

## CBSE physics conceptual questions

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**Question 1.** what is the amount of work done in moving 100 nC charge between two points 5 cm apart on an equipotential surface? 1

**Question 2.** What is the value of refractive index of medium of polarizing angle 60 degree? 1

**Question 3.** State two factors on which temperature of inversion of a thermocouple may depend. 1

**Question 4.** In which direction, would a compass needle align if taken to geographic (i) north and (ii) south pole? 1

**Question 5.** The instantaneous voltage from an A.C source is given by  $E=300 \sin 314t$  . What is the R.M.S. voltage of the source? 1

**Question 6.** Compare the radii of two nuclei with mass number 1 and 27 respectively. 1

**Question 7.** How does energy gap in an intrinsic semiconductor vary, when doped with a pentavalent impurity? 1

**Question 8.** If the temperature of good conductor increases, how does the relaxation time of electrons in the conductor change. 1

**Question 9.** Draw a labelled ray diagram showing the formation of image using a Newtonian type reflecting telescope. 2

**Question 10.** The output voltage of an ideal transformer, connected to a 240 V A.C. is 24 V. When transformer is used to light a bulb with rating 24 V, 24 W, calculate the current in the primary coil of the circuit. 2

**Question 11.** Can magnetic field set a resting electron into motion? 2

**Question 12.** You are given two nuclei  ${}^3_3\text{X}7$  and  ${}^3_3\text{Y}4$ . Are they isotopes of same element? State the reason. Which one of the two nuclei is likely to be more stable? 2

**Question 13.** A heater coil is rated 100 W, 200 V. It is cut into two identical parts. Both parts are connected in parallel, to the same source of 200 V. Calculate the energy liberated per second in new combination. 2

**Question 14.** A charge  $q$  moving in a straight line is accelerated by potential difference  $V$ . It enters uniform magnetic field  $B$  perpendicular to its path. Deduce in terms of  $V$  an expression for the radius of circular path in which it travels. 2

**Question 15.** State the reason for the following observations recorded from the surface of the moon:

(i) sky appears dark

(ii) rainbow is never formed.

**Question 16.** Write any three characteristics, a ferromagnetic substance should possess, if it is to be used to make a permanent magnet. Give one example of such material. 2

**Question 17.** The value of ground state of hydrogen atom is  $-13.6$  eV.

(i) What does the negative sign signify.

(ii) how much energy is required to take an electron in this atom from ground state to the first excited state. 2