Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 42844

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Fourth Semester

Mechanical Engineering

ME 2252 – MANUFACTURING TECHNOLOGY – II

(Regulations 2008)

[Common to Mechanical Engineering (Sandwich)/Industrial Engineering/Industrial Engineering and Management and Mechanical and Automation Engineering]

[Also Common to PTME 2252 – Manufacturing Technology – II for B.E.(Part – Time) Third Semester – Mechanical Engineering – Regulations 2009]

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A **(10×2=20 Marks)**

1. What is true rake angle of a single point tool with an inclination angle of 30° and rake angle of 10°

2. Tool life tests in turning yield the following data : (1) v = 100m/min, T = 10 min; (2) v =75 m/min, T = 30 min (a) Determine the n and C values in the Taylor tool life equation. Based on your equation, compute (b) the tool life for a speed of 90 m/min.

3. Calculate the lathe spindle speed in RPM to turn a 20 mm diameter bar stock at a cutting speed of 30 M/min.

4. How taper turning is performed on a lathe ?

5. Tabulate any four differences between shaper and planer

6. What are the different types of milling machine ?

7. List the factors included in a grinding wheel specification ?

8. An internal cylindrical grinding operation is used to finish an internal bore from an initial diameter of 250 mm to a final diameter of 252.5 mm . The bore is 125 mm long. A grinding wheel with an initial diameter of 150 mm and a width of 20.00 mm is used. After the operation, the diameter of the grinding wheel has been reduced to 149.75 mm. Determine the grinding ratio in this operation.

9. What is meant by numerical control ?

10. What are the different types of interpolation systems ?

PART – B **(5×16=80 Marks)**

11. a) In an orthogonal turning operation cutting force is 300 N, feed force is 100 N, Cutting speed is 150 m/min, feed 0.125 mm/rev, chip thickness 0.25 mm, rake angle 30°, determine i) Workdone in shear ii) Shear strain.

(OR)

b) i) Show by sketches the common types of Tool failures. State the measures that can be taken to increase the tool life. **(8)**

ii) What do you understand by the term machinability ? How it is determined ? **(8)**

12. a) Draw the nomenclature of a single point turning tool and explain the significance of each element.

(OR)

b) What is a capstan lathe ? Give a simple tooling layout of a component of your choice.

13. a) i) With figure explain quick return mechanism of a shaper. **(8)**

ii) Define and write the formulae of the following for a drilling machine cutting speed, Feed and Machining time. **(8)**

(OR)

b) Describe cutting of gears by hopping method.

14. a) Describe the following micro finishing operations i) Lapping ii) Honing iii) Super finishing. **(5+5+6)**

(OR)

b) Explain the construction of a keyway broach. What are the limitations of push and pull broach ?

15. a) What are the special constructional features of CNC machine tool ? What are the requirements of the slide way systems of CNC machine tools.

(OR)

b) i) A 16 mm hole is drilled at the center in a cast iron work piece of dia 50 mm and 75 mm length. Write a part program. **(10)**

ii) Give the complete specification of a CNC machining centre. **(6)**
