

Name of the subject- Applied Physics

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SHORT ANSWER TYPE QUESTION

1. Define reflection and refraction?
2. Define total internal reflection?
3. Find the focal length of a concave mirror ,each of radius of curvature 40cm?
4. What is minimum distance between an object and its real image formed by a convex lens?
5. Three capacitor each of having capacitance $2f$ are connected in parallel. This combination is connected in series with a fourth $2f$ capacitor. Find the resultant capacitance of the system?
6. Three capacitor are first connected in series and have capacitance C_s , then they are connected in parallel, their capacitance is C_p , find the ratio C_s/C_p and interpret the result?
7. Explain in brief experimental verification of ohm's law?
8. Define the term Pole, principal axis, principal focus and focal length for a spherical mirror?
9. State and prove Guass theorm?
10. Give some properties of laser light?
11. What do you mean by three level lasers? Explain?
12. What are magnetic lines of force? State their properties?
13. Discuss the crystal structure of semiconductor?
14. A conductor 100cm long carries a current of 100A at right angles to a uniform magnetic field of 1Wb/m^2 . Calculate the force and power required to move the conductor at speed of 10m/s in a plane at right angles to the magnetic field?
15. Write short note on single mode fibre?
16. Write short note on multi mode step index fibre?
17. Write short note on optical fibre communication?

Q17

Q18 an object is $6.4 \times 10^{10}\text{m}$ from the surface of earth .how much time will the laser beam would take to return after reflection from it?

Q19 what is the potential barrier in P-N junction diode?

Q20 what is depletion region ? how is it formed?

Q21 show how will you change galvanometer into ammeter?

Q22 what is electric motor explain its principle?

Q23 state kirchoff's law for dc circuits?

Q24- n –similar resistances each of resistance r ohm when connected in parallel gives rise to a total resistance R Ohm .find the total resistance when they are connected in series?

Long answer type question

Q1 explain with the help of diagram full wave bridge rectifier in detail?

Q2 find the distance of an unknown object from the earth ,if laser beam take 5 seconds to return after reflection from it.

Q3 Show that when a plane mirror is rotated through an angle the reflected rays turn through twice the angle?

Q4 calculate the magnifying power of a simple microscope of focal length 5cm distance of distinct vision is 25cm.

Q5 find the equivalent resistance when three resistances are connected in parallel?

Q6 differentiate between N-type and P TYPE SEMICONDUCTOR?

Q7 What is He-Ne laser? Explain with diagram?

Q8 state and prove coulomb law in electrostatics?

Q9 a current of 20 A flows into a circuit consisting 2,4,5 and 20 ohm resistances in parallel. Determine the current in each branch?

Q10 what is intrinsic and extrinsic semiconductor?

Q11 difference b/w insulator ,conductor, and semiconductor by using band theory . also give two examples of each?

Q12 what are Faraday's laws of electromagnetic induction?

Q13 three resistor of $20\ \Omega$, $15\ \Omega$, $15\ \Omega$, are connected in series and a voltage of 100 volts is applied to the combination .calculate

- a) Total resistance
- b) Current
- c) Voltage drop across each resistor

Q 14 Give various applications of electricity in different sphere of life?

Q 15 if the resistance of circuit having 12 V source is increased by 4 ohm the current drop by 0.5 A what is the original resistance of circuit?

Q 16 The resistance of a copper wire of length 1 m is 0.1 ohm. The diameter of the wire is 0.045 cm. find its specific resistance?

Q 17 Find the expression of electric field due to charged straight conductor?

Q 18 What is breakdown potential?