Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 20711

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Fifth Semester

Mechanical Engineering

CME 340 — CAD/CAM

(Common to Industrial Engineering / Industrial Engineering and Management and Mechanical and Automation Engineering)

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

(Codes / Tables / Charts to be permitted, if any may be indicated)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention different types of projections.

2. What is understood by the term "grid reading"?

3. What are the types of views represents part information in 2D drafting?

4. Write down the importance of title block creation.

5. What is the principle of parametric modeling?

6. How is view conversion from 2D to 3D carried out?

7. What are the strategies to be followed in part assembly?

8. Write down the importance of stack up analysis.

9. List out different methods of part programming.

10. How will you calculate cycle time in machining?

PART B — (5 × 13 = 65 marks)

11. (a) Extrapolate various GD &T symbols and their characteristics with a neat sketch.

Or

(b) Consider the component diagram shown in figure 1. How will you translate the part information into customer specification requirements in drawing sheet? Extrapolate the steps involved it. Assume other data if needed.
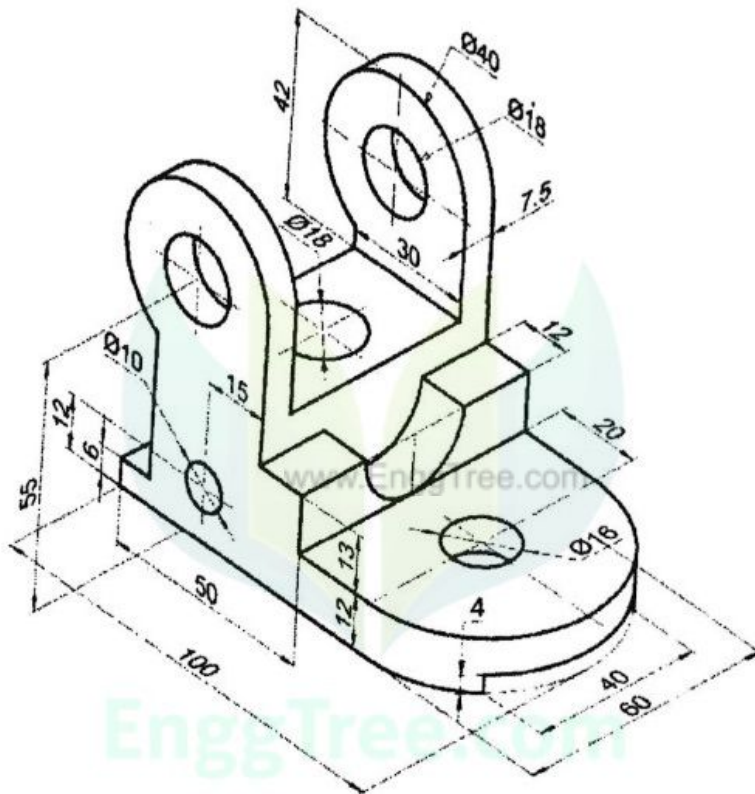

Fig.1 3D Model of a Part

All Dimensions are in mm

Not to the scale

12. (a) Explain in detail about different types of sectioning with an example.

Or

(b) Extrapolate the concept of ballooning of 2D drawing and its features with a neat sketch.

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13. (a) Discuss in the principle of surface modeling approach and their applications with a neat sketch.

Or

(b) Explain the various elements of solid modeling with an example.

14. (a) Discuss in detail about top down and bottom up modeling approach with an example.

Or

(b) Why tolerances are provided during manufacturing of a part? Describe about assembly tolerance with an example.
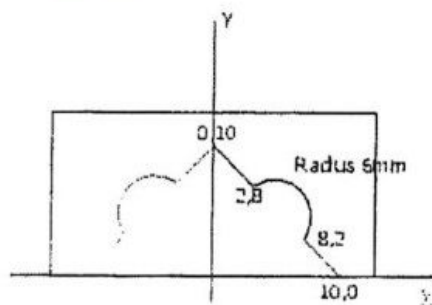
15. (a) Discuss the following related to part programming with an example.

   (i) Canned cycle   (6)

   (ii) Cutter radius compensation.   (7)

Or

(b) Write the part program to perform machining of a component shown in figure 2 by using mirroring option. Assume 3 mm as work material thickness.

All Dimensions are in "mm"

Not to the scale

Fig.2 Component to be machined

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PART C — (1 × 15 = 15 marks)

16. (a) Write the part program for the part shown in figure 3 consist of pocketing and drilling operations. Take thickness of work material as 4 mm.
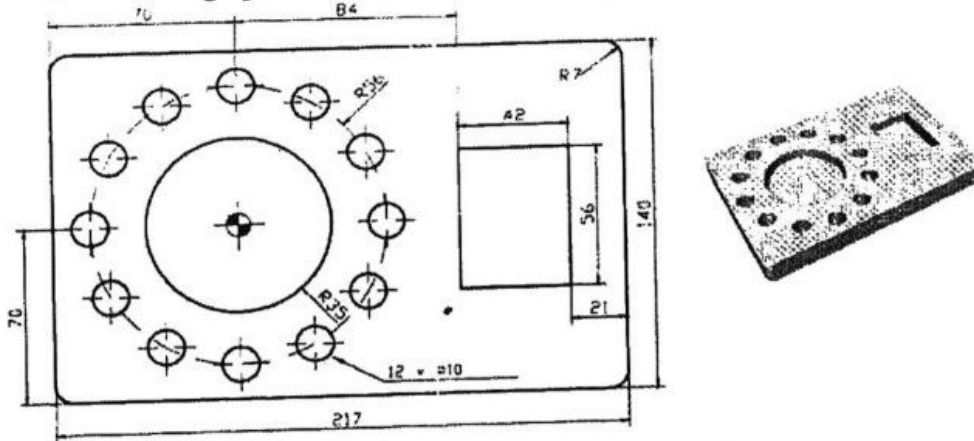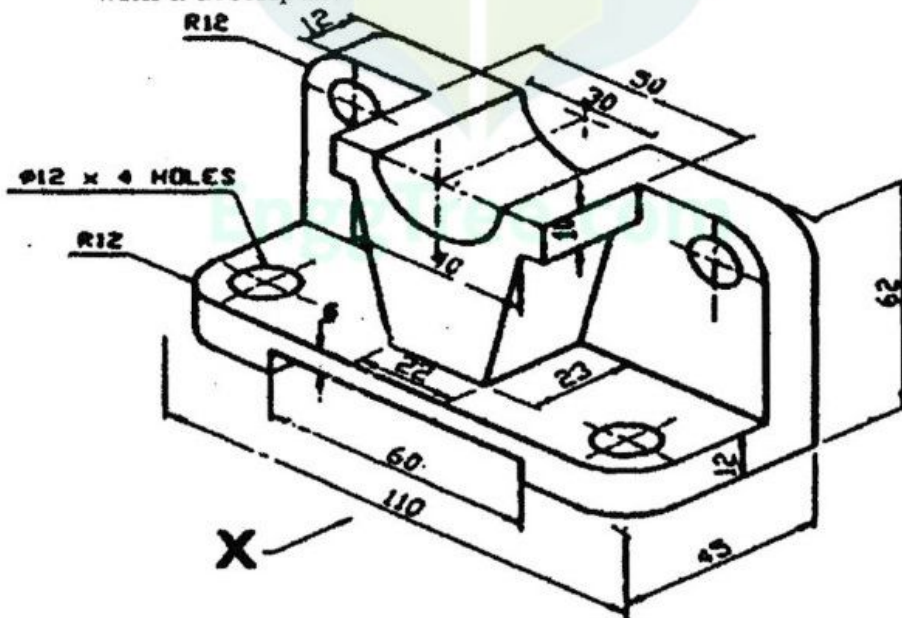

Fig.3 Component to be Machined
All Dimensions are in "mm"
Not to the scale

Or

(b) Consider the component shown in figure 4 to be machined by precision machining tool. Provide answer to the following for the given condition:

(i) What are the manufacturing features present in a part? (5)

(ii) How will you select a particular machine tool? (5)

(iii) How the process sequence will be formulated? Justify the answer with a description. (5)

All dimensions are in mm
Not to the Scale
Fig.4 : Component to be machined

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