

Student Name: \_\_\_\_\_

Unit No. **10****Part I.** Place the letter of the key term next to the correct definition.

Term	Definition
	Gears that have the axes of the two shafts intersect and the tooth-bearing faces of the gears themselves are conically shaped. They are most often mounted on shafts that are 90 degrees apart, but can be designed to work at other angles as well. The pitch surface of this gear is a cone.
	The number of teeth of a gear per inch of its pitch diameter. A toothed gear must have an integral number of teeth. The circular pitch, therefore, equals the pitch circumference divided by the number of teeth. The _____ is, by definition, the number of teeth divided by the pitch diameter.
	Designers use this to analyze the function of their products and the design problems they are trying to solve, rather than spending time on the modeling operations necessary to create 3D representations. _____ is not only a set of functions. It supports design by function and adds mechanical content and intelligence. Using this, you can create mechanically correct components automatically by entering simple or complex mechanical attributes.
	The simplest form of a transmission. Uses multiple gears to alter motor speed to achieve desired output.
	Represents the part of the Drivetrain which transmits power from the Motor to the ground.
	Determining drivetrain gearing based on maximum motor load.
	Mechanism by which power is transmitted from a power source to the wheels of a robot or other vehicle.
	How fast the robot wheel is spinning. Used to calculate how fast the robot moves across the floor.

**A.** Transmission    **B.** Wheel Speed    **C.** Geartrain (Powertrain)    **D.** Gearbox  
**E.** Motor Load Gearing    **F.** Bevel Gear    **G.** Diametral Pitch  
**H.** Functional Design

**Part II.** Fill in the blanks.

The circumference of a wheel is equal to its \_\_\_\_\_ multiplied by Pi (about 3.14).

For each time the wheel makes a full revolution, it will roll forward a distance equal to its \_\_\_\_\_.

It is important to design the gearing such that the load applied on each motor is not higher than the \_\_\_\_\_.

\_\_\_\_\_ are the simplest form of a transmission. These are incapable of shifting which means that its gear ratio cannot be changed while it is operating.

Low gear ratios provide lots of torque with \_\_\_\_\_ speed, while higher gear ratios provide speed with \_\_\_\_\_ torque.

**Part III.** Place the letter of the Inventor technical term next to the correct definition.

Term	Description
	A sketch consists of the sketch plane, a coordinate system, 2D curves, and the dimensions and constraints applied to the curves.
	Calculates dimensions and strength check of bevel gearing with straight and helical teeth. It contains geometric calculations for designing different types of correction distributions, including a correction with compensation of slips.
	Creates a circle from a center point and radius, or tangent to three lines.
	These bevel part edges in both the part and assembly environments. They may be equal distance from the edge, a specified distance and angle from an edge, or a different distance from the edge for each face.
	Part, surface, and assembly features can be arranged in a pattern to represent hole patterns or textures, slots, notches, or other symmetrical arrangements.
	Creates a feature by adding depth to a sketched profile. Feature shape is controlled by profile shape, extrusion extent, and taper angle. Unless the extruded feature is a base feature, its relationship to an existing feature is defined by selecting a Boolean operation (join, cut, or intersect with existing feature).
	Adds dimensions to a sketch. Dimensions control the size of a part. They can be expressed as numeric constants, as variables in an equation, or in parameter files.
	One or more features that can be saved and reused in other designs. You can create an _____ from any sketched feature that you determine to be useful for other designs. Features dependent on the sketched feature are included in this. After you create an _____ and store it in a catalog, you can place it in a part by dragging it from Windows Explorer and dropping it in the part file or by using the _____ tool.
	These, along with webs, are often used in molds and castings. In plastic parts, they are commonly used to create rigidity and to prevent warping.

- A.** Insert iFeature    **B.** Extrude    **C.** Chamfer    **D.** Bevel Gears Generator  
**E.** General Dimension    **F.** Circular Pattern    **G.** 2D Sketch  
**H.** Center Point Circle    **I.** Rib