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## Chapter-02

### WAVES

Type, Properties and Wave Motion

1. When a stone is thrown in calm water of a pond waves produced are-

- (A) Longitudinal wave
- (B) Transverse wave
- (C) Both A and B
- (D) Wave does not Produced

2. Which instrument can be used to study the wave form of a signal?

- (A) Spectrometer
- (B) Oscilloscope
- (C) Sonometer
- (D) P-n Junction diode

3. What is found in frequency modulation?

- (A) Fixed frequency
- (B) Fixed dimension
- (C) Change in frequency and dimension
- (D) Change in dimension only

4. These waves cannot be transmitted through vacuum

- (A) Light
- (B) Sound
- (C) Heat
- (D) Electromagnetic

5. Stationary wave is formed by

- (A) A transverse wave superposing a longitudinal wave
- (B) Two waves of the same speed superposing
- (C) Two waves of same frequency travelling in the same direction
- (D) Two waves of same frequency travelling in the opposite direction

6. Intensity of any wave is proportional to which of the following?

- (A) Amplitude
- (B) Square of amplitude
- (C) Square root of amplitude
- (D) Cube of amplitude

7. The reverse effect of X-ray emission is

- (A) Raman Effect
- (B) Compton Effect

(C) Zeeman Effect

(D) Photoelectric Effect

8. Which of the following waves can not be polarized.

- (A) Radio
- (B) Ultraviolet
- (C) Infrared
- (D) Ultrasonic

9. Which one of the following is not an electromagnetic wave?

- (A) X-ray
- (B) Gamma-ray
- (C) Cathode Ray
- (D) Infrared

10. Which of the following has the lowest frequency?

- (A) Visible Ray
- (B) Gamma Ray
- (C) X-Ray
- (D) Ultraviolet Rays

11. Every hot object emits

- (A) X-rays
- (B) Visible light
- (C) Infrared Rays
- (D) Ultraviolet Rays

12. Which of the following is not true about X-rays?

- (A) Have low penetrating power
- (B) Travel with the speed of light
- (C) Can be reflected or refracted
- (D) Can affect photographic plates.

13. In which region of electromagnetic spectrum does the Lyman series of Hydrogen atom lie

- (A) Visible
- (B) Infrared
- (C) Ultraviolet
- (D) X-Ray

14. Which of these travels in glass with minimum velocity

- (A) Red light
- (B) Violet Light
- (C) Green Light
- (D) Yellow Light

15. X-Rays are

- (A) Positively charged particles
- (B) Negatively charged particles
- (C) Neutral particles
- (D) None of these

16. The damage of the human body due to radiation (X-Rays or g-rays) is measured in

- (A) Rems
- (B) Roentgen
- (C) Curei
- (D) Rads

17. Transition ions absorb light in region

- (A) Infrared
- (B) Ultraviolet





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(C) Microwave

(D) Visible

18. Green house effect is the heating up of the Earth's atmosphere which is due to

- (A) The Ultraviolet Rays
- (B) Gamma-rays
- (C) The infrared rays
- (D) X-rays

19. Indicate the correct arrangement for electromagnetic radiation in order of their increasing wavelength

- (A) Microwave, Infrared, Visible, X-Rays
- (B) X-Rays, Visible, Infrared, Microwave
- (C) Visible, Infrared, Microwave, X-Rays
- (D) X-rays, Infrared, Visible, Microwave

20. Which of the following supports particle nature of photons?

- (A) Diffraction
- (B) Polarization
- (C) Photoelectric effect
- (D) Interference

21. Matter waves are

- (A) de Broglie waves
- (B) Electromagnetic waves
- (C) Transverse waves
- (D) longitudinal waves

22. Which electromagnetic radiation is used for satellite communication?

- (A) Ultraviolet
- (B) Infrared
- (C) Microwave
- (D) Millimeter wave

23. The radiation initially produced in fluorescent tube is

- (A) Infrared
- (B) Ultraviolet
- (C) Microwaves
- (D) X-Rays

24. Waves that are required for long distance wireless communication are

- (A) Infrared Rays
- (B) Ultraviolet Rays
- (C) Radio waves
- (D) Microwaves

25. Ultra violet radiations of the Sun do not reach the earth because, earth's atmosphere is surrounded by

- (A) Carbon dioxide
- (C) Chlorine

- (B) Ammonia
- (D) Ozone

26. Gamma rays can cause

- (A) Gene mutation
- (B) Sneezing
- (C) Iodine
- (D) Sodium chloride

27. Ultraviolet radiations has more energy as compare to-

- (A) Infrared Radiation
- (B) Gamma Radiation
- (C) X-Rays
- (D) Space Rays

28. Ultraviolet rays can be used in water treatment as

- (A) Precipitator
- (B) Hydrolyser
- (C) Disinfectant
- (D) Flocculator

29. The device used for measuring the wavelength of X-rays is:

- (A) Cyclotron
- (B) Bragg's Spectrometer
- (C) Mass spectrometer
- (D) GM counter

30. Radar is used to-

- (A) To locate submerged submarines.
- (B) Receive signal from radio receivers.
- (C) Detect and locate distant objects.
- (D) Locate geostationary satellites.

31. Who is the inventor of RADAR?

- (A) H.N. Van Tessel
- (B) William K. Rontgen
- (C) P.T. Farnsworth
- (D) A.H. Taylor and Lio C. Young

32. Who discovered X-Rays? [SSC Tax. Asst. 2009]

- (A) Roentgen
- (B) Becquerel
- (C) Marie curie
- (D) Wan Loo

33. The least penetrating power ray is —

- (A) -rays
- (B) -ray
- (C) -rays
- (D) X-ray

34. X-rays can be used.







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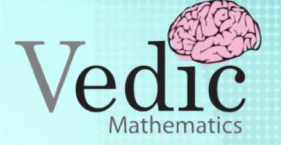
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- (A) To detect defects in precious stones and diamonds.  
(B) To detect heart diseases.  
(C) To detect gold under the earth  
(D) For cutting and welding of metals.

35.Wavelength of visible spectrum is -

- (A) 1300 Å - 3000 Å  
(B) 3900 Å - 7600 Å  
(C) 7800 Å - 8000 Å  
(D) 8500 Å - 9800 Å

36.In a Filament type Light bulb most of the electric power consumed appear as -

- (A) Visible Light (B) Infrared Light  
(C) Ultraviolet (D) Fluorescent Light

37.Which of the following is used in MRI machine?

- (A) Sound wave (B) X-rays  
(C) Ultrasonic wave (D) Magnetic wave

38.A wavelength of 0.3 m is produced in air and it travels at a speed of 300 m/s. Then it will be an-

- (A) Audible wave (B) Ultrasonic  
(C) Microwave (D) Infrasonic

39.Bolometer is used to measure which of the following?

- (A) Frequency (B) Temperature  
(C) Velocity (D) Wavelength

40.Coolidge tube is used to produce

- (A) Radio waves (B) Micro waves  
(C) X-rays (D) Gamma rays

41.Which of the following parts of the sunlight makes the solar cooker hot?

- (A) Ultraviolet (B) Red light  
(C) Infrared (D) Cosmic rays

42.When a vehicle passes, TV reception gets distorted. This is because

- (A) Metal reflects radiowaves  
(B) Spark plug creates electromagnetic disturbances  
(C) Vehicle pollution affects the performance of the TV components  
(D) Modern vehicles use electro-ignition system

43.Where are mesons found?

- (A) Cosmic rays (B) X-rays  
(C) Gamma rays (D) Laser beam

44.What is the full form of 'AM' regarding radio broadcasting?

- (A) Amplitude Movement  
(B) Anywhere Movement  
(C) Amplitude Matching  
(D) Amplitude Modulation

45.The scientist who first sent electromagnetic waves to distant places is

- (A) James Clerk Maxwell  
(B) Heinrich Hertz  
(C) Thomas Alva Edison  
(D) John Logie Baird

46.Gamma rays have greatest similarity with

- (A) a-rays (B) b-rays  
(C) X-rays (D) U.V.-rays

47.The audio signals of TV are

- (A) Amplitude modulated  
(B) Frequency modulated  
(C) Unmodulated  
(D) Velocity modulated

48.Tape recorder should not be kept near one of the following things:

- (A) Clock  
(B) Magnet  
(C) Electrical switchboard  
(D) Radio

49.Night photography and photography in mist and fog are possible using

- (A) Ultra-violet radiation  
(B) Infra-red radiation  
(C) Microwave radiation  
(D) Gamma radiation

50.Forged documents are detected by

- (A) Ultraviolet rays (B) Infra-red rays  
(C) Beta rays (D) Gamma rays

51.In the remote control of television, electromagnetic waves used are





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- (A) Ultraviolet (B) Microwave  
(C) Radiowave (D) Infrared

52. Which of the following radiations has the least wavelength?

- (A) X-rays (B)  $\alpha$ -rays  
(C)  $\gamma$ -rays (D)  $\beta$ -rays

53. A seconds pendulum is a pendulum whose time period is —

- (A) 1 sec (B) 4 sec  
(C) 3 sec (D) 2 sec

54. What is the motion which repeats itself after regular interval of time?

- (A) Periodic Motion  
(B) Simple Harmonic Motion  
(C) Undamped Motion  
(D) Vibratory Motion

55. Which of the following waves has the highest frequency?

- (A) Radio (B) Infrared  
(C) Microwaves (D) Gamma-rays

56. \_\_\_\_\_ are used for communication in artificial satellites.

- (A) Infrared waves  
(B) Radio waves  
(C) Ultraviolet (UV) rays  
(D) Amplitude Modulation (A.M.) waves

57. What is the distance between a crest and a consecutive trough in a transverse wave?

- (A) Wavelength  
(B) Amplitude  
(C) Half of the wavelength  
(D) Twice of wavelength

58. Which one of the following is not a property of electromagnetic waves?

- (A) Electromagnetic waves do not show interference and diffraction.  
(B) Oscillating electric field and magnetic field are perpendicular to each other.  
(C) Electromagnetic waves are transverse waves  
(D) Electromagnetic waves do not require a medium to propagate.

59. The time taken by a pendulum to complete one oscillation is called its?

- (A) Maximum speed  
(B) Average speed  
(C) Time period  
(D) Time interval

