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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4089 Roll No. | | | | | | | | | | |

B.Tech

(SEM V) ODD SEMESTER THEORY EXAMINATION 2009-10

MANUFACTURING PROCESSES III

Time : 3 Hours] *[Total Marks : 100*

Note : *Attempt all questions.*

1 Attempt any **two** parts of the following :

(a) Explain different types of cutting tool materials ? Give their composition and applications. **10**

(b) Sketch a three view diagram of a 25 mm square tool bit having tool signature of 15, 15, 10, 10, 15, 10, (3 mm) **10**

(c) Define tool fracture. What is flank wear and crater wear ? How these effect the quality of component. **10**

2 Attempt any **two** parts of the following :

(a) With the help of neat sketch, explain orthogonal and oblique cutting. What is the difference between these two with suitable example. **10**

(b) How shearing takes place in metal cutting ? Find the relationship between different velocities in metal cutting process. **10**

(c) What are the parameters on which the specific cutting energy depends in metal cutting ? How it is calculated ? **10**

3 Attempt any **two** of the following :

(a) What are the different methods of taper turning ? Explain with neat sketch. 10

(b) How will 139 divisions be indexed by differential indexing ? Use the index plate having hole circles 21, 23, 27, 29, 31, 33. Gears available are 30 teeth to 60 teeth in even numbers. 10

(c) What are the different types of drilling machines ? Draw the block diagram of a radial drilling machine and label its various components. 10

4 Attempt any **two** parts of the following :

(a) Draw the block diagram of shaper machine and explain its various components. 10

(b) How Quick return motion mechanism of planer works ? Describe its importance. 10

(c) What is the purpose of grinding operation ? How a grinding wheel cuts the material from the job ? Explain Truing and Dressing of Grinding wheel. 10

5 Attempt any **two** parts of the following :

(a) What are the basic methods for measuring cutting forces ? - Explain. 10

(b) What is chip thickness ratio ? How it is calculated ? What is the purpose of calculating chip thickness ratio ? 10

(c) Explain lathe tool dynamometer. How cutting forces are measured with it ? 10
