APPLIED PHYSICS - II

IMPORTANT QUESTIONS

Wave motion and its applications

PART – A

1. A motion that repeats itself at regular intervals of time is called …….

2. The time required to complete one vibration is known as …….

3. The number of vibrations made by the body in one second is known as ……

4. The reciprocal of the period is known as ….

5. The SI unit of frequency is …...

6. In a transverse wave, the points of maximum elevation are called ….

7. **…….** wave consists of a series of compressions and rarefactions.

8 **……** of a wave is the maximum displacement of any particle of the medium in the path of the wave.

9. The distance travelled by a wave in one second is called ……

10. The periodic variations in the intensity of sound due to the superposition of two sound waves of slightly different frequencies are called …….

SECTION – B

1. Distinguish between transverse waves and longitudinal waves.
2. Define Simple Harmonic Motion. Give two examples.
3. What are the characteristics of a wave?
4. Derive a relation between velocity, frequency, and wavelength.
5. Distinguish between echo and reverberation.
6. What is meant by saying that an auditorium has good acoustical properties?
7. What are ultrasonics? Mention three applications of ultrasonics.
8. When an ultrasonic pulse is sent through the sea vertically down, a delay of 12 seconds was observed in detecting the reflected signal. If the velocity of sound is 330 m/s, calculate the depth of the sea.
9. The separation between the trough and crest of a wave is 6×10^{-8} m. Calculate the frequency, assuming a wave having a velocity of 3×10^{8} m/s.
10. A tuning fork makes one complete vibration in $\frac{1}{250}$ s. If the velocity of sound in air is 340 m/s, find the wavelength of the sound waves given out by the tuning fork.

SECTION – C

1. Derive expressions for displacement, velocity, and acceleration of a particle executing SHM.

APPLIED PHYSICS - II

IMPORTANT QUESTIONS

Optics

SECTION -A

1. The branch of physics that deals with the study of light …...
2. A collection of a large number of rays of light is called …...
3. The angle between the incident ray and normal ….
4. The angle between the incident ray and the refracted ray is called ….
5. The ratio of the speed of the light in a vacuum to the speed of the light in the medium is known as …...
6. The twinkling of stars is due to ……... of light.
7. If the middle part of the lens is thinner than the edges it is a ……. lens.
8. The ability of a lens to bend the light falling on it is called ….
9. The unit of power of a lens is …...
10. Magnification is positive for …. images.
11. For a normal human eye, the least distance of distinct vision D is ……. cm.
12. The ability of an instrument to show two very closed objects as separate is called its ……
13. An optical illusion seen in deserts on hot days ……
14. ……...is the operating principle of optical fibers.
15. ….. is the innermost part of the optical fiber.

SECTION – B

1. What is reflection? State laws of reflection.
2. What are the uses of spherical mirrors?
3. What is refraction? State laws of refraction.
4. Explain the term magnification of the lens.
5. What are the defects of a lens?
6. Explain the term total internal reflection.
7. With the help of a diagram explain the critical angle.
8. Write the uses of optical fibers.
9. Explain the working of optical fibers.
10. Sketch the image formation of a convex when an object is placed beyond 2F from the lens.

SECTION - C

1. With the help of a diagram explain the working of a Simple microscope.
2. At what distance from a convex lens of the focal length of 15 cm should an object be placed to produce an image magnified 4 times if the image is real.
3. A converging lens forms a real image. If the image is twice the size of the object and 108 cm from it, calculate the focal length and power of the lens.
4. A convex lens having a focal length of 36 cm, forms a real image. How far from the lens would the object have to be placed for the image to be the same size as the object?
5. An object of height of 1.5 cm is placed perpendicular to the principal axis of a convex lens of a focal length of 10 cm. Find the position, nature, and size of the image formed when it is placed at a distance of 25 cm from the lens.