

PHYSICS  
NECO  
PAST QUESTIONS AND  
ANSWERS

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1. Which of these expresses the relationship between the earth's magnetic field  $F_E$ , and the field'  $F_B$  due to a magnet at neutral points?  $F_E$  is

- A. equal and opposite to  $F_B$
- B. equal to and in the same direction with  $F_B$
- C. greater than and in the same direction with  $F_B$
- D. greater than and opposite to  $F_B$
- E. less than and opposite to  $F_B$

Correct answer is option A

2. The general equation of a wave CANNOT be written as

- A.  $y = A \sin [2 \pi (t/T \pm X/\lambda)]$
- B.  $y = A \sin [wt \pm kx]$
- C.  $y = A \sin [2 \pi \lambda (vt \pm x)]$
- D.  $y = A \sin [2\pi (ft \pm X/\lambda)]$
- E.  $y = A \sin 2 \pi f(T \pm X/\lambda)]$

Correct answer is option E

3 A voltage supply of 12V r.m.s. and frequency 90Hz is connected to a  $4 \omega$  resistor. Calculate the peak value of the current

- A. 48.8 A
- B. 30.0 A
- C. 27.5 A
- D. 4.2 A
- E. 3.0A

Correct answer is option D

4. Which of the following conclusion(s) can be drawn from Newton's second law of motion?  
Force is proportional to

- I. the product of mass and acceleration

II. the product of mass and velocity

III. Impulse

A. I only

B. II only

C. III only

D. II and III only

E. I, II and III

Correct answer is option E

5. How far from a hill should a boy stand to hear the echo of his clap 1.6s later? [Speed of sound in air is  $340\text{ms}^{-1}$ ]

A. 186m

B. 272m

C. 544m

D. 1088m

E. 2000m

Correct answer is option B

6. Which of the statements about prism binoculars is/are correct? They

I. are a pair of two telescopes mounted side by side

II. reduce the optical path of the light ray from the objective to the eye piece

III. present inverted and diminished image to the viewer

IV. present erect and magnified image to the viewer.

A. I only

B. II only

C. I and II only

D. I, II and IV only

E. II, III and IV only

Correct answer is option D

7. A body of mass 40g loses 80J of heat energy. If the specific heat capacity of the body is 400 Jkg<sup>-1</sup>, calculate the change in temperature of the body.

- A. 0.2K
- B. 0.4K
- C. 2.0K
- D. 5.0K
- E. 10.0K

Correct answer is option D

8. The rate of diffusion of gases increases with increase(s) in

- I. density
- II. temperature
- III, mass. Which is/are correct?

- A. I only
- B. II only
- C. I and II only
- D. II and III only
- E. I, II and III

Correct answer is option B

9. In which of these fields are repulsive forces NOT experienced?

- I. Magnetic field
- II. Gravitational field
- III. Electric field

- A. I only
- B. II only
- C. III only
- D. I and III only

E. II and III only

Correct answer is option B

10. The component of a vector in a given direction is

- A. equal to the magnitude of the resultant vector in that direction
- B. equal to the magnitude of the resultant vector in the opposite direction
- C. its effective magnitude
- D. its effective value in that direction
- E. its effective value in the opposite direction

Correct answer is option D

11. A plane which is Inclined at an angle of  $30^\circ$  to the horizontal has a velocity ratio of

- A. 2
- B. 1
- C. 0.87
- D. 0.67
- E. 0.5

Correct answer is option A

12. A mass of 5kg is suspended from the ceiling of a lift with a light inextensible string. As the lift moves upwards with an acceleration of  $2\text{ms}^{-2}$ , the tension in the string is [ $g = 10\text{ms}^{-2}$ ]

- A. 25N
- B. 40N
- C. 50N
- D. 60N
- E. 70N

Correct answer is option B

13. Which of the following is NOT an example of a percussion instrument?

- A. Bell
- B. Drum
- C. Flute
- D. Gong
- E. Xylophone

Correct answer is option C

14. The time  $t_1$ ,  $t_2$  and  $t_3$  for 20 complete oscillations of a simple pendulum experiment are 32.0s, 34.6s and 35.5s respectively. Calculate the mean period of the pendulum.

- A. 1.60s
- B. 1.70s
- C. 1.73s
- D. 1.78s
- E. 5.11s

Correct answer is option B

15. Calculate the magnitude of the electric field intensity in vacuum at a distance of 25cm from a charge of  $5 \times 10^{-3}\text{C}$ . [Take  $1/4\pi\epsilon_0$ ]

- A.  $7.2 \times 10^8\text{NC}^{-1}$
- B.  $1.8 \times 10^8\text{NC}^{-1}$
- C.  $5.6 \times 10^8\text{NC}^{-1}$
- D.  $3.6 \times 10^8\text{NC}^{-1}$
- E.  $1.5 \times 10^6\text{NC}^{-1}$

Correct answer is option A

16. The temperature at which the water vapour present in the air is just enough to saturate the air is the \_\_\_\_\_ point.

- A. boiling
- B. critical

- C. dew
- D. ice
- E. steam

Correct answer is option C

17. Which of the following statements is true of nuclear fission?

- A. Heavy nuclei combine to form new element
- B. Protons are used in bombarding heavy nucleus
- C. The sum of the masses of the products is greater than the mass of the original substance
- D. Two light nuclei are made to combine to form a heavy nucleus
- E. Very large amount of energy is released.

Correct answer is option E

18. The frequency of a body executing simple harmonic motion when left undisturbed is known as \_\_\_\_\_ frequency.

- A. damped
- B. forced
- C. free
- D. natural
- E. sinusoidal

Correct answer is option D

19. When very hot water is poured into a thin-walled glass container, it is less likely to break because

- A. all parts of the container got heated-uniformly
- B. glass can withstand a very high temperature
- C. the molecules of glass are too far apart to cause breakages of the container
- D. the outer part of the container is cooler than the inner part
- E. thin glass does not expand fast

Correct answer is option A

20. An electron makes a transition from - 1.60 eV energy level to - 10.4eV energy level  
Calculate the energy loss due to the transition.

- A. 16.64eV
- B. 12.00eV
- C. 10.40eV
- D. 8.80eV
- E. 6.50eV

Correct answer is option D

21. Which to the following is NOT a fundamental unit?

- A. Ampere
- B. Kelvin
- C. Kilogramme
- D. Newton
- E. Second

Correct answer is option D

22. A projectile fired with initial velocity,  $u$  will attain its maximum height  $H$  when the angle of projection  $\theta$  is

- A.  $30^\circ$
- B.  $45^\circ$
- C.  $60^\circ$
- D.  $75^\circ$
- E.  $90^\circ$

Correct answer is option E

23. For total internal reflection to occur,



- I. light must be travelling from an optically more dense to an optically less dense medium.  
II. the angle of incidence in the denser medium must be greater than its critical angle.  
III. the angle of refraction in the less dense medium must be equal to  $90^\circ$ . Which of the statements above is/are correct?

- A. I only
- B. II only
- C. III only
- D. I and II only
- E. II and III only.

Correct answer is option D

24. Which property of a fluid determines its suitability as a lubricant?

- A. Capillarity
- B. Diffusion
- C. Solubility
- D. Surface tension
- E. Viscosity

Correct answer is option E

25. A note, A from a guitar produces a wave of amplitude 4 mm and frequency 1000 Hz. Another note, B from a whistle produces a similar waveform of amplitude 2 mm and frequency 2200 Hz. If the two notes are compared,

- A. A has a higher pitch than B
- B. A is louder than B.
- C. B has a greater speed than A
- D. B is louder than A
- E. A and B have the same quality

Correct answer is option B

26. A surface in the path of an advancing wave on which all the particles are in the same state of disturbance is called a

- A. crest
- B. cycle
- C. pulse
- D. trough
- E. wave front

Correct answer is option E

27. Calculate the wavelength of light travelling with a speed of  $3 \times 10^8 \text{ms}^{-1}$  and a frequency of  $6.2 \times 10^{14} \text{Hz}$ .

- A.  $4.8 \times 10^{-8} \text{m}$
- B.  $4.8 \times 10^{-7} \text{m}$
- C.  $4.8 \times 10^{-6} \text{m}$
- D.  $4.8 \times 10^{-5} \text{m}$
- E.  $4.8 \times 10^{-4} \text{m}$

Correct answer is option B

28. What is the uncertainty in the measurement of time, if the uncertainty in measuring the energy of an electron of mass  $9.1 \times 10^{-31} \text{kg}$  is  $2.45 \times 10^{-19} \text{J}$ ?  $h = 6.6 \times 10^{-34}$

- A.  $1.35 \times 10^{-15} \text{s}$
- B.  $2.69 \times 10^{-15} \text{s}$
- C.  $4.15 \times 10^{-15} \text{s}$
- D.  $9.05 \times 10^{-15} \text{s}$
- E.  $1.62 \times 10^{-14} \text{s}$

Correct answer is option B

29. A body has masses of 0.013kg and 0.012 kg in oil and water respectively. If the relative density of oil is 0.875 calculate the mass of the body.

- A. 0.02 kg
- B. 0.03kg
- C. 0.04kg
- D. 0.05kg
- E. 0.06kg

Correct answer is option A

30. A stone is dropped from the top of a tower of height 11.25m. Calculate the time it will take to reach the ground. [ $g = 10\text{ms}^{-2}$ ]

- A. 1.00s
- B. 1.50s
- C. 2.25s
- D. 2.50s
- E. 3.00s

Correct answer is option B

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