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T. Y. B. TECH. (MECHANICAL) (SEMESTER - I)

COURSE NAME: Manufacturing Technology

COURSE CODE: MEUA31174

(PATTERN 2017)

Time: [2 Hours]

[Max. Marks: 50]

(*) Instructions to candidates:

- 1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

- Q.1) a) Determine maximum temperature along rake face of the tool when machining mild steel. Given Shear stress $400 \times 10^6 \text{ N/m}^2$, $\alpha = 0^\circ$, Velocity = 2m/s, Uncut chip thickness = 0.25mm, width = 2mm, coefficient of friction = 0.5, Density = 7200 Kg/m^3 , thermal conductivity = $43.6 \text{ W/m}^\circ\text{C}$, $C = 502 \text{ J}$, ambient temperature = 40°C , shear angle = 20° . (6)

OR

- b) Explain the various factors that affect temperature in machining. (6)

- Q.2) a) Explain the meaning of grinding wheel signature. (6)
26-C-60-M-7-V-28.

OR

- b) Explain the centerless grinding with any one method with neat sketch. (6)

- Q.3) a) Explain the following term related to gears: (6)
i) Pitch circle diameter ii) Addendum
iii) Module iv) Pressure angle

OR

- b) Explain the elements of screw thread with neat sketch. (6)

- Q.4) a) Explain the meaning of every word written in the following line. G01 X30 Z20 MO3 T01 F50 (4)

OR

- b) List out the advantages and disadvantages of CNC. (4)

- Q.5) a) Draw a sketch of AJM Process. Discuss the various parameters that influence the material removal rate of the process. (6)
- b) Compare the ECM and EDM with various process parameters. (4)
- c) Classify various non-conventional machining process (4)

OR

- Q.6) a) Explain effect of the following parameters on MRR in ECM Process.
i) Tool feed rate
ii) Electrolyte concentration (6)
- b) List out the advantages and limitation non-conventional machining process. (4)
- c) Discuss the factor affecting the MRR in AJM Process. (4)
- Q.7) a) Define Jig and Fixture. Differentiate between them with suitable examples. (6)
- b) List various types of clamping devices used in the Jig and Fixture. Explain any one in detail. (4)
- c) List types of drill Jigs. Explain any one with neat sketch. (4)

OR

- Q.8) a) Explain Milling Fixture with suitable sketch. (6)
- b) Draw and explain Diamond pin locator. (4)
- c) list out the advantages and limitation of Jigs and Fixtures. (4)