E.G.S. PILLAY ENGINEERING COLLEGE

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai
Accredited by NAAC with 'A' Grade | An ISO 9001 : 2008 Certified Institution
NAGAPATTINAM – 611002 TAMIL NADU INDIA
Ph : 04365-251112 / 251114 | E-mail:enquires@egspec.org | Website : www.egspec.org

MODEL EXAM

Sem/Section/Year	: VI/A/ 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.	Name the UCM which consumes maximum power.	1	K1
2.	For threading operation _____process is best suited.	1	K1
3.	Show the effect of abrasive jet pressure and grain size on the material removal rate in AJM process.	2	K2
4.	Differentiate AJM and sand blasting.	2	K2
5.	What is overcutting in EDM process and how it is affected by amphere and frequency?	3	K2
6.	What are the materials that cannot be used for machining in EDM process?	3	K2
7.	Name the electrolyte for Ti base alloys and Co-Cr base alloys.	4	K1
8.	What are the materials used for tools in ECM?	4	K2
9.	What is transferred type plasma?	5	K2
10.	Give the examples of solid state laser.	5	K1

Q.No.	PART-B (5X13=65)	CO#	KL
11.	(a) Explain the need for the development of UCM process by considering any four simple cases of your own interest. (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 USM? List its applications and limitations. (OR) (b) With a neat sketch explain the process of WJM? Explain its process capabilities with examples.	2	K2
13.	(a) Describe wire cut EDM process. List the applications, advantages and limitations. (OR) (b) Explain the working principle of EDM with a neat sketch. (8) (ii) Explain how MRR and quality is controlled in EDM process. (5)	3	K2
14.	(a) With suitable sketches, explain the working principle of ECM process. List the advantages, disadvantages and applications of this process. (OR) (b) With a neat sketch, explain the principle of electrochemical honing. List out the advantages of EGH 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 EBM process. (10) (ii) What are the advantages and disadvantages of electron beam machining? (3)	5	K2

Q.No.	PART-C (1X15=15)	CO#	KL
16.	(a) (i) With the help of neat diagram, describe the AJM process in detail. (10) (ii) List the advantages and limitations of AJM process? (5) (OR) (b) (i) Briefly explain the principle of LBM process. (10) (ii) What are the advantages and disadvantages of LASER beam machining? (5)	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