Physics - FSC Part 1 Physics Chapter 2 Short Questions Preparation

Q1. Define null vector and component of a vector.

Ans 1: Null Vector is a vector of zero magnitude and arbitrary direction.
A component of a vector is its effective vale in a given direction.

Q2. Define scalar and vector quantities?

Ans 1: **Scalar Quantities:** Those quantities which are completely specified by their magnitude only, are known as scalar quantities. For example Speed, Mass, energy, work, power.
Vector Quantities: Those physical quantities which are completely specified by their magnitude and proper direction are known as vector quantities. For example Momentum, Acceleration, torque.

Q3. Under what circumstances would a vector have components that are equal in magnitude?

Ans 1:

Q4. Define and explain the scalar product?

Ans 1:

Q5. What do you mean by concurrent force ? Explain with examples ?

Ans 1: Concurrent Force:Two or more than two force are said to be concurrent force, If they are acting upon a body and their lines of action passes through a common point.Explanation:Consider a bulb which is suspended by means of a thread from a rigid support In this case the weight 'w' of the bulb is acting in down wards direction while the tension 'T' in the thread is acting of both forces passes through the same point or common point. Both forces balance each other and as a a result the bulb remain the state of equilibrium such force are know as concurrent forces.

Q6. Discuss the condition of equilibrium?

Ans 1: There are two condition of equilibrium which are given below.First Condition of equilibrium:According to the first condition of equilibrium, a body is said to be in equilibrium, if the vector sum of all external forces acting on the body is zero they cancel the effect of each other { F = 0In the component form we haveF1y+ F2y + F3y +..... +Fny =0Fy = 0A book lying on the table and paratrooper moving down words with uniform Velocity satisfies the first condition of equilibrium.Second Condition of Equilibrium:According to the condition of equilibrium, a body is said to be in equilibrium on a body is equal to zero.{ T = 0Explanation:There are certain situation in which on extended body will not be in equilibrium even when the first condition of equilibrium is satisfied. For Example, in the two equal forces are acting on a meter rod in opposite direction. As the line of action of these forces are not the same so the meter rod do not remain in state equilibrium and begins to rotate in anti clock wise direction. So the first condition of equilibrium is not sufficient in such a case Under such situations we should arrange the forces on the body in such a way, htat they causes clock-wise torque and anti-clock wise torque acting on the body simultaneously and cancel the effect other.

Q7. Define the term unit vector.

Ans 1: Vector having the unit magnitude is called the unit vector. It is used to indicate the direction of a given vector.

Q8. Define and explain the resolution of a vector ?

Ans 1:

Q9. State condition of rotational equilibrium.

Ans 1: The vector sum of all torque acting on any object must be zero.
When this condition of equilibrium is satisfied, there is no angular acceleration and body will be in rotational equilibrium.Hence, a body cannot rotate about center of gravity under the action of its weight.

Q10. Differentiate between static and dynamic equilibrium.

Ans 1: Static Equilibrium: If a body is at rest, then it is said to be in static equilibrium.
Dynamic Equilibrium: If the body is moving with uniform velocity, then it is said to be in dynamic equilibrium.