

PE-507
May, 2014

PE-507 : NON CONVENTIONAL MACHINING PROCESSES.

Time : 3 hours

Maximum Marks : 100

Note : Answer any five questions.

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| 1. | (A) Give the schematic diagram of ECM, explain the function of horn. What are the effects of horn material and shape on the machining performance. | 12 |
| | (b) What is the use of 'Transduces' and magnetostriction effects in USM process. | 8 |
| 2. | (a) In what way have non conventional machining process helped in developing new products? Discuss. | 10 |
| | (b) What is whirling jet machining ? Discuss giving its applications. | 10 |
| 3. | (a) Discuss the effect of following factors on MRR in EDM process.
(i) Current Density (ii) Work material hardness. (iii) Pulse energy. | 12 |
| | (b) Discuss the heat affected zone produced in an EDM process. Give a neat sketch of layers produced. | 8 |
| 4. | (a) What are electrolyte properties that influence the ECM process. Discuss the selections of a suitable electrolyte for this process. | 10 |
| | (b) Discuss the influence of following parameters in an ECM process.
(i) Inter Electrode Gap
(ii) Current Density. | 10 |
| 5. | What are LASERS ? How are they produced ? What are various types of LASER ? How do they compare with MASER. | 12 |
| | (b) Give the typical applications of laser beam machining giving a schematic sketch of the process. | 8 |
| 6. | (a) What are the various EBM parameters ? Discuss their influence on machining efficiency. | 10 |
| | (b) Develop a dimensionless analysis relations for the EBM process. | 10 |
| 7. | (a) What is the principle of high velocity forming ? How the process is implemented? Give its chief applications. | 12 |
| | (b) Briefly discuss the principle of electro Hydraulic forming process giving its limitations. | 8 |
| 8. | Write short notes on following. | 20 |
| | (a) Abrasive jet machining. | |
| | (b) Hydro-dynamic optimisation in ECM. | |
| | (c) Explosive Forming and applications. | |

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