

**B.Tech. - VIEP - MECHANICAL ENGINEERING
(BTMEVI)**

Term-End Examination

June, 2017

00737

BIMEE-024 : WELDING ENGINEERING

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **five** questions. All questions carry equal marks. Standard notations and symbols have their usual meaning.

1. (a) Explain briefly the Submerged Arc Welding (SAW) process with a neat sketch. Also mention its major applications. 7
- (b) Differentiate between TIG and MIG welding processes. 7
2. (a) Explain the radiant energy welding process with a neat sketch and give its major applications. 7
- (b) Discuss diffusion welding and list out the merits and demerits of it. 7

3. (a) Describe and classify the various surfacing methods. Give the applications of each method as well. 7
- (b) Discuss the advantages, limitations and applications of electro-gas welding. 7
4. (a) Distinguish between torch brazing and induction brazing. 7
- (b) Explain plasma spraying with a neat sketch and also give its applications. 7
5. (a) Describe distortion and explain the effect of preheating and post-weld heating on distortion. 7
- (b) Define weldability of materials. Mention the factors on which weldability depends. 7
6. (a) Describe with the help of a neat sketch, different structural features of a weld bead. How do the various features of bead geometry affect weld quality ? Discuss. 7
- (b) How do you control the quality of weld ? Discuss. 7

7. (a) How do you perform visual examination and magnetic particle examination ? Explain with suitable examples. 7
- (b) What tests do you suggest to evaluate the mechanical properties of welded joints ? Explain any one in detail. 7
8. Write short notes on any **four** of the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Friction Welding
 - (b) Beam Power Control
 - (c) Underwater Welding
 - (d) Life Assessment of Weldments
 - (e) Weld Size Calculations
 - (f) Weld Thermal Cycles and their Effects
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