RVK/KW/13/3292/3623

Faculty of Engineering & Technology
Eighth Semester B.E. (Mech. Engg.)/Eighth Semester B.E. P.T. (Mech.) Examination
ADVANCED MANUFACTURING TECHNIQUES
Elective—III
Sections—A & B

Time : 3 Hours] [Maximum Marks : 80

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.
(2) Answer **THREE** questions from Section A and **THREE** questions from Section B.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Diagrams and Chemical equations should be given wherever necessary.
(5) Illustrate your answers wherever necessary with the help of neat sketches.
(6) Use of non-programmable calculator and drawing instruments is permitted.

SECTION—A

1. (a) Classify non-traditional machining processes based on type of energy used and material removal method. 7

(b) Differentiate between conventional and unconventional processes. 6

2. (a) Explain the process of abrasive jet machining with the help of neat sketch. Write down its advantages, disadvantages and applications. 7

(b) What parameters should be considered to apply ultrasonic machining for certain application ? 6

3. (a) Explain the working principle of water jet machining with a neat sketch. What is abrasive water jet machining ? 7

(b) Explain various types of electric discharge machining processes. Comment on their accuracy and surface finish obtained. 6

4. (a) Explain with neat sketch the process of Electro-chemical machining. What process parameters affect the material removal rate in ECM ? 8

(b) Explain the process of plasma arc machining. Give its applications, advantages and limitations. 5

5. Write short notes on (any **THREE**) :— 14

(i) Electro-chemical grinding

(ii) Economics of advanced manufacturing techniques

(iii) Laser beam machining

(iv) Factors governing selection of unconventional machining processes.

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SECTION—B

6. (a) Explain the process of electroforming and hydroforming with suitable sketch. 7

(b) How adhesive bonding can be used as metal joining process ? 6

7. (a) Give complete classification of solid phase welding processes. Explain any one of them with neat sketch. 7

(b) Differentiate between TIG and MIG with suitable applications and sketch. 6

8. (a) Explain the working principle of atomic hydrogen welding. Enlist typical applications of it. 7

(b) What are various process variables of ultrasonic welding ? Discuss their effect on performance of process. 6

9. (a) Explain the process of plasma arc welding with neat sketch. 7

(b) Explain the working conditions for electron beam welding process. 6

10. Write short notes (any **THREE**) :— 14

(i) Friction welding

(ii) Submerged arc welding

(iii) Economics of unconventional welding processes

(iv) Principles of liquid state joining.