22338

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

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 : **10**

a) List the different operations performed on lathe.

b) Define turning operation.

c) List any four drilling machine operations.

d) Define upmilling.

e) Define dressing of grinding wheel.

f) List the methods of indexing.

g) Name the various types of broaching machines.

Marks

2. Attempt any THREE of the following : **12**

a) A plain surface 50 mm wide and 210 mm long is to be milled on a horizontal milling machine with cutter diameter 70 mm and cutting speed 40 m/min. Take feed per tooth as 0.10 mm and number of teeth on cutter is 12. Calculate machining time.

b) Describe selection criteria for grinding wheel.

c) With neat sketch explain rack cutter gear generation process.

d) A hole of 30 mm diameter and 90 mm depth is to be drilled consider feed as 1.2 mm/rev and cutting speed as 50 m/min. Assuming suitable tool approach and lower travel, calculate machining time.

3. Attempt any THREE of the following : **12**

a) Draw neat sketch of radial drilling machine and write function of each part.

b) Explain the designation of grinding wheel.

c) Explain compound indexing.

d) Explain gear hobbing with neat sketch.

4. Attempt any THREE of the following : **12**

a) Differentiate between reaming and boring operations.

b) It is required to divide the periphery of a job in to 60 equal divisions. Find the crank movement. 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) Differentiate between pull broach and push broach.

d) Draw neat labelled sketch of horizontal broaching machine. List operations performed on it.

e) In an engineering workshop die block is to be enlarge to precise suggest machine and describe the process.

Marks

5. Attempt any TWO of the following : **12**

a) Find time required for one complete cut on a piece of work 400 mm long and 40 mm diameter. The cutting speed is 40 m/min and feed is 0.4 mm/rev.

b) Describe with neat sketch the following operations performed on milling machine.

i) Slot milling

ii) Gang milling

iii) Slab milling

c) Recommend grinding wheels for grinding –

i) High speed steel

ii) Had and brittle material

iii) Mild steel.

6. Attempt any TWO of the following : **12**

a) Explain the various elements of single point cutting tool with the help of neat sketch.

b) Calculate time required to complete a cut by face milling cutter of 150 mm diameter on a block 500 mm × 250 mm. The cutting speed is 50 m/min and feed 0.2 mm/rev number of tooth on cutter is 12.

c) Give the safety precautions to be observed while using grinding machine.

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