MIZORAM PUBLIC SERVICE COMMISSION

DEPARTMENTAL EXAMINATIONS FOR JUNIOR GRADE OF M.E.S. (AE/SDO) UNDER PUBLIC WORKS DEPARTMENT, SEPTEMBER, 2018.

MECHANICAL ENGINEERING PAPER – II

Time Allowed : 3 hours FM : 100 PM : 40

Attempt only 5 (five) questions. Answers should be short and specific.
The figures in the margin indicate full marks for the questions.

1. (a) Describe the applications of Oxygen cutting, Brazing and Soldering in modern industries. **(6)**

(b) Explain the principle of metal arc welding process. **(6)**

(c) Differentiate between D.C. welding and A.C welding. **(8)**

2. (a) Define the following terms Tolerance, Limits and Fits with reference to the dimensional measurement. **(10)**

(b) Differentiate between measurement and gauging with reference to the application and method of use. **(6)**

(c) What is the standard of linear measurement? **(4)**

3. (a) How is grinding different from other machining operations? **(3)**

(b) How do you classify the various machine tools based on motion used for generating the surfaces? **(4)**

(c) Explain in brief the utility of various kinds of drilling machine. **(5)**

(d) List the various operations performed on Lathe machine and Milling machine. **(8)**

4. (a) Give the layout of diesel engine power plant with suitable sketches. **(10)**

(b) Explain the necessity of the cooling system in a diesel engine. What are the methods of cooling the engine? **(4+6=10)**

5. (a) List the parameters which decide the quality of electric supply. **(5)**

(b) What are the common aspects for recessed and surface conduit works? **(5)**

(c) Discuss the importance of the design and planning of electrical installation. **(10)**

6. (a) What do you understand by depreciation? How is the depreciation rate determined? **(4+6=10)**

(b) Give procedure to be followed for condemnation of old and unserviceable machinery and equipment. **(10)**

7. (a) Define the following terms related to air-conditioning and refrigeration: **(4×2=8)**

i) Comfort ii) refrigerants

iii) humidifier iv) TR

(b) Explain Central air-conditioning system and its applications with suitable sketches. **(12)**

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