CBSE -2004 CLASS XII PHYSICS (Set-2)

General Instructions:

1. All questions are compulsory.
2. There is no overall choice. However, an internal choice has been pro vided in one question of two marks, one question of three marks and one question of five marks. You have to attempt only one of the choices in such questions.
3. Question numbers 1 to 5 are very short answer type questions, carrying one mark each.
4. Question numbers 6 to 12 are short answer type questions, carrying two marks each.
5. Question numbers 13 to 24 ore also short answer type questions, carrying three marks each.
6. Question numbers 25 to 27 are long answer type questions, carrying five marks each.
7. Use of calculators is not permitted. However, you may use log tables, necessary.
8. You may use the following values of physical constants wherever necessary:

Except for the following questions all the remaining question have been asked in .

Q. 3. What is the name given to that part of electromagnetic spectrum which is used in 'Radar'? **1**

Q. 5. Which physical quantity has the unit Wh/m2? Is it a scalar or a vector quantity? **1**

Q. 6. Draw a circuit diagram-to show how a photo-diode is biased. Draw its characteristic curves for two different illumination intensities. **2**

Q. 7. Find the wavelength of electromagnetic waves of frequency 4×10^9 Hz in free space. Give its two applications. **2**

Q. 8. Draw the graph showing the variation of binding energy per nucleon with mass number. Explain, using this graph, why heavy nuclei can undergo fission. 2

Q. 12. The graph shows the variation of voltage, 'V' across the plates of two capacitors A and B versus increase of charge 'Q' stored on them. Which of the two capacitors has lower capacitance? Give reason for your answer. **2**
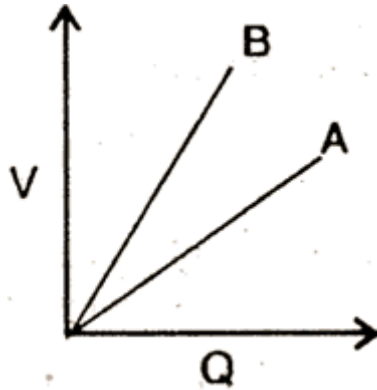
Q. 16. Derive an expression for (i) induced e.m.f. and (ii) induced current. when a conductor of length 'l' is moved with a Uniform velocity normal to a uniform magnetic field B. Assume the resistance of the conductor to be 'R'. **3**

Q. 18. State Gauss' theorem in electrostatics. Using this theorem, derive an ex pression for the electric field intensity due to an infinitely long, straight wire of linear charge density $\lambda C/m$. **3**

Q. 21. Write the logic symbol and truth table for OR gate. Explain how Ibis gate can be realized by using two diodes.