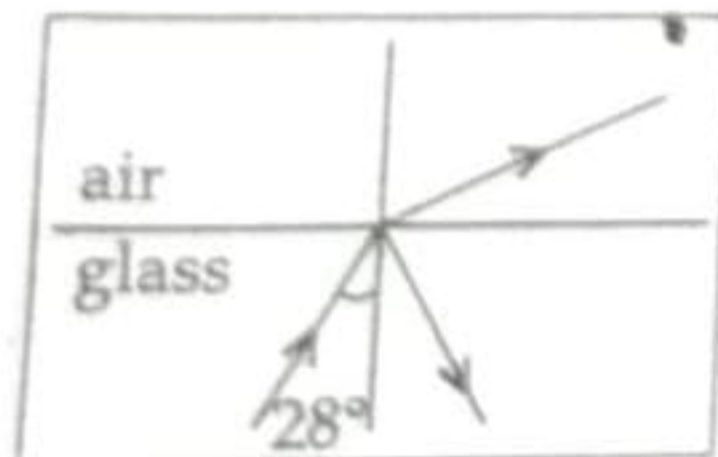(b) Biogas
(c) Sun
(d) Coal
(e) Wind
(f) CNG

15

(a) If the image obtained from a convex lens is erect and enlarged.

(1x4=4)

(i) Image is formed at :

[Same side of the object/Opposite side of the object]

1

(ii) Write any one application of this type of image formation.

1

(b) Write any two characteristics of the image formed by a convex lens when the object is placed at the following positions.

(i) At infinity

(ii) Between F and 2F

1

1

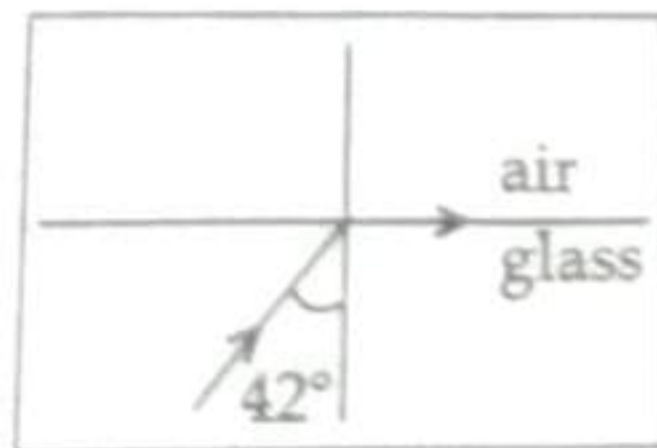**16** Observe the ray diagram given below.

(a) Redraw the diagram and complete it to get the image.

2

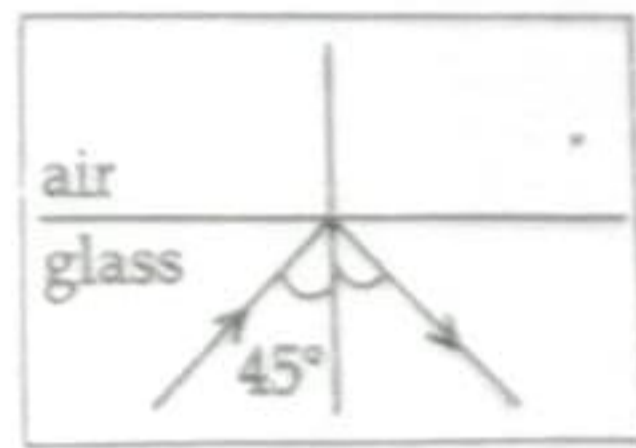(b) Write any two characteristics of the image obtained.

2

17 A light ray falls obliquely from glass to air in different angles are shown in the figure.

A	B	C

(a) Which diagram represents the critical angle of glass ? Write the value of critical angle.

1

(b) Explain the phenomenon total internal reflection.

2

(c) If we replace the medium air with water, is there any change in critical angle of glass ?

1

(d) Define critical angle.

1