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06ME45

Fourth Semester B.E. Degree Examination, June/July 08
Manufacturing Process II

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions, choosing at least two full questions from each part.***

Part - A

1 a. Derive an expression for shear angle in terms of chip thickness co – efficient and rake angle for orthogonal cutting. **(10 Marks)**

b. The following data refer to an orthogonal cutting process. Chip thickness 0.62 mm, feed 0.2 mm, rake angle 15^0. Calculate chip reduction co – efficient and shear angle. **(05 Marks)**

c. Define tool life list out the factors that affect tool life. **(05 Marks)**

2 a. Clearly explain the different factors that are to be considered during the selection of a cutting tool materials. **(12 Marks)**

b. With a neat sketch explain different heat affected zones during orthogonal cutting. **(08 Marks)**

3 a. Differentiate between a turret lathe and a capsten lathe. **(06 Marks)**

b. Explain with a sketch keyway cutting on a shaping machine. **(06 Marks)**

c. With a neat sketch explain hydraulic driving mechanism of a shaper. **(08 Marks)**

4 a. Sketch a radial drilling machine and lable all parts. **(08 Marks)**

b. Explain the following operations on a drilling machine
   i) Boring
   ii) Counter sinking **(10 Marks)**

c. List out drill bit materials. **(02 Marks)**

Part - B

5 a. Clearly explain up milling and down milling. **(10 Marks)**

b. Show the calculations for setting dividing head to mill 69 divisions on a spur wheel blank by compound indexing. **(10 Marks)**

6 a. Clearly explain the designation process of manufacture and properties of following grinding wheels with
   i) Vitrified bond
   ii) Rubber bond. **(12 Marks)**

b. With a neat sketch explain the principle of working of a center type cylindrical grinding machine. **(08 Marks)**

7 a. Sketch and explain the process of lapping on a lapping machine. **(10 Marks)**

b. What is honing? Explain vertical honing process. **(07 Marks)**

c. List out advantages and applications of honing. **(03 Marks)**

8 a. With neat sketch explain electro chemical machine. **(10 Marks)**

b. List out limitations and applications of
   i) Laser beam machining
   ii) Plasma Arc machining **(10 Marks)**

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