aktuonline.com
aktuonline.com

Printed Pages : 3 TME-033

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0494 Roll No.

B. Tech.

(SEM. VIII) EXAMINATION, 2007-08

ADVANCE WELDING TECHNOLOGY

Time : 3 Hours] *[Total Marks : 100*

Note : (1) Attempt **all five** questions.

(2) All question carry **equal** marks.

(3) Be precise in your answer.

(4) No second answer book will be provided.

1 Write short notes on any **four** of the following : **5×4=20**

(a) Electron beam welding

(b) Arc blow in welding

(c) Spray welding

(d) Importance of Schaeffler diagram

(e) Electroslag welding

(f) Underwater welding

(g) Life prediction of welded structures.

aktuonline.com

aktuonline.com aktuonline.com

2 Answer any two of the following: **10×2=20**

(a) What do you understand by polarity in welding? Compare D.C. welding with A.C. welding. Which polarity will you select when welding (i) Aluminium and (ii) Copper ? What are the forces acting which transfer the metal from the metal electrode to the work piece in course of welding?

(b) What do you understand by friction welding? Where is it suitable? Discuss its principle. What are the differences amongst the autogenous, homogenous and heterogeneous joining processes? Give example of each process.

(c) What do you understand by resistance welding? What is the spot welding and how does it differ from projection welding? What must be done to join different thickness of the same metals by spot welding? What must be done to join the same thickness of different metals?

3 Answer any **two** of the following : **10×2=20**

(a) Describe with sketches, the mechanism of explosive welding. Also briefly write about weld-interface and welding parameters. What are the application of explosive welding?

(b) What is meant by hardfacing? How hardfacing with electric arc is theoretically considered as simultaneous alloy steel making in electric arc furnace and heat treatment? What welding process may be used for hardfacing? Enumerate the advantages and applications of hardfacing.

aktuonline.com

aktuonline.com
aktuonline.com

(c) Explain the term "Transferred modes' and 'Non transferred modes' used in Plasma Arc welding. What is 'Plasma'? Describe plasma arc welding and mention its advantages.

4 Answer any **two** of the following : **10×2=20**

(a) What is meant by weld quality? Discuss the factors that influence it.

(b) explain why some joints may have to be pre-heated prior to welding?

(c) List the rules that must be followed to avoid cracking in welded joints.

5 Answer any **two** of the following : **10×2=20**

(a) Define weldability. Discuss the weldability of carbon metals and explain why some metals are easier to weld than others. Cast iron is generally difficult to weld, why? How does the weldability of steel change as its carbon content increases?

(b) Describe the reasons that fatigue failures heat generally occur in HAZ of welds instead of through the weld bead itself.

(c) Describe theoretical or empirical or semi-emperical approach for temperature distribution in welding. Also, draw temperature contours around the weld or arc during arc-welding.

aktuonline.com