	INDIAN SCHOOL AL WADI AL KABIR	
Class: X1I	Department: SCIENCE 2020-2021 SUJECT : PHYSICS	Date of submission: 14.08.20
Worksheet No:08 WITH ANSWERS	Topic: ELECTROMAGNETIC WAVES	Note: A4 FILE FORMAT

OBJECTIVE TYPE QUESTIONS

1. What is wavelength of signal weather frequency of 300 megahertz?

    (a) 2m   (b) 20m

    (c) 10m   (d) 1m.

Ans. D $[\lambda = \dfrac{c}{\upsilon} = \dfrac{3 \times 10^8}{3 \times 10^8} = 1m]$

Application

2. If $\lambda_x, \lambda_m, \lambda_v$ represents wavelength of X-Rays, microwaves & visible rays then

    (a) $\lambda_m > \lambda_x > \lambda_v$ (b) $\lambda_m > \lambda_v > \lambda_x$

    (c) $\lambda_v > \lambda_x > \lambda_m$ (d) $\lambda_v > \lambda_m > \lambda_x$

Ans. B

Understanding

3. Human body radiate

   (a) microwave   (b) X-rays

   (c) infrared rays   (d) gamma rays.

Ans. C

Remembering

4. EM waves can be produced by a charge:

   (a) An accelerated charged particles

   (b) A charged particles moving with constant speed

   (c) at rest.

   (d) either at rest or moving with constant velocity.

Ans. (a)

Remembering

5. In EM spectrum minimum wavelength is of:

   (a) gamma rays   (b) radio waves

   (c) visible rays   (d) microwave.

Ans. A

Understanding

6. Properties of EM radiation are identified by using there:

   (a) colour   (b) their use

   (c) speed   (d) frequency or wavelength

Ans. D

Understanding

7. Light wave constitutes:

    (a)   mechanical waves   (b)   magnetic waves

    (c)   electromagnetic waves   (d)   longitudinal waves

Ans. C

Understanding

8. Which of the following transport by EM waves:

    (a)   charge & momentum   (b)   frequency & wavelength

    (c)   energy & momentum   (d)   wavelength & energy

Ans. C

Understanding

FILL IN THE BLANKS

1 . For an EM wave propagating along x –axis Emax =30V/m, the maximum value of magnetic field is _____.

Ans. 10^{-7}T

Application

2. Shorter the wavelength of an electromagnetic waves ,…….. energy it carries

Ans. More [$E = \dfrac{hc}{\lambda}$]

Understanding

3. Waves used to transmit cellular telephone message are……….

Ans. microwaves

Analysing & Evaluating

4. In EM waves transport both…….and……. takes place.

Ans. Energy, momentum $[E = h\upsilon \; \& \; p = \dfrac{h}{\lambda}]$

Understanding

5. EM waves are produced by………... charges.

Ans. Accelerated/Oscillated

Understanding

6. To study structure of crystals……... are used.

Ans. X-rays

Application

7. Human eye can detect……... part of electromagnetic spectrum.

Ans. visible

Remembering

8. To treat cancer and tumor in radiography……... rays are used.

Ans. γ **-rays**

Remembering

QUESTIONS BASED ON BOARD PAPERS

FILL IN THE BLANKS

[1] During the propagation of an EM wave in a medium electrical energy density is ---------- magnetic energy density
Equal
Understanding

[2] The velocity of em waves in the free space can be given by relation -----

$$c = \dfrac{1}{\sqrt{\mu_0 \, \epsilon_0}}$$

Remembering

[3] The cross product $\vec{E} \times \vec{B}$, always gives the ------- of em waves
Direction
Understanding

[4] The em waves of frequency range from 5 x 10^5 Hz to 10^9 Hz are called ----
Remembering
Radio wave

[5] The em waves of frequency range from 3 x 10^{18} Hz to 10^{22} Hz are called ----
Gamma rays
Remembering

[6] The em waves which are used in the working of solar water heater and cookers are called ----
Infrared

Remembering

[7] In a plane em wave, the electric field oscillates at a frequency of 2.5 x 10^{10} Hz and amplitude of 480V/m. The amplitude of oscillating magnetic field is ----
1.6 x10^{-6} wb/m^2
Application

[8] Maxwell's equations related to study of em waves describe the fundamental laws of ---- &----
Electricity & magnetism
Understanding

OBJECTIVE TYPE QUESTIONS

[1] Microwaves are the emwaves with frequency, in the range of
[a] micro hertz[b] mega hertz [c] giga hertz[d] hertz
[c]
Remembering

[2] Which of the following em waves has smaller wavelength
[a] X – rays [b] radio waves [c] gamma rays [d] microwaves
C
Remembering

[3] The waves used in telecommunication are
[a] infra red[b] u.v [c] microwaves [d] cosmic rays
[c]

Remembering

PREPARED BY Mr WILLIAM	CHECKED BY HOD - SCIENCE