## **GUJARAT TECHNOLOGICAL UNIVERSITY**

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013

| Subject code: 1720810 Date: 07-06- |            | 2013  |           |
|------------------------------------|------------|---|-----------|
| Sul                                | bject i    | Name: Modern Machining Methods  |           |
| Tir                                | ne: 10     | 0.30 am – 01.00 pm Total Marks: 70  |           |
| Ins                                | struc      | tions:  |           |
|                                    |            | Attempt all questions.  |           |
|                                    | 2.<br>3.   | Make suitable assumptions wherever necessary. Figures to the right indicate full marks.   |           |
| Q.1                                | (a)        | Classify Modern Macining Processes on the basis of type of energy, mechanism of metal removal, transfer media and energy source.                              | 07        |
|                                    | <b>(b)</b> | Explain the essential characteristics of dielectric fluid to be used in EDM.  | 07        |
| Q.2                                | (a)<br>(b) | Explain the working principle and elements of process for USM.  Draw schematic arrangement of AJM and list its applications and advantages and disadvantages. | 07<br>07  |
|                                    |            | OR  |           |
|                                    | <b>(b)</b> | Explain the effects of different input parameters in USM.   | <b>07</b> |
| Q.3                                | (a)        | Explain the effects of different variables in AJM.  | 07        |
|                                    | <b>(b)</b> | List the advantages and give practical applications of WJM.  OR   | 07        |
| Q.3                                | (a)<br>(b) | List the elements of ECM process and explain each of them.<br>Explain essential properties of electrolye and list the electrolytes used in ECM.               | 07<br>07  |
| Q.4                                | (a)<br>(b) | Explain Electrochemical Grinding Process.  Explain maskants and etchants with their selection criteria in Chemical  | 07<br>07  |
|                                    | (D)        | Machining.  | 07        |
|                                    |            | OR  |           |
| Q.4                                | (a)<br>(b) | Explain the effects of process parameters in EDM. Explain Flushing and Flushing techniques in EDM.  | 07<br>07  |
| Q.5                                | (a)        | Explain Plasma Arc Machining process.   | 07        |
|                                    | (b)        | Explain the parameters that govern the performance of PAM process.  OR  | 07        |
| Q.5                                | (a)        | Explain Electron Beam Machining process.  | 07        |
|                                    | <b>(b)</b> | Explain Laser Beam Machining process.   | 07        |

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