

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B Tech mechanical Engg/ADE

Semester – VII

Subject (Course): Advance Manufacturing Technology

Max. Marks : 100

Course Code : ADEG-403

Duration : 3 Hrs.

No. of page/s: 02

SECTION A

Answer the following questions

(4*5)

1. Highlight the advantages of using electron beam welding over arc welding? (CO4)
2. Compare the working principle of Chemical Machining with Electrochemical Machining Process? (CO2)
3. Distinguish between EBM and EDM based on MRR and working principle.(CO 5)
4. Write a short note on the transducer used in USM with specifications for a particular application. (CO 2)

SECTION B

Answer the following questions

(4*10)

5. Describe how frequency and amplitude of vibration and abrasive diameter affect the MRR in USM. (CO3)
6. Explain AFM and show using a line sketch, the material removal mechanism of the process. (CO2)
7. Draw schematically the layout diagram of an AWJM and briefly describe its working principle. State the abrasive particles used in AWJM to keep it eco-friendly. (CO1)
8. Specify the criteria on which the selection of nozzle depends for (i) WJM (ii) AWJM. Comment on the decay rate of nozzle for the above said processes.

OR

Starting from the basics, prove that the ECM process is self-regulatory and linear MRR approaches the feed rate. (CO5)

SECTION C

Answer the following questions

(2*20)

- 9 (i) with the aid of neat sketch briefly describe LBM process. Write the advantages and application of this process.
(ii) Explain with a neat sketch how the geometry of a drilled hole can be done using LBM. (CO5)

10. Contrast on the detailed working principle of plasma arc cutting process along with its process parameters and capabilities. Also highlight on the torches used during PAC.

OR

Write in detail of the following processes and compare them with respect to their MRR, principle, capabilities, applications and limitations. (CO 4)

- 1) AJM
- 2) EDM