



17527

21415

3 Hours/100 Marks

Seat No.

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

MARKS

1. A) Attempt **any three** : **12**
- a) Give classification of non-traditional machining processes.
 - b) With neat sketch explain closed loop control system.
 - c) State advantages of gear hobbing.
 - d) Compare between burnishing and polishing.
- B) Attempt **any one** : **6**
- a) Draw neat labelled diagram of EDM and explain the process w.r.t. its principle, applications and limitations.
 - b) Draw neat labelled sketch of PAM. Explain its working. Also state its advantages and applications.
2. Attempt **any four** : **16**
- a) State difference between dielectric fluid and electrolyte.
 - b) Give any two applications of AJM, LBM, WEDM and WJM.
 - c) Explain absolute and incremental part programming.
 - d) Explain what is burnishing.
 - e) State advantages and applications of broaching machines.

P.T.O.



3. Attempt any two :

- a) Write part programme for job as shown in Fig. No. 1 Take only finish cut. Spindle speed is 1200 r.p.m. and feed rate is 150 mm/min. Assume suitable machining data if necessary.

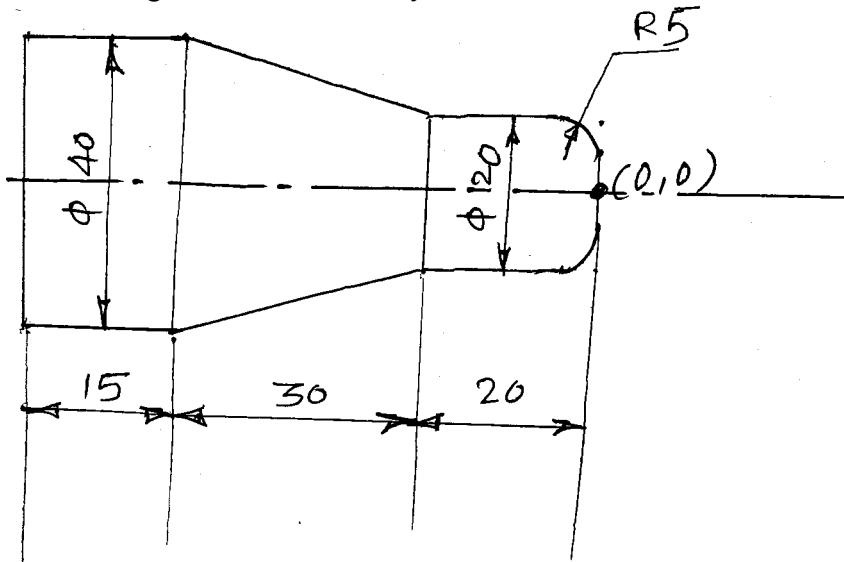


Fig. No. 1 Q. 3 (a)

- b) Prepare a part programme for component as show in Fig. No. 2. The end mill cutter available is 10 mm diameter. The depth of part is 4 mm. Use feed rate as 120 mm/min. spindle speed is 800 r.p.m. Use cutter radius compensation. Take $z = 0$ at top surface of job. Assume suitable machining data if required.

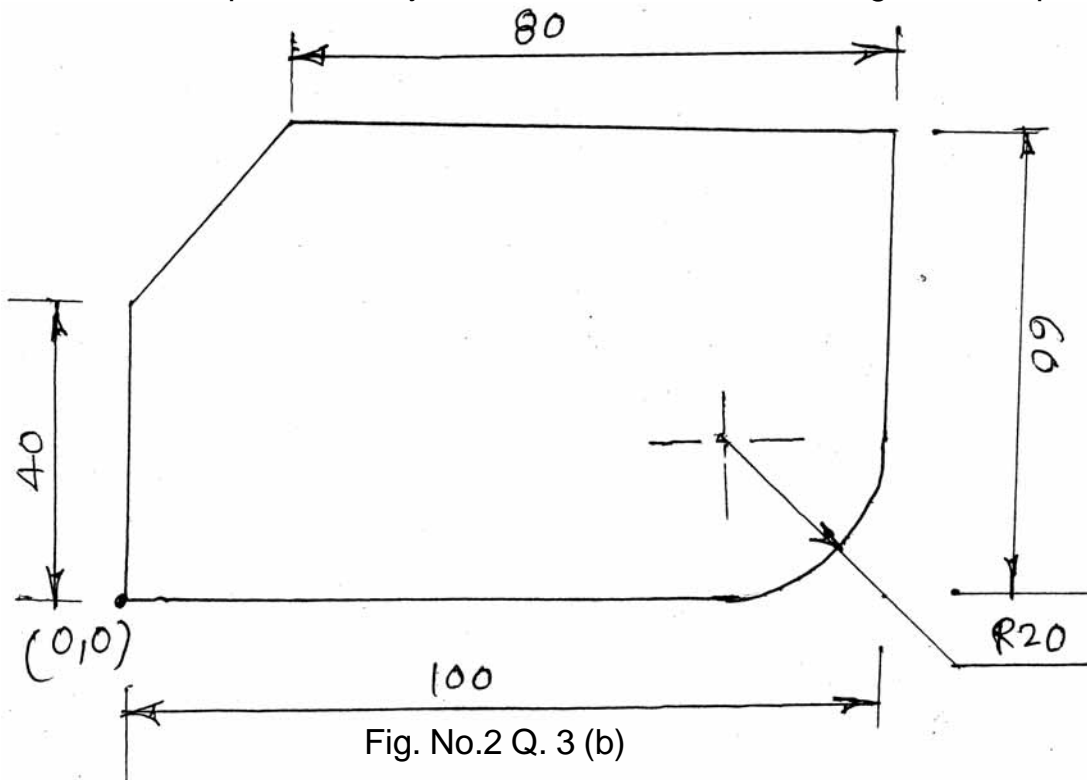


Fig. No.2 Q. 3 (b)



- c) I) State and explain controlling parameters in WEDM.
- II) With neat sketch explain LBM.

4. A) Attempt **any three** :

12

- a) Give classification of broaching machines.
- b) List parts of horizontal broaching machine and state functions of any four parts.
- c) Sketch any two boring tools.
- d) Explain with neat sketch straddle milling.

B) Attempt **any one** :

6

- a) Distinguish between Capstan and Turret Lathe.
- b) Compare between up milling and down milling.

5. Attempt **any four** :

16

- a) Draw neat labelled diagram of knee type milling machine.
- b) Explain plain indexing.
- c) With neat sketch explain Rack cutter gear generating process.
- d) Explain gear shaving.
- e) State advantages and applications of lapping.
- f) What is criteria for selection of grinding wheel ?



6. Attempt **any four** :

16

- a) State classification of grinding machines.
 - b) Explain each term of grinding wheel designated as $200 \times 15 \times 20$ WA46K5 V17.
 - c) Explain preventive maintenance.
 - d) Explain what is repair cycle analysis.
 - e) State basic maintenance practices for chains in chain drives.
 - f) What is maintenance record ? Prepare typical maintenance sheet for preventive maintenance.
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