



E.G.S. PILLAY ENGINEERING COLLEGE

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MODEL EXAM

Sem/Section/Year : VI/B/ III Date & Session :
Branch : B.E.(Mech. Engg.) Max. Time : 3 Hours
Course Name : UCM Course Code : ME6004
Faculty Name : Dr.S. RAMABALAN Max. Marks : 100 marks

Answer ALL the Questions

Q.No.	PART-A (10X2=20)	CO#	KL
1.	What are the importance of unconventional machining process?	1	K2
2.	List any four variables in AJM that influence the metal removal rate.	2	K1
3.	What are the applications of WJM?	2	K2
4.	Mention the salient feature of USM?	2	K2
5.	Give the product applications of EDM.	3	K2
6.	What is the function of servo control in EDM?	3	K2
7.	What is the function of electrolyte in ECM?	4	K2
8.	State the characteristics of a laser beam.	5	K2
9.	How EBM is different from PAM?	5	K2
10.	Distinguish vacuum and nonvacuum EBM	5	K2

Q.No.	PART-B (5X13=65)	CO#	KL
11.	(a) Make a comparison between traditional and unconventional machining processes in terms of cost, application, scope, machining time, advantages and limitations. (13) (OR) (b) (i) What exactly are the items that can be considered with respect to the analysis of economics of various non-traditional machining processes? Briefly explain. (8) (ii) Make a comparison among various non-traditional machining processes in terms of the following. Presentation in the form of table is preferred. (a) Pocketing operation (b) Contouring operation. (5)	1	K2
12.	(a) With a neat sketch explain the process of AJM? List its applications and limitations. (13) (OR) (b) With a neat sketch explain the process of WJM? Explain its process capabilities with examples. (13)	2	K2

13.	(a) (i) Describe wire cut EDM process. List the advantages and limitations. (10) (ii) Explain how MRR and quality is controlled in EDM process. (3) (OR) (b) (i) Explain the working principle of EDM with a neat sketch. (8) (ii) List the recent developments in EDM process and state the limitations of EDM process. (5)	3	K2
14.	(a) With suitable sketches, explain the need for the insulation in an ECM process. List the advantages, disadvantages and applications of this process. (13) (OR) (b) With a neat sketch, explain the principle of electrochemical grinding. List out the advantages of ECG over conventional grinding. Mention the product application of ECG. (8+5)	4	K2
15.	(a) (i) With the help of neat diagram, describe the plasma arc machining process in detail. (10) (ii) List the advantages and limitations of PAM process? (3) (OR) (b) (i) Briefly explain the principle of LBM process. (10) (ii) What are the advantages and disadvantages of laser beam machining? (3)	5	K2
Q.No.	PART-C (1X15=15)	CO#	KL
16.	(a) (i) With the help of neat diagram, describe the EBM process in detail. (10) (ii) List the advantages and limitations of EBM process? (5) (OR) (b) (i) Briefly explain the principle of USM process. (10) (ii) What are the advantages and disadvantages of USM? (6)	5	K2

Course Outcomes:

After completion of this course, students can able to

1. Explain the need and recent trends in unconventional machining processes.
2. Use mechanical energy based unconventional machining processes.
3. Use electrical energy based unconventional machining processes.
4. Use chemical and electro-chemical energy based unconventional machining processes.
5. Explain thermal energy based unconventional machining processes.

BT Knowledge Level: K1-Knowledge, K2-Understanding, K3-Apply, K4.Analysis, K5-Evaluate, K6-Create