

MANUFACTURING PROCESSES - II

Roll No.

SUBJECT CODE: BTME-405

Total No. of Pages: 02

PAPER ID: A1215

TIME : 03 Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) Section – A is compulsory consisting of Ten questions carrying Two marks each.
- 2) Section –B contains Five questions carrying Five marks each and students has to attempt any four questions
- 3) Section – C contains Three questions carrying Ten marks each and students has to attempt any two questions

Section- A

Q1

- a) What is angle of bite in rolling? On what factors does its value depends upon
- b) What is the effect of hot working on the structure and mechanical properties of metals?
- c) Why gray C.I does not need any lubrication during machining?
- d) What are the advantages of having a hollow spindle in the headstock of a lathe?
- e) Is the grinding ratio is important in determining the economics of a grinding operation? Explain.
- f) Explain why large amount of frictional forces are produced when machining very ductile material?
- g) What is the difference between orthogonal and oblique cutting
- h) Name the various types of chip formed during machining and explain any one of them.
- i) List the essential requirement of a good lubricant
- j) Write the advantage of powder metallurgy process over the conventional manufacturing process.

Section- B

- Q2. What is “deep hole drilling”? What difficulties are encountered while drilling deep holes with the use of twist drills on conventional drill presses?
- Q3. What is radial drilling machine? Sketch and describe it.

- Q4. Name the three zones of a sintering furnace and explain the function of each zone.
- Q5. Estimate the blanking force to cut a blank 25 mm wide and 30 mm long from a 1.5 mm thick metal strip, if the ultimate shear stress of the material is 450N/mm^2 . Also determine the work done if the percentage penetration is 25% of material thickness.
- Q6. Explain the nomenclature of a grinding wheel

Section- C

- Q7. A $20\text{mm} \times 20\text{mm} \times 160\text{mm}$ copper plate is forged between two flat dies to a final size of $10\text{mm} \times 40\text{mm} \times 160\text{mm}$. determine the peak forging force, assuming the coefficient of friction to be 0.2. The tensile yield stress of copper can be taken as 70N/mm^2 . Assume no strain hardening.
- Q8. During orthogonal cutting test, the observations made are:
 $t_1 = 0.25\text{ mm}$, $t_2 = 1.2\text{ mm}$, $w = 2.5\text{mm}$, $\alpha = 0^\circ$, $F_C = 900\text{N}$ and $F_T = 810\text{N}$
Calculate the mean shear strength of the work material.
- Q9. Write note on
- High velocity forming of metals.
 - Cutting tool materials.

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