Physics - ICS Part 1 Physics Full Book Short Questions Test

Q1. How are beats useful in tuning musical instruments?

Ans 1: Beats are used in tuning musical instruments. One can use beats to tune a string of musical instrument such as plano by beating a not against a note oh known frequency.The string is then adjusted to the desired frequency by tightening or loosening it until no beats are heard.

Q2. How the distance between interference fringes will be affected if the distance between the slits in Young 's experiment is doubled.?

Ans 1:

Q3. What is the total distance travelled by an object moving with SHM in a time equal to its period, if its amplitude is A?

Ans 1: The total distance travelled by an object moving with SHM in its time period is 4A, where A is amplitude of vibration.

Q4. What is the difference between uniform and variable velocity?

Ans 1: Uniform Velocity: A body is said to have a uniform velocity if it covers equal displacement in equal intervals of time.

Variable Velocity: A body is said to have a variable velocity if it covers unequal displacements in equal intervals of time.

Q5. Can a vector have a component greater than the vector's magnitude?

Ans 1: No' the magnitude of the component of a vector can never be greater than the vector's magnitude. The maximum value of magnitude of component can be equal to the magnitude of the vector.

Q6. Express the following quantities using prefixes.

Ans 1: 5000 g

Q7. Deduce the dimensions of gravitational constant ?

Ans 1:

Q8. How should a source of sound move with.r.t an observer so that the frequency of its sound does not change?

Ans 1: If sound source is moving in circular path with the observer at the center of the circle then relative velocity of the observer with respect to the source of sound is zero, there will be no change in the frequency of sound.

Q9. What is Salter's duck?

Ans 1: Salter's duck is a device which can be used to utilize the water waves energy and to generate electricity .It consists of two parts

1. Duck float
2. Balance float

The wave energy makes duck float move relative to the balance float. The relative motion of the duck float is then used to run electricity generators.

Q10. An object orbiting around the earth in said to be a freely falling body. Why?

Ans 1: An object in orbits is said to be freely falling , because the trajectory of its fall has the same curvature as Earth's surface. In fact, the object is falling towards the center of earth but because of spherical shape of earth, it never reaches the surface of earth.

Q11. Two boats moving parallel in the same direction are pulled toward each other.

Ans 1: According to Bernoulli's equation, where the speed is high, pressure will be low.So the pressure between the two boats decreases as compared to the pressure of sideway. So the side way high pressure pushes the two boat towards each other.

Q12. In Young's experiment, one of the slits is covered with blue filter and other red filter, what would be the pattern of light intensity on the screen?

Ans 1: No interference pattern will be observed because blu and red lights are of different wavelengths. So the source of light will not be coherent

---

Q13. A real heat engine is less efficient than cannot engine. Why?

Ans 1: Carnot engine operates in an ideal reversible cycle and ideal gas is used as the working substance.
No practical heat engine can be perfectly reversible. All real heat engines are less efficient than carnot engine due to friction and other heat losses.

Q14. Define entropy,how it changes with temperature.

Ans 1:

Q15. Name at least two renewable and two non-renewable energy sources.

Ans 1: The renewable source of energy are:

1. Wind
2. Tides

3. Biomass
4. Sunlight

The non-renewable sources of energy are

1. Coal
2. Natural gas
3. Oil
4. Uranium

Q16. Why the polaroid sun glasses are better than ordinary sun glasses?

Ans 1: Polaroid sun glasses are better than ordinary sun glasses because they reduce the glare of light entering into the eye as a result of polarization.

Q17. Can visible light produce interference fringes? Explain.

Ans 1: Yes visible light or what light can produce interference fringes. But each color will produce its own interference fringe pattern. Theses patterns overlap to give rise to a resultant diffused coloured interference pattern.

Q18. What is diffraction of light?

Ans 1: The slight bending of light as it passes around the edge of an object is called diffraction of light.

Q19. What is the condition for total internal reflection?

Ans 1: For glass- air boundary , when a propagating wave strikes the boundary at an angle larger than critical angle with respect to the normal to the surface, all the light is reflected and none is refracted to the air. This phenomenon is called total internal reflection. When a light ray travelling from a denser medium towards a rare medium, makes an angle of incidence greater than critical angle of the medium, then the ray is totally reflected back into the same denser medium.

Q20. Define Physical Quantities ? Explain base quantities and derived quantities?

Ans 1: **Physical Quantities:** All the measurable quantities are known as physical quantities for example, speed, mass , force, velocity, momentum temperature etc

- **Base Quantities:** These are those physical quantities in term of which other physical quantities can be defined the base quantities can not be defined in term of other physical quantities.

Example of base quantities: These are the seven base quantities, which are given below.

1. Mass
2. Length
3. Time
4. Current
5. Temperature
6. Amount of substance
7. Luminous intensity

- **Derived Quantities:** Those physical quantities which can be derived from base quantities are known as derived quantities

Example of derived quantities:
Force, Work, Power, energy, momentum, torque, speed, acceleration etc are the example of derived physical quantities