

17556

21819

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

20

- (a) Enlist any eight characteristics of AJM.
- (b) What is overcutting in EDM process and how it is affected by amperage and frequency ?
- (c) What are the operating requirements of table driver of a planer ?
- (d) Enlist any eight constructional features of a boring machine.
- (e) Explain gang milling with neat sketch.
- (f) Explain gear burnishing with neat sketch.
- (g) Enlist the steps for preventive maintenance of a drilling machine.

2. Attempt any FOUR of the following :

16

- (a) Enlist any four merits and demerits of LBM.

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P.T.O.

- (b) Draw a constructional set-up of W E D M process.
- (c) How material removal rate is calculated in abrasive jet machining ?
- (d) Why non-traditional machining processes are needed for precision manufacturing ?
- (e) State the functions of following 'G' codes :
 - (i) G04
 - (ii) G41
 - (iii) G91
 - (iv) G95
- (f) Enlist any four advantages and disadvantages of CNC machine.

3. Attempt any TWO of the following :

16

- (a) Classify the broaching machines and draw a sketch of broaching tool with its elements.
- (b) Explain the following parts of a turret lathe with neat sketch :
 - (i) Head stock
 - (ii) Cross slide
- (c) Explain universal dividing head with its main features.

4. Attempt any FOUR of the following :

16

- (a) Enlist any four applications of WJM and LBM.
- (b) Explain gear hobbing with neat sketch.

- (c) State the function of following parts of milling machine :
- (i) Knee
 - (ii) Table
 - (iii) Spindle
 - (iv) Arbor
- (d) Enlist any eight types of milling cutters.
- (e) Explain gear sharing with neat sketch.
- (f) Draw a sketch of following milling operations :
- (i) Side milling
 - (ii) Face milling

5. Attempt any FOUR of the following :

16

- (a) What are the safety precaution to be taken by an operator while working on grinding machine ?
- (b) Explain centreless grinding with neat sketch.
- (c) Differentiate between polishing and buffing.
- (d) Explain honing with neat sketch.
- (e) What is the need of maintenance manual ? Why record keeping is necessary in maintenance ?
- (f) Write down possible cause and remedies of following problems occurred in machine tools :
 - (i) Oil leakage from speed box
 - (ii) Main spindle stops under load
 - (iii) Noise in a head stock
 - (iv) Oil pump not working properly

P.T.O.

6. Attempt any TWO of the following :

16

- (a) State the need of maintenance and explain repair cycle analysis with an example.
- (b) Prepare a part programme to machine the workpiece as shown in figure No. 1 on CNC lathe.

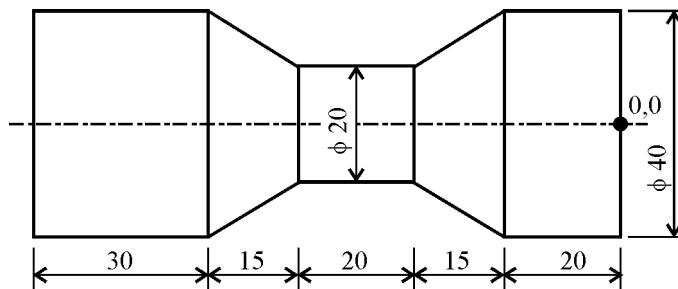


Figure No. 1

- (c) Prepare a part programme for the component as shown in Figure No. 2 on CNC milling.

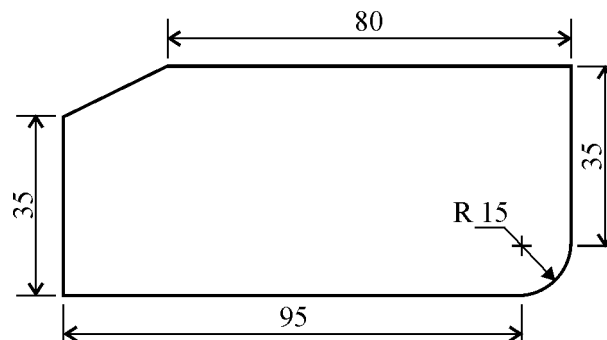


Figure No. 2