



# PHYSICS

**BOOKS - JEEVITH PUBLICATIONS**

**PHYSICS (KANNADA ENGLISH)**

**ELECTROMAGNETIC WAVES**

**One Mark Questions With Answers**

1. What field is generated by a time - varying electric field ?



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2. Say whether time varying magnetic field generates electric field or not. `



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3. Who propounded the theory of electromagnetic waves ?



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4. What led to the conclusion that light is an electromagnetic wave ?



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5. Give the mathematical form of Ampere's circuital law.



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6. Write the expression for displacement current or Maxwell's displacement current.



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7. Write the corrected form of Ampere's circuital law.



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**8.** What is the source of electromagnetic waves ?



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**9.** Who disproved the existence of luminiferous, all pervading, highly elastic and inertial ether ?



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**10.** Express velocity of electromagnetic wave in a material medium in terms of  $\mu$  and  $\epsilon$ .



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**11.** Give the expression for velocity of electromagnetic waves in vacuum.



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**12.** Name a polarised electromagnetic wave.



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**13.** Give the expression for the exnergy density of electric field.



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**14.** Give the expression for the energy density of magnetic field.



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15. Say whether electromagnetic waves transfer momentum and energy or not.



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16. What is meant by radiation pressure ?



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17. If 'U' is the total energy transferred to the surface by an electromagnetic wave, then relate



total momentum ( $p$ ) of electromagnetic delivered to the surface in terms 'U'.



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**18.** Why is that we do not feel the momentum of light and radiate heat from the sun?



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**19.** Name the American scientists who succeeded in measuring the radiation

pressure of visible light (1903).



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20. What is an electromagnetic wave ?



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21. Who discovered  $\gamma$  radiation ?



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**22. Who discovered X-rays ?**



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**23. Who discovered UV rays ?**



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**24. Who discovered IR-radiation ?**



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**25.** What are microwaves ?



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**26.** What is the wavelength range of  $\gamma$  rays ?



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**27.** What is the wavelength range of X-rays ?



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**28.** What is the wavelength range of UV rays ?



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**29.** Give the frequency range of IR rays.



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**30.** What is the wavelength range of visible light ?



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31. What is the frequency range of radiowaves ?



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32. Given below are some famous numbers associated with electromagnetic radiations in different contexts in physics. State the parts of the electromagnetic spectrum to which each belongs.

21 cm (Wavelength emitted by atomic hydrogen in interstellar space)





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**33.** Given below are some famous numbers associated with electromagnetic radiations in different contexts in physics. State the parts of the electromagnetic spectrum to which each belongs.

1057 MHz ( frequency of radiation arising from the two close energy levels in hydrogen known as Lamb shift).



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**34.** A radio can tune into any station in the 7.5 MHz to 12 MHz band. What is the corresponding wavelength band ?



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**35.** About 5% of the power of a 100W bulb is converted to visible radiation. What is the average intensity of visible radiation.

At a distance 1 m from the bulb ?



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**36.** About 5% of the power of a 100W bulb is converted to visible radiation. What is the average intensity of visible adiation.

At a distance 10m ?



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