

PREVIOUS QUESTIONS AND ANSWERS

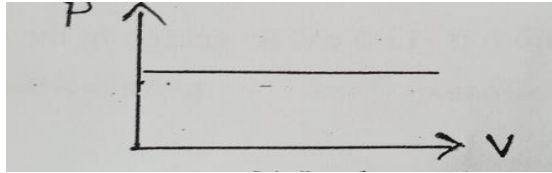
PHYSICS(312)

1. The momentum of a photon of frequency ν in terms of Planck's constant h and velocity of light in vacuum c is given by

a) $h\nu c^2$ b) $h\nu/c$ c) $h\nu/c^2$ d) ν/c **(April 2024)**

Ans. $h\nu/c$

2. Which of the following process is correct for a given PV diagram



a) adiabatic process b) isothermal process
c) isobaric process d) isochoric process

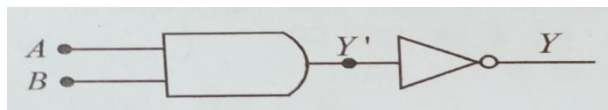
Ans. Isobaric process

3. In a nuclear reactor cadmium rods are used for **(April 2022,2024)**

a) Exchange of energy b) speeding up neutrons
c) slowing down neutrons d) absorbing some of the neutrons

Ans. Absorbing some of the neutrons

4. The logic gate shown alongside represents as : **(April 2024)**



a) OR gate b) NOT gate
c) NAND gate d) AND gate

Ans. NAND gate

5. In young's double slit experiment the separation between the two slit is half and the distance between the slits and screen is doubled. The fringe width will : **(April 2023)**

a) Remain unchanged b) be halved
c) be doubled d) be quadrupled

Ans. Be quadrupled

6. Which of the following colours have maximum deviation? **(Oct 2022)**
a) Orange b) yellow c) blue d) green **Ans. Blue**
7. The wave front due to a point source in three dimensional space is ----- **(April 2024)**
Ans. Spherical wave front
8. A -----gate is a universal gate **(April 2022,2024)**
Ans. NAND gate
State True or False
9. A body falling under Gravity in a fluid soon attains a constant velocity. This constant velocity is called as final velocity **Ans. False (April 2024)**
10. When a PN junction is forward biased the width of depression zone decreases **(April 2024) Ans. True**
11. Write two differences between interference and diffraction pattern **(April 2023, April 2024)**
{ Hint : interference- fringe width equal, all bright fringe are equally illuminated (1 mark)
diffraction – fringe width not equal, central fringe is brightest
And all other fringe have decreasing order intensity (1 mark) }
12. During lightning thunderstorm why is it safer to be inside a car than to be outside? **(April2024)**
{Hint:Inside a car charge and electric field is zero (2 mark) }
13. What is Electric Field? Give its S. I unit? **(Oct 2022, April 2024)**
{Hint : definition (1 mark)
S. I unit (1 mark) }
14. Show the path of a ray of light through a triangle glass prism of refracting angle. Draw a graph showing the variation of angle of deviation with angle of incidence. Mark on it the angle of minimum deviation. **(Oct 2022, April 2024)**
{Hint : draw refraction through prism (1 mark)
Marking angle of deviation & refracting angle (1 mark)
Plotting graph between angle of deviation &
Angle of incidence (1/2 mark)
Mark angle of minimum deviation (1/2 mark)}
15. Name and explain the principle of rocket propulsion. Derive the expression for its acceleration in free space. **(April 2024)**
{Hint : principle – Newton’s third law of motion (1 mark)
Explanation about rocket propulsion (2 mark)

Derive expression for acceleration in free space (2 mark)}