



Perfect solution to all problems

Tips, Tricks, General Knowledge, Current Affairs, Latest Sample,
Previous Year, Practice Papers with solutions.

CBSE 12th Physics 2016 Unsolved Paper Delhi Board

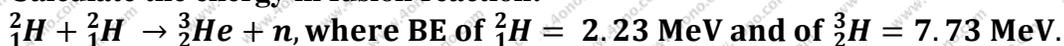
Buy Solution: <http://www.4ono.com/cbse-12th-physics-solved-previous-year-papers/>

Note

This pdf file is downloaded from www.4ono.com. Editing the content or publicizing this on any blog or website without the written permission of [Rewire Media](#) is punishable, the suffering will be decided under DMCA

OR

Calculate the energy in fusion reaction:



Q.9. Two cells of emfs 1.5V and 2.0V having internal resistances 0.2 Ω and 0.3 Ω respectively are connected in parallel. Calculate the emf and internal resistance of the equivalent cell. *2 marks*

Q.10. State Brewster's law. The values of Brewster angle for a transparent medium is different for light of different colours. Give reason. *2 marks*

SECTION - C

Q.11. A charge is distributed uniformly over a ring of radius 'a', obtain an expression for the electric intensity E at a point on the axis of the ring. Hence show that for point at large distance from the ring, it behaves like a point charge. *3 marks*

Q 12. (a) Write three characteristic feature in photoelectric effect which cannot be explained on the basis of wave theory of light, but can be explained only using Einstein's equation. *3 marks*

Q 13. (a) Write the expression for the magnetic force acting on a charged particle moving with velocity v in the presence of magnetic Field B.

(b) A neutron, an electron and an alpha particle moving with equal velocities, enter a uniform magnetic field going into the plane of the paper as shown, trace their paths in the field and justify your answer. *3 marks*

Q 14. (i) Define mutual inductance.

(ii) A pair of adjacent coils has a mutual inductance of 1.5 H. If the current in one coil changes from 0 to 20 A in 0.5s, what is the change of flux linkage with the other coil ? *3 marks*

Q 15. Two parallel plate capacitors X and Y have the same area of plates and same separations between them. X has air between the plates while Y contains a dielectric medium of $\epsilon_r = 4$.

(i) Calculate capacitance of each capacitor if equivalent capacitance of the combination is $4\mu\text{F}$.

(ii) Calculate the potential difference between the palate of X and Y.

(iii) Estimate the ratio of electrostatic energy stored in X and Y. *3 marks*

Q 16. Two long straight parallel conductors carry steady current I_1 and I_2 separated by a distance d. If the currents are flowing in the same direction, show how the magnetic field set up in one produces an attractive force on the other. Obtain the expression for this force. Hence define one ampere. *3 marks*

Q17. How are em waves produced by oscillating charges?

Draw a sketch of linearly polarized em waves propagating in the z-direction.

Indicate the directions of the oscillating electric and magnetic fields. *3 marks*

OR

Write Maxwell's generalizations of Ampere's Circuital law. Show that in the process of charging a capacitor, the current produced within plates of the capacitor is $i = \epsilon_0 \frac{d\phi_E}{dt}$ where ϕ is the electric flux produced during charging of the capacitor plates.

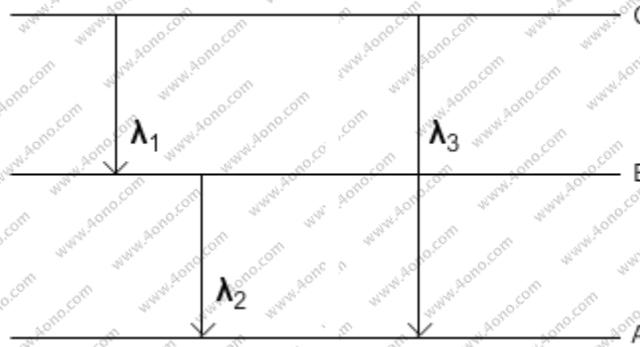
- Q18. (a) Explain any two factors which justify the need of modulating a low frequency signal.
(b) Write two advantages of frequency modulation over amplitude modulation. 3 marks

- Q 19. (i) Write the functions of three segments of a transistor.
(ii) Draw the circuit diagram for studying the input and output characteristics of n-p-n transistor in common emitter configuration. Using the circuit, explain how input, output characteristics are obtained. 3 marks

- Q 20. (i) Calculate the distance of an object of height h from a concave mirror of radius of curvature 20 cm, so as to obtain a real image of magnification 2. Find the location of image also.

- (ii) Using mirror formula, explain why does a convex mirror always produce a virtual image. 3 marks

- Q.21. (i) State Bohr's quantization condition for defining stationary orbits. How does the Broglie hypothesis explain the stationary orbits?
(ii) Find the relation between the three wavelengths λ_1 , λ_2 and λ_3 from the energy level diagram shown:



- Q.22. Draw a schematic ray diagram of reflecting telescope showing how rays coming from a distant object are received at the eye-piece. Write its two important advantages over a refracting telescope. 3 marks

SECTION – D

Q.23. Meeta's father was driving her to the school. At the traffic signal she noticed that each traffic light was made of many tiny lights instead of a single of bulb. When Meeta asked this question to her father's he explained the reason for this.

Answer the following questions based on above information? 4 marks

- (i) What were the values displayed by Meeta and her father?**
- (ii) What answer did Meeta's father give?**
- (iii) What are the tiny lights in traffic signals called and how do these operate?**

SECTION- E

Q.24. (i) An a.c. source of voltage $V = V_0 \sin \omega t$ is connected to a series combination of L, C and R. Use the phasor diagram to obtain expression for impedance of the circuit and phase angle between voltage and current. Find the condition when current will be phase with the voltage. What is the circuit in this condition called? 5 marks

(ii) In a series LR circuit $X_L = R$ and power factor of the circuit is P_1 . When capacitor with capacitance C such that $X_L = X_C$ is put in series, the power factor becomes P_2 . Calculate P_1/P_2

OR

(i) Write the functions of a transformer. State its principle of working with the help of A diagram. Mention various energy losses in this device.

(ii) The primary coil of an ideal step up transformer has 100 turns and transformation ratio is also 100. The input voltage and power are respectively 220V and 1100W. Calculate.

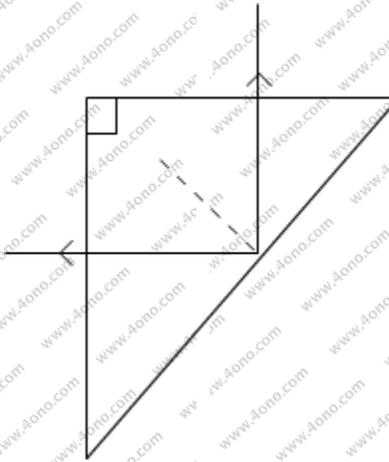
- (a) number of turns in secondary**
- (b) current in primary**
- (c) voltage across secondary**
- (d) current in secondary**
- (e) power in secondary**

Q.25. (i) In young's double slit experiment deduce the condition for (a) constructive, and (b) constructive interference at a point on the screen. Draw a graph showing variation of intensity in the interference pattern against position 'x' on the screen. 5 marks

(ii) Compare the interference pattern observed in young's double slit experiment with single slit diffraction pattern, pointing out three distinguishing features

OR

- (i) Plot a graph to show variation of the angle of deviation as function of angle of incidence for light passing through a prism. Derive an expression for refractive index of the prism in terms of angle of minimum deviation and angle of prism.
- (ii) What is dispersion of light? What is its cause?
- (iii) A ray of light incident normally on one face of a right isosceles prism is totally reflected as shown in fig. What must be the minimum value of refractive index of glass? give relevant calculations.



All
the Best

Buy Solution: <http://www.4ono.com/cbse-12th-physics-solved-previous-year-papers/>