

A

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 59711

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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)

- 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
- In mechanical machining, material is removed by _____ CO1- R
(a) Erosion (b) Corrosion (c) Vaporization (d) Abrasion
- Which is a softer material in USM? CO2- R
(a) tool (b) work piece (c) both of them (d) none of the above
- In Electrochemical machining the gap maintained between tool and CO2- R
work piece is of the order of
(a) 0.05mm (b) 0.1mm (c) 0.5mm (d) 1mm
- The temperature developed in EDM is in the order of CO3- R
(a) 14,000C (b) 10,000C (c) 5,000C (d) 2,500C
- In Plasma arc welding the electrode is made of CO3- R
(a) tungsten (b) copper (c) bass (d) steel
- What is the value of voltage that the power supply unit supplies for CO4- R
ECM?
(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 principle 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)

