

Seat No: _____

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
Diploma Engineering, Mid semester Examination

Semester: 3rd

Subject Code: (03612211)

Subject Name: (Automobile Component Design)

Date: (01/08/2022)

Time: (1hr: 30min)

Total Marks: 40

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

Q.1 Answer any six out of Ten. (2 Marks Each) (12)

1. Write down function of compression ring.
2. Write down function of piston.
3. Which ring is used for lubrication in engine ? Write its function.
4. Which is the major force consider while designing piston head ?
5. What is the equation to find Length of piston pin ?
6. What are the fundamental units?
7. What is tensile stress and strain ?
8. Define Strain
9. What is factor of safety?
10. Define stress

Q.2 A) Which material is used for piston ? Why ? (03)

OR

A) Draw a neat sketch of piston with Nomenclature. (03)

B) Find the thickness of piston head of cast iron Piston for a single acting four stroke engine for the following data: Given Data : Cylinder Bore (D) = 100 mm, Stroke (L) = 125 mm, Maximum Gas Pressure (p) = 5 N/mm² , Permissible bending stress for the material of the Piston (σ) = 38 N/mm². (03)

OR

B) What is the function of piston pin ? (03)

C) Write down the equations to design radial and axial thickness of piston ring. (04)

OR

C) What is Design Consideration for Piston? (04)

D) What is Characteristics of Piston? (04)

Q.3 A) Define mass, weight and inertia. (03)

OR

A) Explain stress and strain Diagram (03)

B) Explain hook's law (03)

OR

B) Define derived units with three examples. (03)

C) Explain shear stress and strain. (04)

OR

C) Which equations are used to design piston pin. (04)

D) Write the general considerations in machine design. (04)

