

Total No. of Questions : 8]

SEAT No. :

P3441

[Total No. of Pages : 2

[4660]-213

**M.E. (Mech.) (CAD/ME) (Semester - I)**  
**ADVANCED MANUFACTURING PROCESSES**  
**(2012 Pattern) (Elective - I (b))**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *Answers to the two sections should be written in separate answer books.*
- 2) *Answer any three questions from each section.*
- 3) *Question no. 1 & 8 are compulsory and solve any three questions from each section.*
- 4) *Neat diagrams must be drawn wherever necessary.*
- 5) *Figures to the right side indicate full marks.*
- 6) *Use of Calculator is allowed.*
- 7) *Assume Suitable data if necessary.*

**SECTION - I**

- Q1) a)** Using the concept of dynamometry and theoretical considerations, explain how the following can be measured during metal cutting: **[10]**
- i) Force measurement.
  - ii) Heat measurement.
  - iii) Temperature measurement.
- b)** Derive the following in relation to orthogonal cutting: **[8]**
- i) Shear strain.
  - ii) Rate of strain.
  - iii) Total energy consumed per unit volume.
- Q2) a)** Explain the designation and selection of a grinding wheel. **[8]**
- b)** Write a note on the following : **[8]**
- i) Abrasives
  - ii) Bonding Process

***P.T.O.***

- Q3)** a) Differentiate between Pseudo creep-feed & true creep-feed grinding. [8]  
b) Discuss the effect following parameters on surface finish: [8]  
i) Wheel speed  
ii) Rate of feed  
iii) Depth of cut

- Q4)** a) Give the classification of Forming Processes in detail with its field of applications. [8]  
b) Explain in detail the parameter which governs the sintering process. [8]

### **SECTION - II**

- Q5)** a) Describe the following terms for EDM process: [8]  
i) Duty factor  
ii) Ignition delay  
iii) Dielectric strength  
b) Describe in brief the process parameters, tool design and MRR analysis of Ultrasonic Machining process. [8]

- Q6)** a) Write a brief note on the following with concern to High Speed Machining: [8]  
i) It's Economics.  
ii) Historical Elaboration.  
b) Justify why Special steels, Super alloys, Aluminum and Titanium alloys are suitable for the Space Industry? [8]

- Q7)** a) Discuss the various Issues related to CAD and GMP software. [8]  
b) Enlist & discuss the various two dimensional & three-dimensional techniques involved in Rapid Prototyping. [8]

- Q8)** Write short note on: [18]  
a) Stereo lithio graphy process.  
b) Laser beam machining.  
c) ECM processes.

