

MUSLIM STUDENTS' SOCIETY OF NIGERIA
UNIVERSITY OF ILORIN
COLLEGE OF HEALTH SCIENCES

PHY125 MOCK EXAMINATION

2017/2018

1 Ordinary nitrogen gas consist of molecules of N_2 . Find the mass of one such molecule. The molecular mass is 28kg/kmol (a) $4.7 \times 10^{-26}\text{kg}$ (b) $5.4 \times 10^{-26}\text{kg}$ (c) $1.2 \times 10^{-27}\text{kg}$ (d) $3.01 \times 10^{-27}\text{kg}$

2 Which of the following is a transverse wave?

(a) Sound (b) light (c) Infra-red (d) microwave

3 The frequency of a wave having wavelength 20cm and velocity of 0.5m/s is

(a) 0.0025 Hz (b) 0.025 Hz (c) 2.5 Hz (d) 40.0 Hz

4 A body emits 50 vibrations per second of waves travelling 20cm/s . the wavelength of the wave is (a) 1000m (b) 100m (c) 2.5m (d) 0.4m

5 A metal wire of mass 1 g and length 50 cm is under a tension of 80N . Find the fundamental frequency (a) 4000Hz (b) 40Hz (c) 200 Hz (d) 500 Hz

6 Under a constant tension, a plucked string produces a note of 250 Hz when the length is 1.0 m . At what length is the frequency 200 Hz ? What frequency will be produced with a length of 0.5 m ?

(a) 125 Hz (b) 250 Hz (c) 500Hz (d) 1000Hz

7 Calculate the minimum intensity of audibility in watt per sq.cm for a note of 1000 c.p.s. if the amplitude of vibration is 10^{-9} cm . • [Assume density of air $=0.0013\text{g/cm}^3$ and velocity of sound $=340\text{m/s}$]

(a) $1.92 \times 10^{-16}\text{ W/cm}^2$ (b) $0.87 \times 10^{-16}\text{ W/cm}^2$ (c) $4.7 \times 10^{-16}\text{ W/cm}^2$ (d) $2.4 \times 10^{-16}\text{ W/cm}^2$

8. A motor car is approaching a road crossing with a speed of 75km/hr . a constable standing near the crossing hears the frequency of its horn as 260 per sec. What is the real frequency of the horn? [sped of air $=332\text{m/s}$] (a) 364 Hz (b) 235 Hz (c) 390 Hz (d) 244 Hz

9. What is the angular deviation of the fourth order left extreme of the visible spectrum

(a) 13.8 (b) 5.0 (c) 51.6 (d) 24.8

10. What is the grating spacing produced by a plane grating of 5500 times per decimeter when a light incident at 90° on the grating. The wavelengths of the visible spectrum are approximately between 400A° and 700A°

(a) $1.67 \times 10^{-6}\text{ m}$ (b) $1.67 \times 10^{-4}\text{ dm}$ (c) $1.88 \times 10^{-6}\text{ m}$ (d) $1.82 \times 10^{-5}\text{ m}$

11. Which of the following is not a transverse wave?

(a) Sound (b) light (c) Infra-red (d) microwave

12. The frequency of a wave having wavelength 20cm and velocity of 0.5m/s is

(a) 0.0025 Hz (b) 0.025 Hz (c) 2.5 Hz (d) 40.0 Hz

13. A body emits 50 vibrations per second of waves travelling 20cm/s. the wavelength of the wave is (a) 1000m (b) 100m (c) 2.5m (d) 0.4m

14. Which of the following phenomena does not apply to longitudinal waves?

(a) Interference (b) Refraction (c) Diffraction (d) Polarization

15. Which of the following waves are both mechanical and transverse?

(a) Radio (b) sound (c) water (d) x-ray

16. The distance between the object and the pinhole of a pinhole camera is reduced by half. The size of the image of the object

(a) Is halved (b) remains the same (c) is doubled (d) is quadrupled

17. A glass plate of refractive index $n_g=1.66$ is immersed in a liquid of refractive index $n_l=1.33$. what is the Brewster's angle? (a) 57.0 (b) 51.3 (c) 61.3 (d) 36.7

18. If the molecular of oxygen is 32.0, what is the density of oxygen at pressure of $0.19998 \times 10^5 \text{Nm}^{-2}$ and the temperature of 273.16K?

(a) 1.9567 kg/m³ (b). 0.2818 kg/m³ (c) 0.7654 kg/m³ (d) 0.2156kg/m³

19. The temperature 45 C is the same as (a) 25 F (b) 57 F (c) 81 F (d) 113 F

20. The lower fixed point corresponds to a length of 20mm on the stem of a thermometer while the upper fixed point corresponds to 160mm.the temperature corresponding to a length of 48mm is (a) 20 C (b) 30 C (c)41.7 C (d) 50 C