

PADASALAI STUDY MATERIAL FOR CLASS TEST

Special Question Paper

Time: - 2:30 Hrs

Science - Physics

Marks: - 75

I. Choose the correct answer:- (15 x 1 = 15)

- 1) The freezing of biotechnology products like vaccines require _____ freezing system
(Helium; Nitrogen; Ammonia; Chlorine)
- 2) The weight of a person is 50kg. The weight of that person on the surface of the earth will be _____ (50 N; 35 N; 38 ON; 490 N)
- 3) The unit of weight is _____
(Kg; g; Newton; ms⁻¹)
- 4) Chandrayan – I is a _____
(Space probe; Lunar probe; Mass probe; Satellite)
- 5) Which cryogen is legally purchasable?
(Liquid helium; Liquid nitrogen; Liquid hydrogen; Liquid Oxygen)
- 6) Kilowatt – hour is the unit of _____
(Potential difference; Electric power; Electric energy; Charge)
- 7) _____ is the main raw material used in the production of biogas.
(Cow dung; Sun; Plants; Urea)
- 8) The SI unit of electric current is _____
(Ampere; Volt; Watt; Kilo watt)
- 9) The energy produced when 1Kg of a substance is fully converted into energy is
(9 x 10¹⁶ J; 9 x 10⁸ J; 18 x 10⁸ J; 18 x 10¹⁶ J)
- 10) The unit of radiation exposure is _____
(Curie; Newton; Roentgen; Fermi)
- 11) An object is placed 25cm from a convex lens whose focal length is 10cm. the image distance is _____ (50cm; 16.66cm; 6.66cm; 10cm)
- 12) _____ part of the human eye helps in changing the focal length of the eye lens.
(Retina; Iris; Cornea; Ciliary muscles)
- 13) Current enters into an electric motor through
(Armature; Brushes; Shaft; Coil)
- 14) Magnetic effect of current wires was discovered by
(Faraday; Oersted; Joule; Ampere)
- 15) Elongation of eye ball results
(Myopia; Presbyopia; Hypermetropia; Astigmatism)

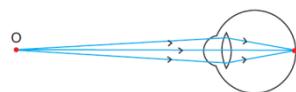
SECTION – B

$$(20 \times 2 = 40)$$

Note: Answer any twenty questions:-

- 1) Define Fleming's left hand rule.
 - 2) The focal length of a concave lens is 4m. Calculate the power of the lens.

- 3) a) _____ defect of the eye
b) _____ lens is used to correct



- 4) Find the odd one out:

 - a) Angle of incidence; Angle of reflection; Angle of emergence; Right angle
 - b) Convex mirror; Concave lens; Plane mirror; Convex lens

5) Match the following

POSITION OF THE OBJECT RELATIVE SIZE OF THE IMAGE

- a) Beyond C Infinitely Large
 - b) At C Diminished
 - c) Between F and C Same Size
 - d) At Focus F Enlarged

- 6) How will you identify the three types of mirrors without touching them? Give reasons.
 - 7) A needle placed at 30cm from the lens forms an image on a screen placed 60cm on the other side of the lens. Identify the type of lens and determine the Focal length.
 - 8) We see rainbow in the sky after raining. How and why?
 - 9) Complete the table ‘a’ and ‘b’.

- a The tooth's Enlarged image
- b Rear side of the Vehicle Erect image

- 10) Correct the mistakes, if any in the following statements.

 - The magnetic field is a quantity that has magnitude only
 - Outside the bar magnet, the magnetic field lines emerge from the south pole

11) Light enters from air to kersone having refractive index of 1.47. What is the speed of light in kersone, if the speed of light in air is 3×10^8 m/s.

12) Good source of energy should possess some special characteristics. List them.

13) X-Rays are harmful radiations emitted by natural radioactive substances.

 - Which are other radiations emitted from such substance?
 - What is the unit of nuclear radiation?

14) Draw the symbols for the following:-

 - Wire joint
 - Resistance
 - Voltmeter
 - Electric bulb

15) Match the following

SCIENTISTS

- a) Michael faraday
- b) George Simon ohm
- c) Volta
- d) Henry Becquerel

INVENTIONS

- First Battery
- Radio activity
- Dynamo
- Ohm's Law

16) Old fashioned serial lights were connected in a series across 240v household line.

- a) If string of these lights consists of 12 bulbs, what is the potential difference across each bulb?
- b) If the bulbs were connected in parallel, what would be the potential difference across each bulb?

17) A wire of resistance 8Ω is bent into a circle. Find the resistance across the diameter.

18) Two bulbs of 70w and 50w are connected in parallel to an external potential difference.

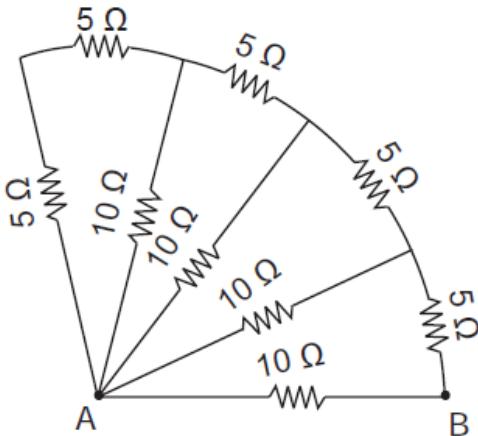
Which bulb will glow brighter? Why?

19) Why does acid rain occur?

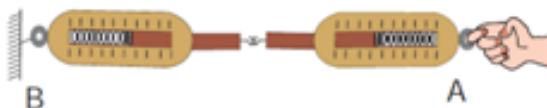
20) Three resistances having the values 5Ω , 10Ω , 30Ω are connected parallel to each other.
Calculated the equivalent resistance.

21) Draw a neat labeled diagram of voltaic cell.

22) In the given network, find the equivalent resistance between A and B.



23) Observe the figure and write the answer



- a) The force which balance A exerts on balance B is called _____
- b) The force of balance B on balance A is called _____

- 24) To every action there is equal and opposite reaction. Explain action and reaction with an example.

25) Assertion (A): Liquid nitrogen is the most commonly used element in Gynogenic.
Reason (R): it is no legally purchasable around the world
a) Both (A) and (R) are correct b) (A) is wrong but (R) is correct
c) Both (A) and (R) are wrong d) (A) is correct but (R) is wrong

26) When a carpet is beaten with a stick, dust comes out. Give reason

27) A shopping cart has a mass of 65Kg. in order to accelerate the cart by 0.3 ms^{-2} what force would you exert on it.

28) Write two principles that are used in rocket propulsion

29) Fill in the blanks
a) If force = mass x acceleration, then momentum = _____
b) If liquid hydrogen is for rocket, then _____ is for MRI.

30) List out the names of the organizations which are not associated with Chandrayaan – I mission.

31) If the radius of the earth is reduced to half of its present value, with no change in the mass, how will the acceleration due to gravity, be affected?

32) A boy weighting 20kg is sitting at one end of a see-saw at a distance of 1.2m from the centre. What would a man weighting 60kg sit on the see-saw so that it stands balanced?

SECTION – C

$$(4 \times 5 = 20)$$

Note: i) Answer any four questions by choosing one question from each part
ii) Each question carries five marks
iii) Draw diagram wherever necessary

PART - I

- 1) a) Write the differences between mass and weight
b) State Newton's law of gravitation. Write an expression of acceleration due to gravity on the surface of the earth. If the ratio of acceleration due to gravity of two heavenly bodies is 1:4 and the ratio of their radio is 1:3, what will be the ratio of their masses?
 - 2) Describe an activity to draw a magnetic field line outside a bar magnet from one pole to another pole.

PART - II

- 3) a) Place the following objects in the correct order from the lowest to the highest momentum. Assume that all the objects are moving at their maximum velocity: - Aeroplane, Train, Bus, Car, and Cycle.

- b) Which object has more momentum a car travelling at 10 km/hr or a basket ball pitched at 150 km/hr.
- c) Newton's third law of motion. For every action there is an equal and opposite reaction. Explain this in firing a bullet
- 4) a) Draw a ray diagram to show dispersion of white light in a glass prism.
b) What is dispersion?
c) Why do we get different colours of light?

PART - III

- 5) a) Write short notes on Chandrayaan – I.

b) Derive $g = \frac{GM}{R^2}$

- 6) Explain working of AC generator

PART - IV

- 7) State the law of conservation of momentum. Two billion people jump above the earth's surface with a speed of 4m/s from the same spot. The mass of the earth is 6×10^{24} kg. The average mass of one person is 60 kg.
- i) What is the total momentum of all people?
ii) What will be the effect of this action on the earth?
- 8) a) Find the nature, position and magnification of the image formed by a convex lens of focal length 10cm, If the object is placed at a distance of (i) 15cm (ii) 8cm
b) Explain the use of concave mirror as solar concentrator with the help of a ray diagram
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Prepared by,

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