WELDING AND ALLIED PROCESSES (MEL787)

M. TECH. (Prod. Engg.) **MAJOR TEST, I Sem., 2005-06**

Max. Marks: 270 Time: Two hrs. Date: 30.11.06 Venue: III LT IV

Neat sketching describing the processes / systems is mandatory.

1.	What is CAWP and the various techniques used? What is an expert system? Discuss its utility in the domain of developing welding procedure.	*20*
2.	Halmoy's relationship for calculating the melting rates in GMAW process given by: $MR = \alpha I + \frac{\beta L I^2}{A}$ MR = Melting rate, I = Welding current, L = Stick-out, A = Area of cross section of the wire, α and β are constants. i. Comment if you agree or disagree with this relationship? Discuss all your reservations in case you disagree. ii. Explain the reason of some change in the value of welding current with respect to a change in NPD evcn after thc equilibrium has been restored. iii. Derive the relationship for calculating arc voltage taking arc length and stick out as 'l' & 'L' respectively.	*15 + 10 + 15 = 40*
3.	A fabrication industry uses a set up based on constant potential power sources. There comes a vendor with very big regular order but demands a use of SMAW process for fabrication. Considcring yourself a fabrication engineer, how would you react to the situation? Give step wise analysis.	*20*
4.	Write a paragraph not exceeding 20 lines for each process and covering salient features for the following processes: i. Electron beam welding ii. Laser beam welding iii. Explosive welding iv. . High frequency resistance welding	*10*4 = 40*
5.	True false statements. '+1 / -2' for each 'correct / wrong' response. It is mandatory to underline the wrong portion in the statement if your response is wrong, failing no marks will be awarded.	*150*