

O.P.JINDAL SCHOOL RAIGARH- C.G

CLASS-X

SUBJECT- PHYSICS

DATE-02/02/2021

TOPIC- REVISION

WORKSHEET-1

1. An object is placed at 100 mm in front of a concave mirror which produces an upright image (erect image). The radius of curvature of the mirror is:

- (a) Less than 100 mm
- (b) Between 100 mm and 200 mm
- (c) Exactly 200 mm
- (d) More than 200 mm

2. Which position of the object will produce a magnified virtual image, if a concave mirror of focal length 15 cm is being used?

- (a) 10 cm
- (b) 20 cm
- (c) 30 cm
- (d) 35 cm

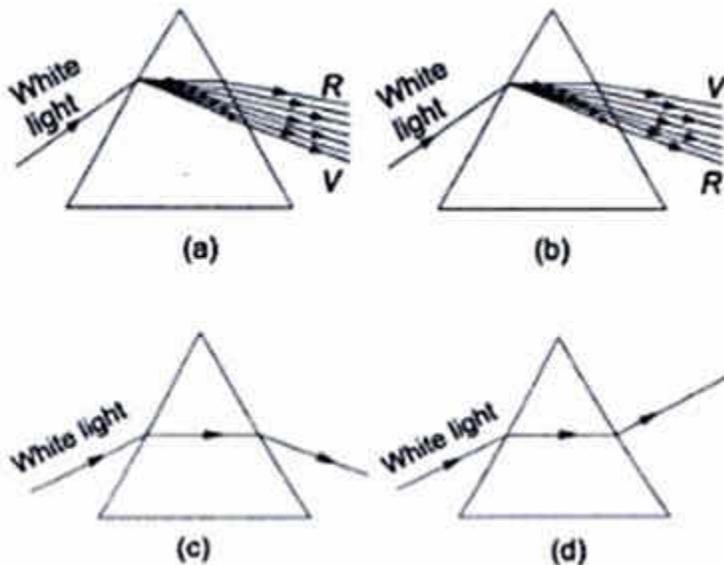
3. A concave mirror produces a magnification of +4. The object is placed:

- (a) At the focus
- (b) Between focus and centre of curvature
- (c) Between focus and pole
- (d) Beyond the centre of curvature

4. A lens of focal length 12 cm forms an erect image, three times the size of the object. The distance between the object and image is:

- (a) 8 cm
- (b) 16 cm
- (c) 24 cm
- (d) 36 cm

5. Which of the following figures correctly represents the passage of white light through prism?



6. A wire of resistance  $R_1$  is cut into five equal pieces. These five pieces of wire are then connected in parallel. If the resultant resistance of this combination be  $R_2$ , then the ratio  $R_1/R_2$  is:

- (a)  $1/25$
- (b)  $1/5$
- (c) 5
- (d) 25

7. When a current 'I' flows through a resistance 'R' for time 't' the electrical energy spent is given by

(a)  $IRt$

(b)  $I^2Rt$

(c)  $IR^2t$

(d)  $I^2R/t$

8. You are given four ammeters A, B, C and D having least counts mentioned below:

(I) Ammeter A with least count 0.25 A

(II) Ammeter B with least count 0.5 A

(III) Ammeter C with least count 0.05 A

(IV) Ammeter D with least count 0.1 A

Which of the ammeters would you prefer for doing an experiment to determine the equivalent resistance of two resistances most accurately, when connected in parallel?

(a) Ammeter A

(b) Ammeter B

(c) Ammeter C

(d) Ammeter D

9. A soft iron bar is inserted inside a current-carrying solenoid. The magnetic field inside the solenoid:

(a) Will decrease

(b) Will increase

(c) Will become zero

(d) Will remain the same

**10.** A coil of insulated copper wire is connected to a galvanometer forming a loop and a magnet is:

A: Held stationary

B: Moved away along its axis

C: Moved towards along its axis

There will be a induced current in:

(a) A only

(b) A and B only

(c) B and C only

(d) A, B and C

In below questions, (A) is assertion and (R) is reason. Select the appropriate answer

(a) Both A and B are true and R is the correct explanation of A

(b) Both A and B are true and R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

**11.** ASSERTION –When focal length of a lens increases, then its power decreases  
REASON-Power of a lens is inversely proportional to focal length of lens

**12.** ASSERTION- When a charged particle enters in the direction of a uniform magnetic field, and then it moves on a straight path without deviation

REASON- Magnetic force on a charged particle is zero, when it moves in the direction of magnetic field.

13. ASSERTION- Denser the medium, lesser is the velocity of light in that medium  
REASON- Refractive index is inversely proportional to velocity

14. ASSERTION-Infinite number of images are formed when two plane mirrors are placed parallel to each other

REASON- The optical power of the plane mirror is zero

15. ASSERTION-While passing through a prism, the violet light deviates the most and the red light deviates the least

REASON- Red light has the maximum wavelength and violet light has the minimum wavelength.

16. ASSERTION- Rainbow is an example of dispersion of sunlight by water droplets.

REASON- Light of shorter wavelength is scattered much more than light of larger wavelength

17. ASSERTION- The magnetic field produced by a current carrying solenoid is independent of its length and cross-sectional area.

REASON- The magnetic field inside the solenoid is uniform

18. ASSERTION- The graph of V-I for a conductor is a straight line

REASON- According to Ohms law, electric current flowing through a conductor is directly proportional to potential difference across its ends.

19. ASSERTION- Diamond does not conduct electricity.

REASON- Diamond has high refractive index.

20. ASSERTION- Heater wire must have high resistance and high melting point.

REASON- Heating element of electric heater made of nichrome.

Read the following and answer questions 21 to 23

Mr. Sharma called an electrician to do wiring in his newly constructed house. Electrician made the connections of three fans of 80 W each and four tube lights of 40W each.

21. The most convenient ways to do household wiring is in

- a) Series combination
- b) Parallel combination
- c) May be series or parallel combination
- d) Neither series nor parallel combination

22. The advantage of the combination in which household wiring is done, is

- a) The reciprocal of equivalent resistance is less than that of each device
- b) If one device gets damaged, there will be no effect on the other devices
- c) The current from the source is greater than the current through each device
- d) There will be more power consumption by the devices.

23. If all the devices are used for 10h daily, total energy consumed in a day is

- a) 2KWH
- b) 3KWH
- c) 4KWH
- d) 5KWH

Read the following and answer questions 24 to 25

Sir Isaac Newton was the first to use a glass prism to obtain the spectrum of sunlight. He tried to split the colours of the spectrum of white light by using another similar prism. However, he could not get any more colours . But when he placed a second identical prism in an inverted position with the first prism, he found a beam of white light emerging from the other side of second prism.

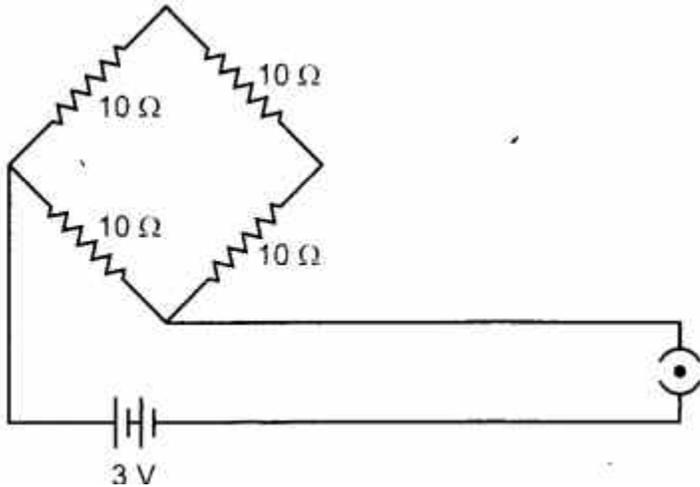
24. White light when passes through a dispersing medium splits up into various colours because

- a) Speed of light for violet colour is greater than the speed of light for red colour.
- b) Speed of light for violet colour is less than the speed of light for red colour
- c) Speed of light is same for all colours
- d) Splitting of light does not depend upon, the speed of light for different colour.

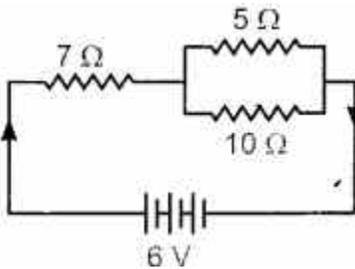
25. Rainbow is formed due to combination of phenomena of

- a) Refraction and absorption
- b) Dispersion and focusing
- c) Refraction and scattering
- d) Dispersion and total internal reflection

26. Find the current drawn from the battery by the network of four resistors shown in the figure.



27. For the circuit shown in this diagram, calculate



- (i) the resultant resistance.
- (ii) the total current.
- (iii) the voltage across 7  $\Omega$  resistor.

28. A concave lens has focal length of 20 cm. At what distance from the lens a 5 cm tall object is placed so that it forms an image at 15 cm from the lens? Also calculate the size of the image formed.

29. 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. Give the location of image and magnification.

30. A wire of length 3 m and area of cross-section  $1.7 \times 10^{-6} \text{ m}^2$  has a resistance  $3 \times 10^{-2} \text{ ohm}$ .

- a. What is the formula for resistivity of the wire and what is the unit of it
- b. calculate the resistivity of the wire

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