

**MIZORAM PUBLIC SERVICE COMMISSION**

**DEPARTMENTAL EXAMINATIONS FOR JUNIOR ENGINEER AND DRAFTMAN-I  
UNDER PUBLIC HEALTH ENGINEERING DEPARTMENT,  
GOVERNMENT OF MIZORAM. MARCH -2020.**

**MECHANICAL ENGINEERING PAPER - II**

Time Allowed : 3 hours

FM : 100 PM : 40

*Figures in the margin indicate full marks for each questions.*

*Attempt any 5 (five) questions.*

1. (a) Explain the following terms : **(2×5=10)**
  - (i) Simple Harmonic Motion
  - (ii) Centrifugal force
- (b) With the help of neat sketch explain a Pantograph and its principle in working. **(10)**
2. (a) Write down the differences between IC and CI engines. **(10)**
- (b) Describe types of parameters used for determination of quality of fuels. **(10)**
3. (a) Name different types of water pump and their applications. **(10)**
- (b) Describe characteristics of water pumps. **(10)**
4. (a) What do you understand by depreciation? How is the depreciation rate determined for water pumping equipments? **(4+6=10)**
- (b) Write the basic considerations for Operation and Maintenance of Water Supply System. **(10)**
5. (a) What are different types of pipes used for water supply and describe their applications. **(10)**
- (b) Discuss the applications of temporary, semi-permanent and permanent joining in pipes used for water supply. **(10)**
6. (a) Write down points to be considered for the design of power for pump. **(10)**
- (b) Differentiate between D.C. welding and A.C welding. **(10)**
7. (a) Write short notes on : **(5×2=10)**
  - (i) Population forecasting for water supply.
  - (ii) Importance of Log books for water supply plants.
- (b) Write down points to be considered for the design of pumping mains. **(10)**