

Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

M. Tech. (PE) (Sem.-1st)

WELDING TECHNOLOGY

Subject Code : PE-504

Paper ID : [E0444]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carry TWENTY marks.

1. (a) Explain the constant current and constant voltage characteristics of arc welding machines. Give applications of each of them.
(b) Why DC arc welding is preferred for specialised applications over
2. Explain the TIG and MIG systems of arc welding with the help of neat sketches. Give specific applications of each method.
3. (a) Which are the three distinct regions of a welding arc ? Discuss each one of them briefly.
(b) How does the absorption of gases by welds take place ? What are the adverse effects of this phenomenon on weld quality ?
4. (a) What is the principle of high energy rate welding ? How is it carried out ?
(b) Explain the relationship between shielding gas used and the type of metal transfer in GMAW process.
5. (a) Discuss the effect of welding parameters on weld quality in submerged arc welding process.
(b) What is electro slag welding ? Give its principle, procedure and applications.

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6. (a) Discuss the effect of any four alloying elements on the welding behaviour of ferrous metals.
- (b) Is it possible to use a centre lathe for friction welding ? Give a sketch of the method proposed by you.
7. (a) What is a thyristor controlled rectifier ? Give its applications and drawbacks.
- (b) What is arc blow ? Explain the causes and effects of arc blow on the welding process. What are the remedies available to control arc blow ?
8. Write short notes on :
- (a) Electron beam welding
- weld metal solidification
- (c) Heat affected zone
- (d) Arc length regulation in mechanised welding processes.