22338

11920

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

(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 various cutting parameters in case of lathe machines.

b) Define turning operation.

c) List various angles involved in a twist drill.

d) Define upmilling.

e) List various types of grinding wheels.

f) State the need of gear finishing.

g) State 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/tooth as 0.10 mm and number of teeth on cutter as 12. Calculate machining time.

b) Explain centreless grinding with neat sketch.

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

d) A hole of 25 mm diameter and 70 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 maching 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) Draw neat sketch of twist drill showing its nomenclature on it.

b) Set the dividing head to mill 50 teeth on a spur wheel blank.

c) Differentiate between pull broach and push broach.

d) Draw neat labelled sketch of horizontal broaching machine.

e) List specifications of horizontal boring machine.

Marks

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

a) Find the time required for one complete cut on a piece of work 450 mm long and 65 mm diameter. The cutting speed is 50 m/min and feed is 0.8 mm/rev.

b) Draw and state the use of any two standard milling cutters.

c) Sketch surface grinding machine and explain its working.

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

a) Compare capstan and turret lathe.

b) Sketch milling cutters for the following:

(i) Side milling

(ii) Facing

(iii) Plain

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