Register Number……

B.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Third Semester

MECHANICAL ENGINEERING

U07ME304: Machine Tool Engineering

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 × 1 = 10 Marks)

1. Tool life is most affected by

   (A) cutting speed (B) tool geometry

   (C) feed & depth (D) microstructure of material being cut

2. Discontinuous chips are found during machining

   (A) Aluminium (B) Mild Steel (C) Cast Iron (D) Magnesium

3. Centering can be done most accurately on

   (A) magnetic chuck (B) four jaw chuck (C) three jaw chuck (D) collet chuck

4. In a planer

   (A) tool is stationary and work reciprocates

   (B) work is stationary and tool reciprocates

   (C) work & tool both reciprocates

   (D) tool moves over reciprocating work

5. Operation to be performed first on a job is

   (A) reaming (B) drilling (C) spot facing (D) tapping

6. Abrasive preferred for grinding materials of low tensile strength is

   (A) silicon carbide (B) aluminium oxide (C) diamond (D) sand stone

7. Milling cutters are mounted on a part called the

   (A) bracket (B) tang (C) shaft (D) arbor

8. Number of tap generally used in manual tapping is

   (A) one (B) two (C) three (D) four

9. In ECM process,the electrolyte used is

   (A) kerosene (B) water (C) air (D) Brine solution

10. In EDM, the tool is made of

    A) copper B) HSS C) cast iron D) plain carbon steel

PART B (10 x 2 = 20 Marks)

11. Define machinability.
12. What is the relationship between tool life and cutting speed?
13. What are the advantages of capstan/turret lathe ?
14. Name any two mechanisms used to drive the table of a planer.
15. What is radial drilling machine?
16. Name any two applications of broaching.
17. What is gang milling?
18. What is the advantage of gear generating process?
19. What are the applications of AJM?
20. What is the main function of dielectric fluid in EDM?

PART C (5 x 14 = 70 Marks)

21 a) Explain the tool terminology of a single point cutting tool with neat sketch.

(OR)

b) Explain the types of tool wear takes place during metal cutting.

22 a) What are the various methods for taper turning in lathe? Explain any two.

(OR)

b) i) Explain the quick return mechanism in a shaper. 10

ii) What are the work holding devices in lathe. 4

23 a) i) Explain the working principle of broaching process. 8

ii) What is lapping process? 6

(OR)

b) Explain the selection of grinding wheel according to Indian standard specification.

24 a) i) Explain the method of cutting gear by milling. 8

ii) Compute the index movement required to mill a square bolt by direct indexing. The rapid index plate has 24 holes. 6

(OR)

b) i) Explain the principle of bevel gear generating process. 10

ii) Write short note on gear finishing. 4

25 a)	i) Explain the working principle of Abrasive Jet Machining (AJM)		10
	ii) What is effect of grit size of abrasives and velocity on MRR in AJM?		4
	(OR)		
b)	a) Explain the working principle of EDM.		10
	b) What is the process capability of LBM process?		4

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