**BBDNITM**

**MECHANICAL DEPARTMENT**

**SESSION (2018-19)**

**Subject- Manufacturing Science & Technology-II [RME-503]**

**Assignment no. 5**

1) Justify the need of unconventional manufacturing process in today’s industries. (b) Distinguish between conventional and unconventional manufacturing processes.

2) Why the unconventional manufacturing processes are not completely taking over the conventional manufacturing processes? Explain.

3) Classify unconventional machining processes, giving type of energy, mechanism of metal removal, transfer media and energy source.

4) Discuss the important elements of Electron Beam Machining (EBM) system. Briefly discuss the major applications of EBM.

5) Explain the working principle of abrasive jet machining process with the help of suitable sketch showing all the elements.

6) With the help of a neat sketch explain the principle of underwater welding process. What problems and hazards are associated with wet underwater welding process? How is the stability of ‘arc’ achieved?

7) Describe the explosive welding process. Explain process variables in explosive welding.

8) Explain the working principle of Electro Discharge Machining with a neat sketch.

9) What is Electron Beam Welding? Explain giving suitable sketch. Also mention its advantages over other Welding Processes.

10) (i) How metal removal in EDM is achieved ? Discuss any one spark generator used in EDM. (ii) Draw a neat sketch of the Electrode feeding mechanism used in EDM.

11) (i) What are the applications of ultrasonic machining ? Why can very hard material be better cut by the ultrasonic process than soft ones? (ii) Compare ECM with EDM. Why isn't ECM as widely used as EDM?

12) In electrochemical machining of pure iron a material removal rate of 600 mm3 /min is required. Estimate current requirement.

13) Spot welding of two 1 mm thick sheets of steel (density=8000 kg/m^3) is carried out successfully by passing a certain amount of current for 0.1 second through the electrodes. The resultant weld nugget formed is 5 mm in diameter and 1.5 mm thick. If the latent heat of fusion of steel is 1400 kJ/kg and the effective resistance in the welding operation in 200Ω, the current passing through the electrodes is approximately