

B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION, NOV / DEC 2011

MANUFACTURING ENGINEERING BRANCH

THIRD SEMESTER

MF 9201 – MANUFACTURING PROCESSES - I

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max.Marks:100

PART – A (10 X 2 = 20 Marks)

1. How is metal removed in metal cutting? Give simple model to understand the metal cutting.
2. How do you select the cutting process parameters for finish turning?
3. List out the differences between a capstan and turret lathe.
4. What are the common methods of making gears?
5. What is the difference between wheel dressing and wheel truing?
6. What is balancing of wheel and why it is done?
7. What are the processes used for finishing gear teeth?
8. How milling cutter is used for gear cutting, and how is it resharpened?
9. Describe the use of spirit level and dial gauge in testing.
10. List the typical operations done on automatic lathe.

PART –B (5 X 16 = 80 Marks)

11. (a). (i). An orthogonal cutting of steel is done with 10° rake tool, with a depth of cut 2 mm and feed rate of 0.20mm/rev. The cutting speed is 200 m/min. the chip thickness ratio is 0.31. The vertical cutting force is 1200N and the horizontal cutting force is 650N. Calculate from the Merchant's theory, the various works done in metal cutting and shear stress. (12)
 - (a). (i). In an orthogonal cutting tool what are the important angles that are to be maintained? For each of the angle explain its influence on the machining parameters. (4)
 12. (a). (i). Define Taper? Name different methods of taper turning done on a lathe with neat sketch. (12)
 - (a). (ii). Name various work holding devices of drilling machine. Describe any one with sketch. (4)
- (Or)**
- (b). (i). What is Broaching? Explain the different types of broaching machines with neat sketch. (12)
 - (b). (ii). What are functions of Broaching fixture? (4)

13. (a).(i).What is the function of Bonds in grinding wheel? Explain all bonding materials with corresponding grinding wheel names. (12)

(a).(ii). Give important points connecting with mounting the grinding wheel. (4)

(Or)

(b). (i). Write short notes on following (1).Polishing (2).Buffing (3). Super finishing (12)

(b). (ii). What is Centreless grinding? Describe centerless grinding operations. (4)

14. (a).Explain various gear generation methods with neat sketch, also giving the process and product requirements. (16)

(Or)

(b). (i). What are the different methods of indexing? Explain any two of them. (12)

(b). (ii). Describe any two work holding devices for milling machine with simple sketch. (4)

15. (a).What is a Transfer machine? Describe the structure and operations of its different arrangements. (16)

(Or)

(b). (i). How the measuring instruments / gauges are used in testing machine tools? What types of tastings are conducted? (8)

(b). (ii). Describe the method of operation of the Swiss type automatic lathe, with applications and tools used. What is its speciality? (8)
