

BACHELOR OF TECHNOLOGY (C.B.C. S.) (2021-COURSE)  
B. Tech. Sem - III MECHANICAL : WINTER- 2022  
SUBJECT : ITC-I: MANUFACTURING TECHNOLOGY

Day : Monday

Time : 10:00 AM-01:00 PM

Date : 19-12-2022

W-25347-2022

Max. Marks : 60

N. B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of the non-programmable **CALCULATOR** is allowed.
- 4) Neat diagrams must be drawn **WHEREVER** necessary.
- 5) Assume suitable data if necessary.

Q.1 What is moulding? What are the functions of additives in moulding sand? (10)  
Sketch and explain transfer moulding process for plastic.

OR

Explain with suitable sketch, the sweep pattern, single piece pattern, gated pattern and skeleton pattern used in casting process. (10)

Q.2 Explain construction and working of hot chamber die casting process. State the advantages and limitations of the process. (10)

OR

Explain with suitable sketch, function of riser used in casting process. Describe continuous casting process. (10)

Q.3 Describe metal spinning process with neat diagram. Compare between rolling and forging as hot working process. (10)

OR

Draw only set up of tube drawing process. Explain with neat diagram, upset forging process and mention any one sample component manufactured by set forging process. (10)

Q.4 How are boring machines classified? Explain briefly with the help of sketch the taper turning method involving swivelling of compound rest. (10)

OR

The following observations were made during an orthogonal cutting operation: (10)

Tool rake angle =  $10^\circ$

Chip thickness = 2.4mm

Cutting speed = 40m/min

Shear strength = 650 N/mm<sup>2</sup>.

Coefficient of friction = 0.85

Width of cut = 16 mm

Feed = 105mm/rev

Determine the following :

i) Chip thickness

ii) Shearing force

iii) Cutting force

iv) Shear angle

v) Friction angle

P.T.O.

**Q.5** What is radial drilling machine? Describe with sketch nomenclatures of a twist drill. What are the advantages of twist drills? (10)

**OR**

Describe with neat sketch a plain milling cutter. Index 51 divisions by compound indexing method. The hole circles are available

Plate – I 15, 16, 17, 18, 19, 20

Plate – II 21, 23, 27, 29, 31, 33

Plate – III 37, 39, 41, 43, 47, 49

**Q.6** What is dressing and truing? Explain briefly with neat sketches various types of surface grinding machines. (10)

**OR**

Explain compression moulding process. Discuss in detail lapping process. (10)

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