

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

MORNING

[Total No. of Questions: 09]

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Uni. Roll No. ....

04 JAN 2023

Program: B.Tech. (Batch 2018 onward)

Semester: 3<sup>RD</sup>

Name of Subject: Manufacturing processes

Subject Code: PCME-103

Paper ID: 16074

Scientific calculator is Allowed

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) Give two advantages of cold working.
- b) Define Forging.
- c) What are the types of chips?
- d) Give the types of patterns.
- e) What are the classifications of manufacturing processes?
- f) What are the different machine tools used in industries?

Part – B

[Marks: 04 each]

- Q2. What is directional solidification in casting? Elaborate with the neat and clean sketch.
- Q3. What are the differences between TIG and MIG welding processes?
- Q4. Give the tool life equation. Also, explain its physical significance.
- Q5. List out the defects in the forging process. Explain any two.
- Q6. What are the advantages of the extrusion process?

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**Q7.** A bar of 75 mm diameter is reduced to 73mm by a cutting tool while cutting orthogonally. If the mean length of the cut chip is 73.5 mm, find the cutting ratio. If the rake angle is  $15^\circ$ , what is the shear angle?

Part – C

[Marks: 12 each]

**Q8.** Give the classifications of metal forming processes. Explain with a neat and clean sketch of the wire drawing process.

OR

Explain with a neat and clean sketch of the gating system design in casting and also differentiate pressurized and unpressurized gating systems.

**Q9.** Classify the welding processes. Explain with a neat and clean sketch of submerged arc welding.

OR

Sketch a single-point cutting tool geometry. Explain the terminology used in the tool signature.

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