**Subject Name: Automobile component design (22558) Date:- 22/08/2024**

**Assignment No: - 1 Course Outcome: 225.1**

**Topic Name: - Fundamentals of Automobile Component Design**

1. What is meant by machine design?
2. Explain the basic procedure of machine design.
3. Name three basic types of failure of the machine elements?
4. What is standardization? What are its advantages?
5. What is relationship between the functional requirement and the appearance of a product?
6. Discuss the ergonomic considerations in design of displays and controls.
7. What are preferred numbers?
8. What is meant by bolts of uniform strength? Give examples.

**Subject Name: Automobile component design (22558) Date:- 22/08/2024**

**Assignment No: - 2 Course Outcome: 225.2**

**Topic Name: - Stresses in Automobile Components**

1. State different types of loads.
2. Define stress. Explain types of stresses.
3. Draw stress-strain diagram for following material and mention all the points on it. (i) Ductile material (ii) Brittle material.
4. Define factor of safety.
5. Explain maximum principle stress theory or Rankine’s theory.
6. Explain maximum shear stress theory or Guests or Tresca’s theory.
7. Define “stress concentration”. Enlist methods to reduce stress concentration.
8. Define load factor, service factor with their applications.

**Subject Name: Automobile component design (22558) Date:- 10/10/2024**

**Assignment No: - 3 Course Outcome: 225.3**

**Topic Name: - Design of Chassis Components**

1. State the design procedure for semi-elliptical leaf spring.
2. Explain the concept of nipping.
3. State the design procedure for single plate clutch on the basis of uniform pressure theory.
4. State the design procedure of propeller shaft.

**Subject Name: Automobile component design (22558) Date:- 25/10/2024**

**Assignment No: - 4 Course Outcome: 225.4**

**Topic Name: - Design of Engine Components**

1. Explain the design procedure of cylinder and cylinder head.
2. Explain the design of piston crown.
3. Describe the procedure to design connecting rod cross-section (I-section).
4. Explain indicated power and brake power of an engine cylinder.
5. Explain design of piston pin on the basis of bearing pressure and shear strength.

**Subject Name: Automobile component design (22558) Date:- 04/11/2024**

**Assignment No: - 5 Course Outcome: 225.5**

**Topic Name: - Design of Axles**

1. Explain the design procedure of Front axle for I-section and circular section.
2. Describe the design procedure of rear axle.
3. Draw a neat and well labelled diagram of fully floating rear axle .