

17455

16172

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any **THREE** of the following :

12

- (a) List the various types of joints. Draw welding symbols any four of it.
- (b) Define electric arc. Explain pulse transfer type mechanism in brief.
- (c) Define weldability. State the factors affecting it.
- (d) How solidification of metals is takes place in welding ?
- (e) What is the meaning of Arc blow ?

(B) Attempt any **ONE** of the following :

6

- (a) What the different types of welding flames ? Explain with neat sketches.
- (b) Explain the following mechanism :
 - (i) Arc characteristics (any one)
 - (ii) Arc stability

- 2. Attempt any TWO of the following : 16**
- (a) State and explain the processes used for welding of cast iron.
 - (b) Draw heat affected zone and explain structure of weld metal for M.S.
 - (c) Compare brazing, soldering and welding.
- 3. Attempt any TWO of the following : 16**
- (a) State the processes used for welding of alloy steels. Explain working of oxy acetylene welding with neat sketch.
 - (b) What are the various defects of weld ? State their causes and remedies to avoid it. (Any four defects)
 - (c) Discuss the steps of edge preparation for making the brazed joint.
- 4. (A) Attempt any THREE of the following : 12**
- (a) What are the advantages and limitations of gas welding ?
 - (b) How are electrode classified ? What are their coding code ?
 - (c) Explain welding process of TIG associated with welding of Aluminium.
 - (d) Explain the effect of welding on properties of metals.
- (B) Attempt any ONE of the following : 6**
- (a) Suggest a suitable filler metals and fluxes used for gas welding. Explain any one technique of gas welding.
 - (b) What is arc length ? What are the factors affecting selection of power sources ? (Any four factors)

5. Attempt any TWO of the following :**16**

- (a) What are the methods used of manufacturing of electrodes ? How is care and storage of electrodes considered in manufacturing industry ?
- (b) Define heat treatment. What are its objectives ? Explain heat treatments used in welding.
- (c) Explain the principle of brazing. What are its (any two) applications and (any two) limitations ?

6. Attempt any FOUR of the following :**16**

- (a) List the equipment used for gas welding. Draw a neat sketch of any one.
 - (b) What is meant by polarity ? State the factors to be considered for polarity.
 - (c) Explain metal arc welding of M.S.
 - (d) What are the advantages and limitations of welding of non-ferrous metals ?
 - (e) Explain welding metallurgy of Aluminium.
 - (f) Compare horizontal and vertical position of welding with neat sketch.
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