

Total No. of Questions – [8]

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Paper code - U218-153 (BEG FF)

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Backlog

S. Y. B. TECH. (MECHANICAL ENGINEERING) (SEMESTER - I)

COURSE NAME: MANUFACTURING PROCESSES

COURSE CODE: MEUA21173

(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) Compare dry sand moulding with green sand moulding. [6]
Also, state when dry sand moulding is to be preferred over green sand moulding.

OR

b) What is the difference between true centrifugal casting and semi centrifugal casting? [6]

Q.2 a) Indicate some of the advantages of cold working relative to warm and hot working. [6]

OR

b) Explain with a neat sketch rotary swaging process. Is this process useful for forming parts of both symmetrical and unsymmetrical cross-sections? [6]

Q.3 a) With neat sketches compare compound and combination dies. [6]

OR

b) Determine the force required for blanking a square plate having its side 60 mm and have a central hole of diameter 15 mm. The sheet metal thickness is 3 mm and shear strength of material is 380 N/mm². Show die and punch dimensions on the diagram. Consider clearance of 10% of stock thickness. [6]

Q.4 a) What kinds of products are produced by blow molding? [4]

OR

- b) The barrel and screw of an extruder are generally divided into three sections; identify the sections. [4]

- Q.5 a) Describe submerged arc welding (SAW) process with a neat sketch. [6]
b) State any two welding defects with their causes and remedies. [4]
c) State the four points of differences between A.C. welding and D.C. welding. [4]

OR

- Q.6 a) State the merits and limitations of leftward and rightward welding techniques with neat sketches. [6]
b) Sketch seam welding process and state its applications. [4]
c) State various resistance welding processes and its applications. [4]

- Q.7 a) A drilling operation is performed on a steel part using a 12.7 mm diameter twist drill with point angle of 118° . The hole is a blind hole with a depth of 60 mm. Cutting speed is 15 m/min and feed is 0.20 mm/rev. Determine (a) cutting time of the operation and (b) metal removal rate after the drill bit reaches full diameter. [6]
b) Name some of the important mechanical and physical properties that affect the machinability of a work material. [4]
c) Name the seven elements of tool geometry for a single-point cutting tool. [4]

OR

- Q.8 a) A workpiece of total length 80 mm has a tapered portion for length of 48 mm. The larger diameter of taper is 83 mm and the smaller diameter is 73 mm. Determine: a) Taper in mm/meter and in degrees, b) the angle to which the compound rest should be set-up and c) the tailstock setting over. [6]
b) Name with sketch the three modes of tool failure in machining. [4]
c) State the different accessories used on lathe and state the purpose of each one. [4]