Physics - ICS Part 1 Physics Full Book Short Questions Test

Q1. A wave is produce along a stretched string but some of its particles permanently show zero displacement . What type of wave is it?

Ans 1: A wave is produced along a stretched string but some of its particles permanently show zero displacement. It is a stationary wave and points at zero displacement are called nodes.

Q2. Why you wear seat belts?

Ans 1: During collision, the passengers move forward towards the windscreen due to inertia. The seat belt prevents the passenger from moving forward. And lessened the chances of injury.

Q3. What is the moment of a force about the point lying on the axis of rotation?

Ans 1:

Q4. Why diffraction grating cannot be used for X-Rays diffraction?

Ans 1: In order to observe the effects of diffraction, the grating spacing must be of the order of wavelength of the incident light.
X-rays are of much shorter wavelength of the order of 10^{-10} M
The regular array of atoms in a crystal forms a natural diffraction grating with spacing =10^{-10} M.Which is not available in other diffraction grating.

Q5. What is the effect of density on speed of sound?

Ans 1:

Q6. In Newton's rings, Why are the fringes circular?

Ans 1: The thickness of the air film between plano-convex lens and plane glass plate is almost zero at the point of contact "o" and gradually increases as we proceed towards the periphery of the lens. Thus, points where the thickness of air film is constant will lie on a circle with "o" as centre. That is why circular fringes are produced.

Q7. Name several repetitive phenomenon occurring in nature which could serve as reasonable time standard.

Ans 1: Some of the natural phenomena that can be used as time standard are as follow:

1. The rotation of earth around the sun.
2. The revolution of earth .
3. The revolution of moon around the earth.

4. Atomic vibrations in crystals.

Q8. What is the minimum number of unequal vector in to a null vector?Explain

Ans 1: The minimum number of unequal vector to result in to a null vector must be three. If we add three vector of unequal magnitude in such a way that they forms the sides of a triangle, then their resultant must be zero.
In the given figure three vectors A, B, and C are added according to head to tail rule and they form the side of a triangle. Now for getting their resultant, we will combine the tail of A with the head of C which already coincides each other. Thus we get a null vector or zero vector as a resultant
R= A+B+C = 0

Q9. Define kilowatt hour (kWh).

Ans 1: Kilowatt hour is the work done in one hour by an agency whose power is one kilowatt.
1 kWh = $3.6x10^6$

Q10. Describe any application of Bernoulli's equation.

Ans 1: When the cricket ball is thrown in such a way that is spins as well as moves forward, the velocity of the air on one side of the ball increase due to the spin and hence the pressure decrease, So the swing is produced in a fast moving cricket ball.
And it is just in accordance with Bernoulli' equation.

Q11. Define conservative and non-conservative fields?

Ans 1: Conservative field: The field in which work done along a closed path is zero is called conservative field. For Example, Earth's gravitational field

Non-Conservative fields:The field in which work done along a closed path is not zero is called non-conservative field. For Example, field of frictional force.

Q12. How would you manage to get more orders of spectra using a diffraction grating?

Ans 1:

Q13. How many nanoseconds are there in 1 year?

Ans 1: As 1 year = $3.136x10^{7\ s}$
1 year = $3.1536x10^7$ X1s
1 year =$3.1536x10^7x10^9x10^{-9}$s
1 year =$3.1536x10^7x10^{-9}$ns
1 year =$3.1536x\ 10^{16}$ns

Q14. How would the two vectors of the same magnitudes have to be oriented,if they were to be combined to give a vector of the same magnitude?

Ans 1: The two vectors of equal magnitudes are combined to give a resultant vector of same magnitude when must be oriented at an angle of 120^0 With each other.

Q15. Two vectors have unequal magnitude.Can their components be equal in magnitude?

Ans 1: No, the components of two vectors cannot be equal in magnitude if the two vector have unequal magnitudes.

Q16. Define centripetal force; write its formula and unit.

Ans 1:

Q17. Define the term light.

Ans 1: Light is the form of energy. Light is electromagnetic radiation that can be detected by the human eye. Light is a general term that is commonly used to refer to the visible spectrum.Visible menas something that can be seen using the eye, as opposed to invisible" things that cannot be seen

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Q18. Define significant figures.

Ans 1: In any measurement, the accurately Known digits and the first doubtful digit are called the significant figures. For example, The number of significant figures in the measurement 02.59 are 3.

Q19. Explain free and forced oscillations.

Ans 1: Free oscillations; A body is said to be executing free vibrations when it oscillates without the interference of an external force.

Forced oscillations: If an oscillating system is subjected to an external periodic force, then forced vibrations will take place.

- The vibrations of a factory floor caused by the running of heavy machinery is an example of forced vibrations.
- The mass of a vibrating pendulum is struck repeatedly, the forced vibration are produced.

Q20. What is spectrometer?

Ans 1: Spectrometer is a device which is used to study the spectra from different light sources.
Its main parts are

1. Collimator
2. Turntable
3. Telescope
