

**PHYSICS (M. Marks : 07; Time : 20 mts.)**

1. What is the angle of reflection when a light ray falls normally on a plane mirror? (½)
2. What would be range of distance of object from a concave mirror of focal length 15 cm to obtain an erect image? (½)
3. Define magnification. If  $m = + 3/2$  for a given mirror then identify the type of mirror. (1)
4. An object is held at a distance of 15 cm from a concave mirror of focal length 10 cm. Can its image be taken on screen? Justify with calculations. (1½)
5. Explain any one use of concave mirror with a ray diagram. (1½)
6. An object of size 2 cm is placed in front of a rear view mirror of radius of curvature 20 cm. If image to be formed 5 cm behind the mirror then find the distance of the object from the mirror and size of the image. (2)

**CHEMISTRY (M. Marks : 07; Time : 20 mts.)**

Answer the following questions:

1. Define the following terms : (1)
  - a) Isomerism
  - b) Double displacement reaction
2. What is the functional group present in
  - a) alcohols, and
  - b) Carboxylic acid. (1)
3. Complete the following reaction:- (1)
  - a)  $\text{CH}_2 = \text{CH}_2 + \text{H}_2 \xrightarrow{\text{Pt}}$
  - b)  $\text{CH}_4 + \text{O}_2 \xrightarrow{\text{Heat}}$
4. Write the structure of the following organic compounds: - (2)
  - a) 3<sup>rd</sup> member of alkene homologous series
  - b) 1 - Bromo propane
  - c) 1 - butyne
  - d) Ethanal
5.
  - a) Define catenation.
  - b) Why does carbon always form covalent bonds?
  - c) Write any two characteristic properties of homologous series. (2)

**BIOLOGY (M. Marks : 06; Time : 20 mts.)**

1. Differentiate between:
  - a) Asexual and sexual reproduction. (any two points) (1)
2. Why is vegetative propagation practiced for growing some kind of plants? (1)
3. Give reasons:- (2)
  - a) complex organisms can't reproduce through regeneration;
  - b) variations are beneficial to the species.
4. How does binary fission differ from multiple fission? (any two important points). Explain with diagrams. (2)

