GSC101 final term

Question: Is there any difference between Ray of light and beam?
Answer: The direction in which light moves is represented by the help of a ray is known as ray of light and Beam is a collection or bundle of rays.
Question: What are real and virtual images?
Answer: Real image: An image which can be projected, Image on a screen, cinema film etc. Virtual image: An image which can be seen but not projected on a screen. For example, image in a mirror etc.
Question: Tell me about the properties and uses of isotopes in daily life.
Answer: Properties: I. They have different physical properties. II. They have same chemical properties. III. They differ in number of neutrons in the nucleus. IV. They have different masses. Uses/ Application I. In medicine II. For measuring source of chloride and age of water. III. To detect trace leaks. IV. To study sewage and liquid waste movement.
Question: Why ionic bond is called a very strong bond?

Answer: As we know that ionic bonds result from the mutual attraction between oppositely charged ions. They tend to be stronger due to the coulombic attraction between ions of opposite charges. To maximize the attraction between those ions, ionic compounds form crystal lattices of alternating cations and anions. Ionic compounds are usually formed only between atoms whose difference in electrone gativity is large.
Question: What are different classes of organic compounds?
Answer: Classes of Organic compounds: There are millions of organic compounds and this makes it physically impossible to study each individual compound. To facilitate their study, organic compounds are classified into various groups and sub-groups. They may be broadly classified into the following classes: 1- Open chain or acyclic compounds 2- Closed chain or cyclic compounds.
Acceleration : The rate of change of velocity of a moving object is called its acceleration. The SI unit of acceleration is ms^-2. By definition, this change in velocity can result from a change in speed, a change in direction, or a combination of changes in speed and direction.
Circular motion : The motion of an object in a circular path.
Contact force : Contact forces are forces that act at the point of contact between two things. Examples of contact forces include normal forces, frictional forces, air resistance forces, applied forces and tensional forces.
Deceleration : The amount by which a speed or velocity of an object decreases (and so a scalar quantity or a vector quantity) over time. The brakes produce a deceleration of 10 metres per second per second.
Directly and indirectly proportional : When two variables are directly proportional to each other, they are related by an equation such as the following: $y = kx$, where k is a constant and x and y are variables. When two variables are indirectly proportional to each other (also known as inversely proportional), they are related by an equation of the following form: $xy = k$, where k is a constant and x and y are variables. This equation may be re-written as $y = k/x$ or $x = k/y$. It now becomes clearer to see that in an inversely proportional relationship, as one of the variables increases, the other decreases

Displacement : The shortest distance between the initial and final position of a moving body. It is a vector quantity.
Distance : Path (linear or curve) between two points (from point A to point B), during its motion covers distance. It is a scalar quantity.
Distance – Time graph : In Distance-Time graph, the slope(speed) is equal to the change in distance(?d) divided by the change in time(?t). The speed is determined from the line of best fit on a distance-time graph: slope = rise/run or v= ?d /? t
Dynamics : Branch of Physics which deals with the study of motion of bodies under the action of force.
Force : Force is a push or pull which tends to change the state of rest or of uniform motion. Force is a vector. It has a magnitude and a direction. Forces add like vectors, not like scalars. Its unit is Newton N.
Friction : Whenever two surfaces slide over each other the force which does not allow the motion to take place is known as friction. It is a force acting in opposite direction to movement
Graph : Two-dimensional drawing showing a relationship by means of a line, curve, a series of bars, or other symbols. Typically, an independent variable is represented on the horizontal line (X-axis) and a dependent variable on the vertical line (Y-axis).
Head-to-Tail Rule / Method : This rule or method is used to add vectors graphically. We simply draw the first vector anywhere we wish, and then draw the second vector with its tail at the head of the first vector. If there are more vectors to be added, draw each one with its tail at the head of the preceding one. The sum or resultant is a vector drawn from the tail of the first vector to the head of the last vector. It does not matter in which order we add them.
Hypothesis : An uncertain explanation of a phenomenon that is well-matched with the data and provides a framework for understanding and describing that phenomenon.
Inertia : Inertia is property of matter by which it resists change in its state of rest or in its direction of motion.

Kinematics : Branch of Physics which deals with the study of motion of bodies without the influence of force
Kinetic Friction : Whenever two objects moving, there is a frictional force known as Kinetic friction. Kinetic friction is less than static friction.
Law of conservation of Momentum : In an isolated system, the total momentum of the two objects before the collision is equal to the total momentum of the two objects after the collision.
Limiting Friction : When force is applied to overcome the friction, a slight increase in force is going to cause motion, known as limiting friction. When the frictional force is at its maximum possible value, friction is said to be limiting.
Linear Motion : The motion of a body in a straight line.
Mass : Quantity of matter in an object or the ability of matter to resist against the action of force. The SI unit of mass is a kilogram (kg) and it is a scalar quantity.
Matter : Anything that can occupy space and has mass is called matter. Examples: table, television, water, cold drink, gas, air etc.
Mechanics : Branch of science which deals with the study of motion of objects
Momentum : The product of mass and velocity of a body, it is a measure of the quantity of motion in a body.
Newton : Force is one newton if it produces an acceleration of 1 meter per second per second in a body of mass one kilogram in the direction of force. 1 N = 1 kg * 1 ms^-2.

Newton's First Law of Motion : A body continues in a state of rest or of uniform motion in a straight line unless it is acted upon by an external (unbalanced) force. Newton's first law of motion is also known as Law of Inertia.
Newton's Second Law of Motion : The force applied on a body is directly proportional to the product of its mass and acceleration produced by the force. OR The rate of change of momentum is directly proportional to the force applied.
Newton's Third Law of Motion : To every action there is an equal and opposite reaction. The action and reaction acts on two different bodies simultaneously.
Non-contact force : Non-contact force: exists between two surfaces that aren't in contact with each other e.g. magnetic force. OR Non Contact force is a force at a distance such as gravitational force.
Non-matter : Things that do not occupy space or do not have mass are called non-matter e.g. data stored in hard disk of computer, feelings, thoughts, vacuum etc.
Non-Physical Quantity : Which does not have the same value for all observers, but are dependant upon who is making the measurement. Examples are emotive or ecstatic measurements like love, hate, beauty, happiness etc.
Origin : The only point on a graph where both the x and y variables have a value of zero at the same time.
Physical Quantity : Which can be described or measured in terms of fundamental, derived or supplementary units, e.g. Mass or length or temperature of any quantity can be measured, so known as physical quantity. The measurements remain the same (within the accuracy of the measuring system) irrespective of who makes those measurements. Some examples of Physical Quantities are length, area, volume, time, speed, volume, mass, force etc.
Random motion : Motion of an object in an irregular manner. For example Motion of Football player on the ground, flight of a butterfly etc.
Relative velocity : Relative velocity is always a velocity when there are two or more bodies moving with respect to each other.
Rolling Friction : When an object rolling down the ground, the friction is known as rolling friction. The contact points between the object and ground are very very small, so rolling friction is minimal.
Rotatory motion : The motion of an object around its axis or when each point of a body moves around a fixed point or axis e.g. motion of a fan.
Scalar : The physical quantity which requires only magnitude and unit for its complete description. Examples distance, speed, mass, time, work, pressure etc.
Scientific Method : The Scientific Method is a process of figuring something out.
Scientific notation : Scientific notation is a method to write very small and very large umbers in powers of ten, e.g. 100,000,000 = 1 x 10^8 or 0.00002315 = 2.315 x 10^-5

Sliding Friction : Sling friction is present when objects slide over each other.
Slope : Change in the value of Y-axis with respect to X-axis.
Speed : Distance covered in time taken is called speed. It is a scalar quantity. Its unit is m/s. Its formula is: Speed = distance traveled / time taken
State of Motion : A body is in motion if it changes its position with respect to its surroundings over time.

State of rest : If a body does not change its position with respect to its surroundings than it is in state of rest. A picture hanging on the wall is at rest.
Static Friction : When a force is applied to an object but it does not cause it to move the force of friction is known as static friction e.g. pushing on a wall.
Tension : The Force exerted along a string due to load on one or both of the ends of the string. OR Tension is the pulling force exerted by a string, on another object.
Vector : The physical quantity which requires a direction along with magnitude and unit for its representation. Examples velocity, displacement, acceleration, force etc.
Velocity : Distance traveled by a body in a particular direction per unit time OR The displacement of the body per unit time. OR Velocity is also defined as the rate of change of position of a body in a given time in a definite direction. It is a vector quantity.Its unit is m/s. Its formula is : Velocity = displacement/time taken
Vibratory motion : To and fro motion of a body about its mean position. Motion of a pendulum
Weight : The force with which a body is attracted towards the center of the earth is called its weight. The SI unit of weight is N. The weight of a body of mass m is given by mg, where g is the acceleration due to gravity
Total question :52 subjective : 12
40 mcqs one from each lecture, mostly from final term My Today Paper of Gsc101 1. What Is brine? (2)
2. Difference between prokaryotic and eukaryotic cell?(3)
3. Difference between cellular respiration and organismic respiration?(3)
4. Define ecology? And flow of energy in ecosystem?(5)
5. Label the diagram of lungs? (3)
6. Define food web? and explain the food web in grassland ecosystem through flow chart?(5)
7. Chemical properties of HCL?(3)
8. What are the conjugate bases and acids? Explain with suitable example?(5)
9. Give the simple of food chain of lake ecosystem?(2)
10. Explain the respiratory sustem in humans? Describe the function of nose, phyranx , trachea,and lyranx ?(5)
11. Give the name and formula of copper ores?(2)