



17556

16117

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) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*

Marks

1. A) Answer **any three** of the following : **(3×4=12)**
- i) Classify non-traditional machining processes.
 - ii) Explain with block diagram closed loop control system.
 - iii) Explain with figure honing process.
 - iv) Enlist functions of dielectric fluid used in EDM.
- B) Answer **any one** of the following : **(1×6=6)**
- i) Compare Capstan and Turret lathe. (any six points).
 - ii) What are the various types of maintenance ? Explain any one of them.
2. Answer **any four** of the following : **(4×4=16)**
- i) Differentiate between up milling and down milling.
 - ii) State any two applications of
 - (a) PAM
 - (b) AJM
 - iii) Differentiate between absolute and incremental co-ordinate system.
 - iv) Classify Grinding Machines.
 - v) Draw a neat sketch of horizontal boring machine and label different parts of it.
3. Answer **any two** of the following : **(2×8=16)**
- i) With neat sketch explain working of EDM process and also lists two applications of EDM process.
 - ii) What is meant by indexing ? Explain with neat sketch working of 'Universal dividing head'.

P.T.O.



Marks

- iii) Prepare a part program to machine the work-piece shown in figure 1 on CNC lathe machine.

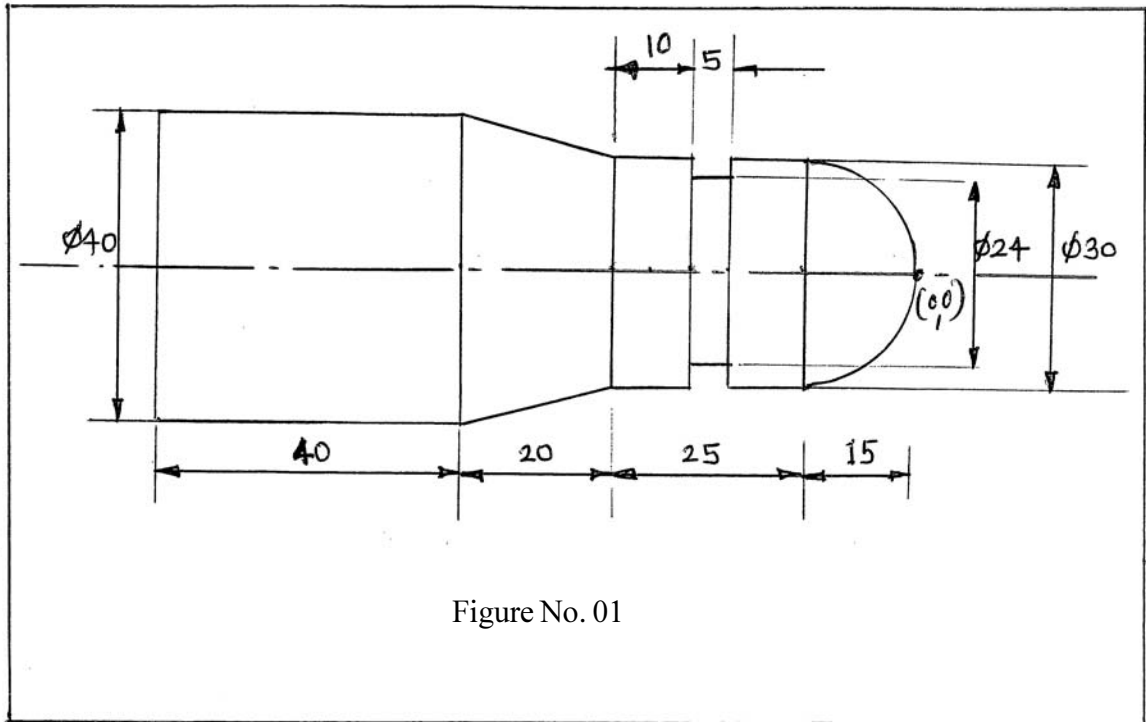


Figure No. 01

4. A) Attempt **any three** of the following :

(3×4=12)

- Draw and explain axis identification for VMC machine.
- What is lapping ? State its two applications.
- How preventive maintenance is better than break-down maintenance ?
- Explain with sketch the rack cutter gear shaping process.

- B) Answer **any one** of the following :

(1×6=6)

- Explain with neat sketch AJM process.
- State advantages, limitations of broaching process and draw any two sample cross-sections of work pieces being machined by broaching operation.

5. Attempt **any four** of the following :

(4×4=16)

- What is preparatory functions and miscellaneous functions in case of CNC ?
- Explain with figure gear hobbing process.
- With neat sketch explain internal centreless grinding operation.



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Marks

- iv) State the importance of maintenance activity.
- v) What is direct indexing and compound indexing in case of gear manufacturing ?
- vi) Draw a labelled sketch of horizontal broaching machine and state function of each part in brief.

6. Answer any four of the following :

(4×4=16)

- i) Explain with figure working principle of LBM process.
 - ii) Explain with neat sketch Planomiller.
 - iii) Explain with figure the process of straddle milling and gang milling.
 - iv) Explain repair cycle analysis.
 - v) Explain gear burnishing and state its advantages.
 - vi) How grinding wheels are designated ?
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