Code : 15ME53T

Register Number | | | | | | | | | | |

V Semester Diploma Examination, Oct./Nov.-2019

MACHINE DESIGN

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer all questions.

(ii) Any missing data may be suitably assumed.

(iii) Use of design data hand book is permitted.

PART – A

1. Label the salient features of stress-strain diagram for mild steel. **5**

2. List the types of display. **5**

3. Explain man-machine joint system. **5**

PART – B

4. (a) List the applications of rivetted joints. **5**

(b) A double rivetted lap joint is made between 15 mm thick plates, the rivets are 25 mm diameter and pitch is 75 mm. If allowable stress in tension, shear and crushing are 400 MPa, 320 MPa and 640 MPa, find safe load and efficiency. **15**

OR

(a) Explain stress induced in screw fasteners when it is subjected to static loading. **5**

(b) The cylinder head of steam engine subjected to a pressure of 0.7 N/mm^2. It is held in position by 12 bolts. A soft copper gasket is used to make the joint leak proof. The effective diameter of cylinder is 300 mm. Find size of bolts, so that the stresses in bolts is not to exceed 100 MPa. **15**

PART – B

10. (a) Explain the working of pneumatic sensor with sketch. 5

(b) Explain temperature bimetallic strips with sketch. 5

11. (a) Explain with a sketch strain gauge load cell. 5

(b) Explain with sketch proximity switches. 5

12. (a) Explain dot matrix print head mechanism with sketch. 5

(b) Explain with sketch LCD. 5

13. (a) Explain with sketch SR-Flip-Flop. 5

(b) Explain with sketch sequential logic system. 5

14. (a) Explain with sketch working principle of the Ratchet and Pawl. 5

(b) Explain with sketch solenoids. 5

15. (a) Explain with sketch MOSFETS'. 5

(b) Explain with sketch plain journal bearing. 5

16. Explain with sketches different mechanical building block systems spring, dashpot and mass. 1ι

17. Explain with sketch Digital closed loop control system. 10

18. Explain with a flow and ladder diagram 'Jumps'. 10

9. Explain with Sketch, Design of Car Park barrier System. 10