



17556

15162

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 :

(5×4=20)

- a) Compare between Traditional Machining Process and Non-Traditional Machining Process on basis of
 - i) Tool geometry
 - ii) Cutting ability
 - iii) Metal removal method
 - iv) Tool force.
- b) Describe the working of WJM with neat sketch.
- c) Explain the functions of Adaptive Control in CNC.
- d) Differentiate between capstan lathe and turret lathe (atleast four points).
- e) Compare between and truing and dressing of grinding wheel.
- f) Give the classification of Gear Manufacturing Methods.
- g) What are the objectives of Machine Tool Maintenance ? List the types of maintenance.

P.T.O.



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

(4×4=16)

- a) List controlling parameters in WEDM. State advantages and disadvantages of WEDM (two points each).
- b) Explain the Principle of EDM with neat sketch.
- c) Describe LBM process with neat sketch.
- d) Explain the axis identification in CNC Milling with diagram.
- e) What are canned cycles ? Differentiate between canned cycle and subroutine (any three points each).
- f) Give the classification of Broaching Machines. List advantages and disadvantages of Broaching Machine (two points each).

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

(4×4=16)

- a) Give the meaning of the following codes in part programming :
 - i) G 04
 - ii) G 21
 - iii) M 03
 - iv) M 98.
- b) Give the comparison between Pull and Push Broach (any four points each).
- c) Draw a labelled diagram of Broaching Tool.
- d) List the types of Boring Head. Explain any one.
- e) Differentiate between Upmilling and Down Milling (any four points each).
- f) List the types of Dividing heads. How 83 divisions are indexed by Differential Indexing Method ?



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

(4×4=16)

- a) Prepare a part programme to machine the work piece as shown in the Figure No. 1 on CNC Milling.

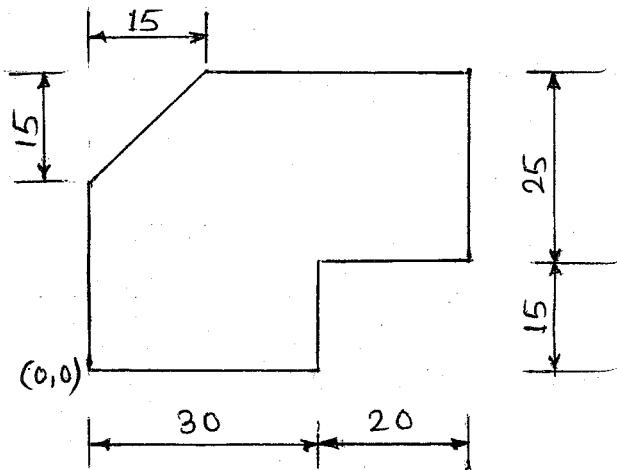


Fig. No. 1.

- b) Give the specifications of Jig Boring Machine.
- c) Describe the construction of column and knee Type Milling Machine with sketch.
- d) Explain T-slot Milling operation with neat sketch.
- e) Compare between gear Hobbing and shaping process on the basis of :
- i) Accuracy
 - ii) Versatility
 - iii) Limitations
 - iv) Production rate.
- f) Explain set-up of Honing process with neat sketch. List the applications of Honing (any two points).

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

(4×4=16)

- a) Describe set-up of PAM with neat sketch. Give applications of PAM (any two).
- b) Explain gear grinding process with neat sketch.
- c) Describe Internal Grinding process with neat sketch.
- d) Explain the meaning of Grinding wheel designated as 51A30L8V21.
- e) Explain repair cycle analysis with suitable example.
- f) Prepare preventive maintenance record sheet for any machine.



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

(4×4=16)

- a) Explain process characteristics of AJM. State its two applications.
 - b) Describe Automatic Tool changer in CNC Machines.
 - c) Give the classification of Milling cutters.
 - d) Explain the working of Burnishing Process. List the advantages of Burnishing Process (any two).
 - e) State the general maintenance problems faced and their remedies related with :
 - i) Shaft and Pulleys
 - ii) Gears.
 - f) Differentiate between predictive maintenance and Preventive Maintenance.
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