



Reg. No. :

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

Question Paper Code : X 67639

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Sixth Semester
Mechanical Engineering
PR 1351 – UNCONVENTIONAL MACHINING PROCESSES
(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Why unconventional manufacturing processes are not completely replaced by conventional manufacturing processes ?
2. What are the characteristics of unconventional machining process ?
3. Name any four variables that affect the cutting phenomena in AJM process.
4. What are the limitations of USM process ?
5. What is the working principle of Wirecut EDM process ? Mention its applications.
6. When there is no direct contact between tool and work piece, specify how delicate sections and weak materials can be machined without any distortion in EDM process ?
7. What are the different techniques of applying Maskants to the substrate in chemical machining process ?
8. Why surface finish obtained in Electro Chemical Honing (ECH) process is superior to conventional honing process ?
9. What is LASER ?
10. List the applications of PAM and EBM.

**PART – B****(5×16=80 Marks)**

11. a) i) For different nonconventional processes, present in the form of a table, the various process parameters recommended. **(10)**
ii) Compare the merits, demerits and applications of any two nontraditional machining processes. **(6)**
(OR)
- b) i) What are the items that can be considered with respect to the analysis of economics of various nontraditional machining processes ? Briefly explain. **(10)**
ii) What are the industrial needs and importance of unconventional machining and finishing processes ? Explain the situations when unconventional machining processes are preferred to traditional machining processes. **(6)**
12. a) i) Explain the process parameters in WJM process. **(12)**
ii) Briefly discuss the application and limitation of WJM. **(4)**
(OR)
- b) With neat sketch explain the process of AJM. List its application and limitations. **(16)**
13. a) Explain about various power circuits used for generating sparks in EDM processes. **(16)**
(OR)
- b) i) What are the possible tool materials used in EDM process and elaborate the significance, merits and demerits of various tool materials ? **(8)**
ii) Briefly explain the process of wire cut EDM. **(8)**
14. a) i) With a neat sketch, explain the Electro Chemical Machining process. **(10)**
ii) Discuss the various Maskants and their uses in CHM process. **(6)**
(OR)
- b) i) Sketch the schematic diagram of ECH equipment and label the parts. **(6)**
ii) Explain with a neat sketch, the working principle of electro chemical grinding. **(10)**
15. a) i) Explain how laser beam is used generated. **(8)**
ii) Explain the beam control techniques. **(8)**
(OR)
- b) i) Explain the working principle Plasma Arc Machining. **(8)**
ii) Explain the equipment used EBM and the applications of EBM. **(8)**
-