SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED

MCQ QUESTION PAPER SET 2

SUBJECT: PHYSICS **CLASS: B.Sc. SECOND YEAR**

SEM -III **PAPER-VI**

MAX.MARKS:40 **TIME DURATION:1 HR.**

TITLE: WAVES AND OSCILLATIONS

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1. $\frac{d^2y}{dt^2} + 2k\frac{dy}{dt} + n^2y = 0$ is the equation of

   a) Differential equation of free undamped motion

   b) Differential equation of free damped motion

   c) Differential equation of forced vibration

   d) None of above are correct

2. When a bar of a ferromagnetic material is suddenly magnetised, it undergoes a slight change in length. This is known as:

   a) Galton effect

   b) Piezo-electric effect

   c) Kundt's effect

   d) Magnetostriction effect

3. Human ear is unable to hear sounds of frequency less than…..

   a) 20 Hz

   b) 20000Hz

   c) 200 Hz

   d) 2000 Hz

4. The period (T)of undamped oscillations is :

   a) $T = \frac{2\pi}{n}$

   b) $T = \frac{\pi}{n}$

   c) $T = 2\pi n$

   d) $T = \pi n$

5. The phenomenon in which frequency of free vibration is exactly equal to frequency of forced vibration is known as:

   a) Free vibration

   b) Damped vibration

   c) Forced vibration

   d) Resonance

6. The time for which sound persists even after source stopped called..

   a) Reverberation Time

   b) Periodic Time

   c) Instantaneous Time

   d) All above are correct.

7. The velocity (v)of longitudinal waves in the crystal is :

   [(Y) is elasticity of material and (ρ) is density of material]

   a) $v = \sqrt{Y\rho}$

   b) $v = \frac{Y}{\rho}$

   c) $v = \frac{\rho}{Y}$

   d) $v = \sqrt{\frac{Y}{\rho}}$

8. When body vibrating freely has no resistance offered to its motion, its amplitude…

   a) Increases with time

   b) Decreases with time

   c) Remains constant

   d) Initially increases then decreases

9. Piezo-electric oscillator is used to produce…

   a) Sonic waves

   b) Ultrasonic waves

   c) Infrasonic waves

   d) None of above correct

10. For a sound of frequency 20 Hz, the wavelength at room temperature is:

    (Velocity of sound at room temperature is 350 m/s)

    a) 1.75 m

    b) 175 m

    c) 17.5 m

    d) 0.175 m

11. In the presence of friction the frequency of vibrating mass is :

    a) $n = \frac{1}{2\pi}\sqrt{\frac{\mu}{m}}$

    b) $n = \frac{1}{\pi}\sqrt{\frac{\mu}{m}}$

    c) $n = \frac{1}{2\pi}\sqrt{\frac{\mu}{m} - \frac{r^2}{4m^2}}$

    d) $n = \frac{1}{\pi}\sqrt{\frac{\mu}{m} - \frac{r^2}{4m^2}}$

12. For large frictional forces (k > n), the type of motion is:

    a) Aperiodic motion

    b) Critically damped motion

    c) Oscillatory motion

    d) None of above

13. Acoustic grating is used ..

    a) To produce sonic waves

    b) To produce infrasonic waves

    c) To measure the velocity of ultrasonic waves

14. Sabine's reverberation time formula in F.P.S. System is:

    a) $t_1 = \frac{\sum \alpha A}{0.05V}$

    b) $t_1 = \frac{\alpha A}{0.5V}$

    c) $t_1 = \frac{0.05V}{\sum \alpha A}$

    d) $t_1 = \frac{0.5V}{\alpha A}$

15. For determination of absorption coefficient, a source of frequency is used

    a) 512 Hz

    b) 256 Hz

    c) 384 Hz

    d) 288 Hz

16. The walls of the auditorium are usually covered with material having large absorption coefficient because

    a) To increase the reverberation time

    b) Of decorative purpose only

    c) To decrease the reverberation time

    d) None of above

17. The amplitude of vibration at resonance is:

a) Small

b) Large

c) Zero

d) None of above

18. When damping is small, resonance is :

a) Sharp

b) Flat

c) Zero

d) None of above

19 Acoustics of an auditorium can be improved by:

a) Having no audience

b) Having pictures, maps and heavy curtains

c) Having curved walls and corners bounded by two walls

d) All above are correct

20. If pendulum is displaced in vacuum, the vibration is:

a) Forced vibration

b) Free damped vibration

c) Free undamped vibration

d) Resonance