

22338

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

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

Marks

- 1. Attempt any FIVE of the following. 10**
- a) List the different operations performed on lathe.
 - b) State the methods of taper turning.
 - c) Define drilling process
 - d) List the elements of plain milling cutter.
 - e) List types of grinding wheels.
 - f) State the name of different indexing methods.
 - g) Define broaching.
- 2. Attempt any THREE of the following. 12**
- a) Distinguish between up milling and down milling.
 - b) Describe selection criteria for grinding wheel.
 - c) Explain gear shaving method with neat sketch.
 - d) Calculate machining time for a hole to be drilled of 25 mm diameter and 70 mm depth. Consider feed as 1.2 mm/rev and cutting speed as 40 m/min. Assume suitable tool approach and lower travel.

P.T.O.

- 3. Attempt any THREE of the following.** **12**
- a) Explain reaming operation with neat sketch.
 - b) Describe grinding wheel designation.
 - c) Describe gear hobbing method.
 - d) Explain simple indexing method with suitable example.
- 4. Attempt any THREE of the following.** **12**
- a) Explain nomenclature of twist drill with neat sketch.
 - b) It is required to divide the periphery of a job in to 60 equal divisions. Find the crank moment.
(Given: Plate No. 1 : 15, 16, 17, 18, 19, 20
Plate No. 2 : 21, 23, 27, 29, 31, 33
Plate No. 3 : 37, 39, 41, 43, 47, 49)
 - c) Explain the nomenclature of broach with neat sketch.
 - d) Explain working of horizontal boring machine with neat sketch.
 - e) Classify broaching machines and list its merits and demerits.
- 5. Attempt any TWO of the following.** **12**
- a) Illustrate the basic parts of centre lathe machine with neat sketch.
 - b) Describe with neat sketch the following operations performed on milling machine
 - i) Slot milling
 - ii) Gang milling
 - iii) Slab milling
 - c) Explain working of centreless grinding with its advantages and disadvantages

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[3]

Marks

6. Attempt any TWO of the following.

12

- a) Explain various elements of a single point cutting tool with the help of neat sketch.
 - b) A batch of circular plates with moderate thickness is to be converted into hexagonal shape. Suggest and describe the suitable milling process.
 - c) Compare dressing and truing of grinding wheel.
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