PHYSICS – UNIT TEST – REFLECTION OF LIGHT

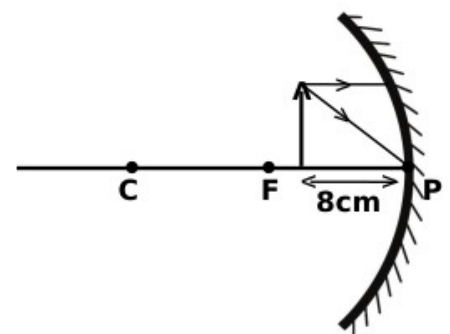Time:45 minutes   Maximum score:20

1. Fill in the blanks.   1
   a. Magnification in a plane mirror is ONE. But the same in a convex mirror is ....
   b. If an object is placed at C of a concave mirror, magnification of the image will be ....

2. Find out the incorrect statement from the following and correct it.   1
   a. Image is not formed due to the scattered reflection.
   b. It is when an object is at F, the smallest image is formed by a concave mirror.
   c. Magnification of inverted image is negative.

3. What kind of mirror is used as rearview mirror in vehicles. Which speciality of this mirror is made use 1
   of there?

4. Which of the following is not likely to be the magnification of the image formed by a concave mirror? 1
   (-1, 1/2, -1.5, -1/2)

5. An object of 2 cm length is placed in front of a mirror, a real image of 6 cm length is formed. Find the 1
   magnification of the image.

6. When two plane mirrors are arranged at a particular angle and placed an object at its bisector, 11 2
   images are formed by multiple reflection. What might be the angle between the mirrors.

7. When an object is placed before a mirror at a distance of 10 cm, an image is formed on a screen at a 3
   distance 15 cm from the mirror.
   a. Is the image real or virtual?   b. Identify the mirror used here.
   c. Calculate focal length of the mirror.

8. Identify the mirrors used in the following situations.   3
   a.In search light.
   b. To see see an object in large size.
   c. For getting diminished and erect image.

9.   3

A	B
Concave mirror	Virtual image of the same size as that of object.
Plane mirror	Virtual image smaller than that of the object.
Convex mirror	Enlarged virtual image.

10. An object is placed before a mirror of focal length 10 cm at a 4
    distance of 8 cm from it.
    a. Write down the values of u & v according to New Cartesian Sign
    Convention.
    b. Copy the diagram and complete the ray diagram of the image
    formation. .
    c. What will be the features of this image?
    d. Calculate the distance to the image using mirror equation.

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1. Fill in the blanks. 1
   a. Magnification in a plane mirror is ONE. But the same in a convex mirror is ....
   b. If an object is placed at C of a concave mirror, magnification of the image will be ....
   Ans.a. Less than ONE.   b. -1

2. Find out the incorrect statement from the following and correct it. 1
   a. Image is not formed due to the scattered reflection.
   b. It is when an object is at F, the smallest image is formed by a concave mirror.
   c. Magnification of inverted image is negative.
   Ans.'*It is when an object is at F, the smallest image is formed by a concave mirror*." This statement is wrong. It is when an object is at infinity, the smallest image is formed by a concave mirror.

3. What kind of mirror is used as rearview mirror in vehicles. Which speciality of this mirror is made use 1 of there?
   Ans.Convex mirror.
   i. Field of view is maximum for a convex mirror. ii. It can form clear and diminished image of an object.

4. Which of the following is not likely to be the magnification of the image formed by a concave mirror? 1
   (-1, 1/2, -1.5, -1/2)
   Ans. 1/2   (Because magnification is positive when image is virtual. Since the virtual image formed by a concave mirror is always greater than that of the object, magnification will be greater than ONE.)

5. An object of 2 cm length is placed in front of a mirror, a real image of 6 cm length is formed. Find the 1 magnification of the image.
   Ans. Magnification = hi/ho = -6/2 = -3

6. When two plane mirrors are arranged at a particular angle and placed an object at its bisector, 11 2 images are formed by multiple reflection. What might be the angle between the mirrors.
   Ans. n = 360/θ – 1   11 = 360/θ – 1   360/θ = 12   θ =360/12 = 30°

7. When an object is placed before a mirror at a distance of 10 cm, an image is formed on a screen at a 3 distance 15 cm from the mirror.
   a. Is the image real or virtual?   b. Identify the mirror used here.
   c. Calculate focal length of the mirror.
   Ans. a. Real. (Because image is formed on the screen)
   b. Concave mirror (Only a concave mirror can form real image)
   c. u = -10 cm   v = -15 cm
   f = uv/(u+v) = - 10x-15/(-10+-15) = 150/-25 = -6 cm

8. Identify the mirrors used in the following situations. 3
   a.In search light.
   b. To see see an object in large size.
   c. For getting diminished and erect image.
   Ans.a. Concave mirror   b. Concave mirror   c. Convex mirror.

9.

| A	B
Concave mirror	Virtual image of the same size as that of object.
Plane mirror	Virtual image smaller than that of the object.

3

A	B
Convex mirror	Enlarged virtual image.

Ans.

A	B
Concave mirror	Enlarged virtual image.
Plane mirror	Virtual image of the same size as that of object.
Convex mirror	Virtual image smaller than that of the object.

10. An object is placed before a mirror of focal length 10 cm at a distance of 8 cm from it.   4
    a. Write down the values of u & v according to New Cartesian Sign Convention.
    b. Copy the diagram and complete the ray diagram of the image formation. .
    c. What will be the features of this image?
    d. Calculate the distance to the image using mirror equation.
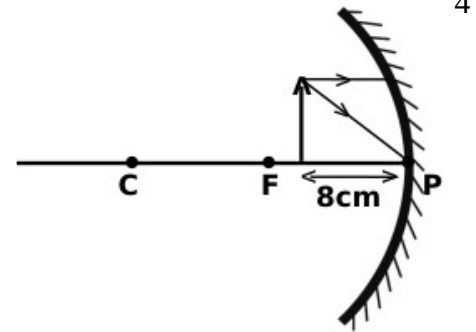
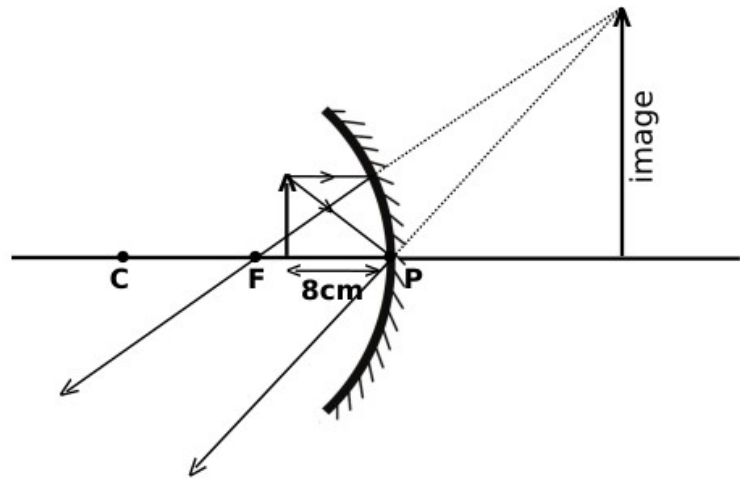**Ans.** a.u = - 8 cm   f = - 10
b.
c. Erect,virtual and magnified.
d. 1/u + 1/v = 1/f
     1/-8 + 1/v = 1/-10
     1/v = 1/-10 + 1/8 = (8 – 10)/(-10x8)
         = -2/-80 = 1/40
      v = 40 cm