

Roll No.

22622

**M. Tech 2nd Sem.
(MAE) CBCS Scheme
Examination – May, 2018**

MECHANICAL DESIGN - I

Paper : MTMA22C1

Time : Three Hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory* and attempt *one* question from each section.

1. (a) Brainstorming methods and sketching 20
(b) Feasibility study
(c) Factor of safety

SECTION – A

2. Classification of Engineering materials. Explain the mechanical properties of metals. Selection of materials for engineering purposes. 20

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P. T. O.

3. Explain cold working processes

20

- (a) Cold rolling
- (b) Cold forging
- (c) Cold spinning
- (d) Cold extrusion
- (e) Cold drawing
- (f) Cold bending
- (g) Cold peening

SECTION – B

4. Explain :

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- (a) Design for assembly
- (b) Design for manufacturing

5. Explain the methods of reducing stress concentration.
Explain factor of safety for fatigue loading.

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SECTION – C

6. (i) Effect of loading on Endurance limit – load factor. 20
(ii) Effect of surface finish on endurance limit –
Surface finish factor.

7. Explain hot working processes

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- (i) Hot rolling
- (ii) Hot forging
- (iii) Hot spinning
- (iv) Hot extrusion
- (v) Hot piercing
- (vi) Hot drawing or Cupping

SECTION – D

8. Explain quality function development and what is the
best software for doing QFD ?

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9. (i) Types of screw threads used for power screws. 20

(ii) Efficiency of square threaded screws.