Examination May-2014

B. Tech. (Sem:- .....)

MANUFACTURING PROCESSES - II

Roll No. ..... Total No. of Pages: 02

SUBJECT CODE: BTME-405

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) Lsit 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 threc 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 20mm×20mm×160mm copper plate is forged between two flat dies to a final size of 10mm×40mm×160mm. 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 mm, t_2= 1.2 mm, w = 2.5mm, $\alpha = 0^0$, F_C= 900N and F_T= 810N
Calculate the mean shear strength of the work material.

Q9. Write note on
a) High velocity forming of metals.
b) Cutting tool materials.

End