

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - V MECHANICAL : WINTER- 2022
SUBJECT : ADVANCED MANUFACTURING PROCESSES

Day : Friday

Time : 02:30 PM-05:30 PM

Date : 16-12-2022

W-13449-2022

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

Q.1 Name and explain the various sheet metal cutting operations. What are the various ways in which presses can be classified? [10]

OR

A washer with a 12.7 mm internal hole and an outside diameter of 25.4 mm is to be made from 1.5 mm thick strip of 0.2 percent carbon steel. The ultimate shearing strength of the material at the washer is 280 N/mm². [10]

- a) Find the total cutting force if both the punches act at the same time and no shear is applied to either punch or the die.
- b) What will be the cutting force if the punches are staggered, so that only one punch acts at a time?
- c) Taking 60% penetration and shear on punch of 1mm, what will be the cutting force if both the punches act together.

Q.2 Outline the design considerations of a milling fixture. Explain the working of any one milling fixture with suitable sketch. [10]

OR

- a) Explain with neat sketch the different types of latch clamps. [05]
- b) What are the different types of turning fixture? Explain any one with neat sketch. [05]

Q.3 a) Differentiate between conventional and non-conventional machining processes. [05]

b) What are factors affects on material removal rate in ECM? [05]

OR

Describe plasma machining with neat sketch also draw a sketches of transferred and non-transferred plasm machining. [10]

Q.4 Describe CNC and DNC machines in detail with block diagrams. [10]

OR

Explain flexible manufacturing system with its merits and applications. [10]

Q.5 Explain Iron Carbide Equilibrium diagram with neat sketch. State features of every temperature phase. [10]

OR

Describe the following heat treatment: [10]

- a) Annealing
- b) Normalizing

Q.6 What are the important characteristics and methods of powder production? Explain any one method in detail. [10]

OR

Describe composite materials with its constituent materials, merits, demerits and applications. [10]

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