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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (2012 Onwards) (Sem.-4)

MANUFACTURING PROCESSES-II

Subject Code : BTME-405

M.code : 59133

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION 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 have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A**Q1. Answer briefly :**

- a) Define Machinability.
- b) Name two forging defects and give their reasons and remedies.
- c) Enumerate the process variables for wire drawing process.
- d) Differentiate between piercing and blanking.
- e) Explain the working principle of high energy rate forming processes.
- f) What do you understand by drawing?
- g) Discuss the working principle of soldering.
- h) Differentiate between shaper and a planer.
- i) Differentiate between truing and dressing of grinding wheel.
- j) Explain the classification of broaching machines.

SECTION-B

Q2 Explain the working principle of rolling process. Explain various types of rolling processes giving neat sketches.

- Q3 Explain the construction and working of forging press giving a neat sketch.
- Q4 Explain the methods of obtaining metal powders used in powder metallurgy process with the help of neat sketches.
- Q5 Explain the cutting forces encountered in machining operations. How these cutting forces can be measured?
- Q6 Explain the construction and working principle of surface grinding machine giving appropriate line diagram and also explain its applications.

SECTION-C

- Q7 a) Describe the press and die setup. Also explain the forging operations using progressive and combination dies giving neat sketches.
- b) Explain the working of horizontal milling machine giving a neat sketch and describe components of horizontal milling machine.
- Q8 a) What is the need of using coolants and lubricants in machining operations? Describe the functions and properties of various lubricants used in machining operations.
- b) Describe the characteristic features, advantages, disadvantages of various types of cutting tool materials used in machining operations.
- Q9 a) A tool life test of HSS/ Carbide tool material used to cut a special Die Steel of 275 BHN gave the following results.

Spindle speed	372	329	258
L (mm)	38.2	82.3	380

Here the spindle speed units are (rev/min) and (L) is the length of travel (mm) of the lathe carriage up to the failure of each tool. Assume the work piece diameter as 0.090 m, feed rate as 0.5 mm/rev and depth of cut as 0.95 mm. Calculate the constants of tool life equation $VT^n = C$. Determine the tool life to be expected when cutting at 135 rpm. Also specify whether the tool material is HSS or Carbide.

- b) Explain the nomenclature of grinding wheel giving brief description of various elements.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.