A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59711

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Elective

Mechanical Engineering

15UME911 - UNCONVENTIONAL MACHINING PROCESS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. In Ultrasonic machining, the tool moves CO1- R

   (a) moves in transverse direction (b) vibrates in longitudinal direction

   (c) moves in longitudinal direction (d) vibrates in transverse direction

2. In mechanical machining, material is removed by _____ CO1- R

   (a) Erosion (b) Corrosion (c) Vaporization (d) Abrasion

3. Which is a softer material in USM? CO2- R

   (a) tool (b) work piece (c) both of them (d) none of the above

4. In Electrochemical machining the gap maintained between tool and work piece is of the order of CO2- R

   (a) 0.05mm (b) 0.1mm (c) 0.5mm (d) 1mm

5. The temperature developed in EDM is in the order of CO3- R

   (a) 14,0000C (b) 10,0000C (c) 5,0000C (d) 2,5000C

6. In Plasma arc welding the electrode is made of CO3- R

   (a) tungsten (b) copper (c) bass (d) steel

7. What is the value of voltage that the power supply unit supplies for ECM? CO4- R

   (a) 0.01 to 1V (b) 2 to 30 V (c) 50 to 80 V (d) 100 to 160 V

8. Servo control system is responsible for which action in ECM? CO4- R

(a) Control Power supply (b) Control Electrolyte supply

(c) Control feed to tool (d) All the above

9. Physics of laser is very complex due to which of the reasons below? CO5- R

(a)) Scattering loss (b) Reflection loss

(c) Both are correct (d) None of the mentioned

10. Which of the following process is based on Faradays law of Electrolysis? CO5- R

(a) Electron beam Machining (b) Laser Beam Machining

(c) Electrical discharge Machining (d) Electrochemical Machining

PART – B (5 x 2= 10 Marks)

11. What do you mean by unconventional machining process? CO1- R

12. Name the abrasive materials that are used for the AJM. CO2- R

13. What are the applications of WJM. CO3- R

14. Mention the merits of using chemical machining CO4- R

15. What are the gases used in PAM. CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Classification of unconventional machining processes on the basis of type of energy employed, material removal rate, transfer media and mechanism. CO1- App (16)

Or

(b) Analyze about the criteria recommended in selection of these processes and explain the reasons for the development of Unconventional Machining Processes. . CO1- App (16)

17. (a) With suitable sketches explain the working principle of abrasive jet machining process and also discuss the process parameters and list the merits. CO2- U (16)

Or

(b) Write the AJM process variables that influence the rate of material removal rate in the machining process. CO2- U (16)

18.	(a)	With a neat sketch, explain the construction and working principle of Wire cut EDM equipment also list the applications.	CO3- U	(16)
		Or		
	(b)	Explain the process of Electrical discharge wire cutting and list of its advantages, limitations and applications.	CO3- U	(16)
19.	(a)	Briefly explain the various process parameters of ECM.	CO4- U	(16)
		Or		
	(b)	Explain the working princile of chemical machine (CHM) process with neat diagram. State its advantages and limitations.	CO4- U	(16)
20.	(a)	Identify the suitable unconventional machining process in which it needs vacuum and also discuss the process parameters in detail and list the merits.	CO5- App	(16)
		Or		
	(b)	With a neat sketch, explain the Working principle of Plasma Arc Machining process its parameters,advantages and applications.	CO5- App	(16)