

17556

16172

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. Attempt any FIVE :

20

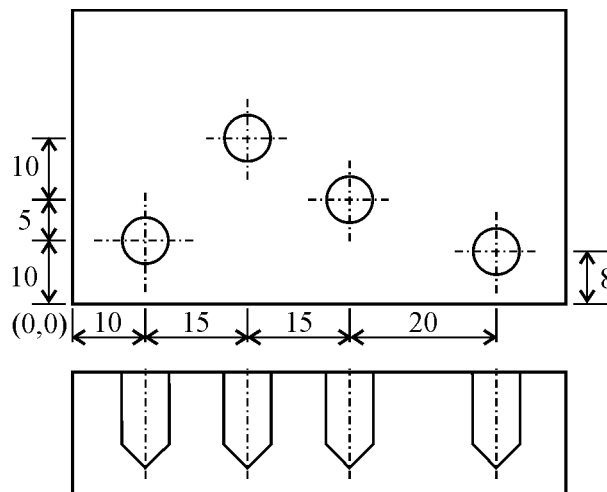
- (a) Classify non-traditional machining processes.
- (b) Explain the need of non-traditional machining of processes in modern industries.
- (c) Write any eight advantages of CNC machines.
- (d) Explain principle of broaching operation.
- (e) Explain with neat sketch principle of milling operation.
- (f) What are different gear manufacturing methods ?
- (g) Enlist safety precautions to be taken while operating grinding machine.

2. Attempt any FOUR :**16**

- (a) Explain with sketch principle of AJM process.
- (b) Explain with sketch the setup of WEDM.
- (c) State the significance of following codes in part programming :
 - (i) G 00
 - (ii) G 01
 - (iii) M 02
 - (iv) G 43
- (d) List important safety procedures to be adopted during CNC machining applications.
- (e) Distinguish between turret lathe and capstan lathe.
- (f) List types of boring tools and draw sketches of any two tools.

3. Attempt any FOUR :**16**

- (a) Explain with neat sketch plasma arc machining process.
- (b) Describe working principle of LBM with neat sketch.
- (c) Explain jog mode and block by block execution in CNC machines.
- (d) Prepare a programme using G 81 canned cycle to carryout drilling operation as shown in figure Assume suitable data if necessary.



All dimensions are in mm.

Depth of drilled holes = 15 mm

- (e) Explain Plano-miller with sketch. Write any four advantages and any four disadvantages of broaching.

4. Attempt any FOUR :**16**

- (a) State the necessity of dielectric fluid in electro discharge machining process and name any two dielectric fluids.
- (b) Explain working principle of water jet machining process.
- (c) Compare absolute and incremental co-ordinate system.
- (d) Explain principle of boring machine.
- (e) Explain with simple sketch up milling and down milling.
- (f) Explain process of gear hobbing.

5. Attempt any FOUR :**16**

- (a) Differentiate between face milling and peripheral milling.
- (b) State the various methods of gear finishing and objectives of gear finishing.
- (c) Define the following terms related with grinding :
 - (i) Grain size
 - (ii) Bond
 - (iii) Grade
 - (iv) Structure
- (d) Explain burnishing process and give its two applications.
- (e) Explain the need of machine tool maintenance.
- (f) List the merits & demerits of preventive maintenance.

6. Attempt any TWO :**16**

- (a) What is indexing ? State the different methods of indexing and explain any one in detail.
 - (b) Explain principle of centreless grinding and explain :
 - (i) Infeed centreless grinding
 - (ii) End feed centreless grinding
 - (c) What are the various types of maintenance ? Explain the information recorded in maintenance record.
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