

MAHARASHTRA STATE BOARD OF VOCATIONAL EXAMINATIONS, MUMBAI

Examination, July 2014

CERTIFICATE COURSE IN WELDING (GAS AND ELECTRIC)

[Ἐϑύ—3 iέέ^οέ]

(BEthÉ NÖÉ—100)

$$\hat{E}_t b_M = (\hat{E}_t + \textcircled{0} - 1)$$

MÖE

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1. (+) $\hat{E}^{\otimes d} \text{Ed}^{aa} \hat{E}^{\otimes d} V E E M E U | \hat{E}^{\otimes d} (E d h e i e z_2) \{E E S\} :-$

- (1) $\text{VEE}^{\text{E}}\text{SÉE} \{ \text{EP}^{\text{b}} \text{QÉEME} \circ \text{ÉS} \text{U} \circ \text{E} \circ \text{h}^{\text{a}} \text{E}^{\text{e}} \circ \text{E}^{\text{e}} \text{ } \bar{\text{a}} \text{u} \dots \dots \dots \frac{1}{2} \text{a}^{\text{e}} \text{E}^{\text{e}} \text{SÉE} \text{ÉE} \{ \text{E} \circ \text{u} \text{E} \circ \text{u}^{\text{e}} \text{ÉE} \text{.}$
- (2) $\circ \text{E}^{\text{e}} \text{E}^{\text{e}} \text{E}^{\text{e}} \text{SÉE}^{\text{e}} \dots \dots \dots \text{É} \dots \dots \dots \{ \text{É} \text{r}^{\text{u}} \text{E} \circ + \text{É} \frac{1}{2} \text{E}^{\text{e}} \text{.}$
- (3) $\text{E}^{\text{e}} \text{J} \circ \text{E}^{\text{e}} \text{a} \text{b} \text{M}^{\text{e}} \text{E}^{\text{e}} \dots \dots \dots \text{E}^{\text{e}} \text{a} \text{b} \text{M}^{\text{e}} \circ \text{E} \circ \bar{\text{u}} \dots \frac{1}{2} \text{p}^{\text{e}} \text{ÉE} \text{ÉE} \text{.}$
- (4) $\text{E}^{\text{e}} \text{E}^{\text{e}} \{ \text{E}^{\text{e}} \text{E}^{\text{e}} \text{ZÉE}^{\text{e}} \text{a}^{\text{e}} \text{E}^{\text{e}} \text{E}^{\text{e}} \text{u} \} \text{ÉE}^{\text{e}} \dots \dots \dots \text{É} \dots \dots \dots \text{SÉE} \text{É} \text{É} \text{t} \text{E}^{\text{e}} \text{ÉE} \text{ÉE} \frac{1}{2} \text{E}^{\text{e}} \text{a} \text{u} \text{E} \circ \text{u}^{\text{e}} \text{ÉE} \text{.}$
- (5) $< \text{E}^{\text{e}} \text{J} \} \text{E}^{\text{e}} \text{S} \text{E} \text{a} \} \text{E}^{\text{e}} \circ \text{É} \text{VEE}^{\text{E}}\text{SÉE} \{ \text{EP}^{\text{b}} \text{QÉEME} \text{a}^{\text{e}} \text{E}^{\text{e}} \text{É} \text{v} \text{E} \circ \text{E}^{\text{e}} + \text{E}^{\text{e}} \text{E}^{\text{e}} \circ \text{E}^{\text{e}} \dots \dots \dots \frac{1}{2} \text{p}^{\text{e}} \text{ÉE} \text{ÉE} \text{.}$
- (6) $\dots \dots \dots \text{a}^{\text{e}} \circ \text{E}^{\text{e}} \text{É} \text{v} \text{E}^{\text{e}} \text{SÉE}^{\text{e}} = \{ \text{E}^{\text{e}} \text{a}^{\text{e}} \text{E}^{\text{e}} < \text{E}^{\text{e}} \text{J} \} \text{E}^{\text{e}} \text{a} \text{b} \text{h}^{\text{a}} \text{E}^{\text{e}} \circ \text{E}^{\text{e}} \text{ } \bar{\text{u}} \text{E} \circ \text{u}^{\text{e}} \text{ÉE} \text{.}$

- (८) **SHO** $\bar{E} \bar{O} \bar{E}$ **®** **®** \bar{u} $\bar{i} \bar{E} \bar{a} \bar{E} + \bar{E} \bar{1} \bar{2}$ ($\bar{E} \bar{O} \bar{E} \bar{i} \bar{E} \bar{1} \bar{2}$) (**HE**) :—

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- (1) $\frac{1}{2} \pi i E^{\circ} = \frac{1}{2} \pi i E^{\circ} + E^{\circ} = \frac{1}{2} \pi i E^{\circ}$
- (2) $+E^{\circ} = E^{\circ} + E^{\circ} = E^{\circ}$
- (3) $B^{\circ} = B^{\circ} + E^{\circ} = B^{\circ}$
- (4) $+E^{\circ} = E^{\circ} + E^{\circ} = E^{\circ}$
- (5) $E^{\circ} = E^{\circ} + E^{\circ} = E^{\circ}$
- (6) $<E^{\circ} = E^{\circ} + E^{\circ} = E^{\circ}$

- $$(E_0) \{E^{\alpha} E^{\beta} \circ \ddot{u}(E^{\alpha} E + E^{1/2})\} (E^{\alpha} E^{\beta} E^{\gamma} E^{\delta}) \{E^{\epsilon} E^{\zeta}\} :-$$

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- $$\begin{array}{ll}
 (1) \quad \vee \dot{0}.] \dot{0}. B. b_{\#}^{\text{af}} \dot{0} & (2) \quad] \dot{0}. + \dot{f}^{\text{af}}. \vee \dot{0}. \\
 (3) \quad b \dot{0}. ^{\circ} \dot{0}. + \dot{f}^{\text{af}} \dot{0}. & (4) \quad B^{\circ} \dot{f}. + \dot{f}^{\text{af}}. \vee \dot{0}. \\
 (5) \quad b \dot{0}. ^{\circ} \dot{0}. B^{\circ} \dot{f}. \dot{0}. & (6) \quad B^{\circ} \dot{f}. B^{\circ} \dot{f}. B. b_{\#}^{\text{af}} \dot{0}
 \end{array}$$

- (b) $V \in \mathbb{R}^{n \times n}$ (Eulerian) $\{E\}$:—

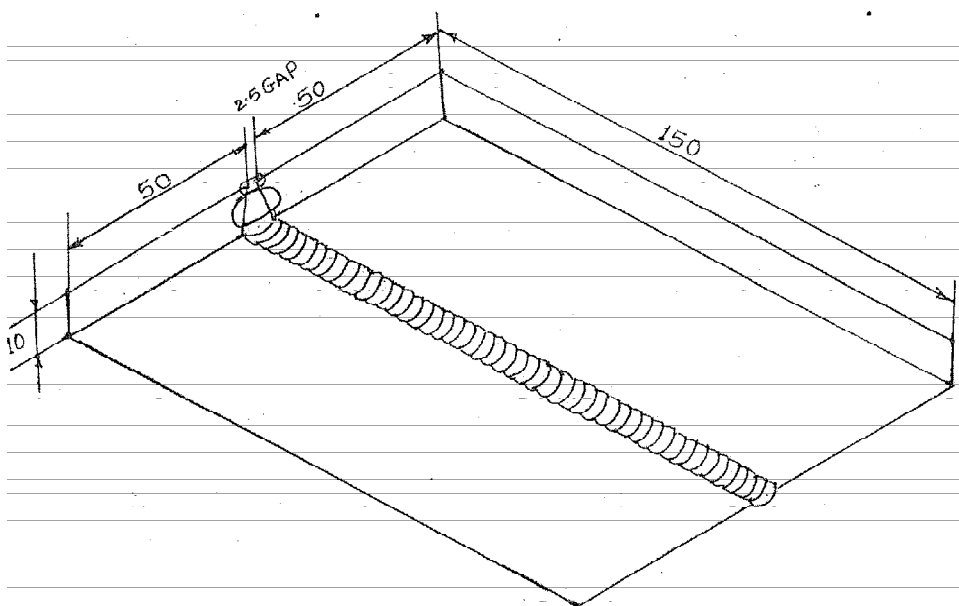
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- [illegible]

2. JfE+fo+e(Eeoo) EdehEiaEe%o nme |E|xEESeo =ke@u f+e%h :- 16
- (+) meEa {E<ESeo +EEbEo EdeFME iaEeSeE EEEEvE |EEmEeE xEEa tE.
- (e) B.oEo. EabMESeA ;deEna E iEEa o f+e%h.
- (Eo) EabMESeE EEEEvE |EEdeESeA EMEEOoEmE EoE.
- (b) E5331R13 aEE +EeEEeE EdebsaEE <+Ee]EabSeA o{E'} oEoEmE f+e%h.
3. JfE+fo+e(Eeoo) EdehEiaEe%o nme |E|xEESeo =ke@u f+e%h :- 16
- (+) MPE EabMESeE }+EeSeA |EEdeu EdehEia? EdehEiaEe%o nme }+EeSeA MEeEvE Ee f+e%h.
- (e) <+Ee]Eab÷%abSeo +EEbEo EdeFME EEEEvE |EEmEeE xEEa tE.
- (Eo) +EEe EabME EvEa +EESeE +EEEOEe EdeE {EEEmE E %EaEa ia o{E'} oEoE.
- (b) eEo ;deE+EEhE }+Ee eEo aEEaEEeEo+e ;oEo o{E'} oEoE.
4. IEEeEaEEe =ke@u f+e%h (EdehEiaEe%o nme) :- 16
- (+) EabMESeE oEeSeA |EEdeu f+e%h E iaEE(Eeoo) nme |EEdeESeo EEE%eEo f+e%h.
- (e) +Ee]Eo+e EoeE+EbSeo +EEbEo EdeFME iaEeSeE EEEEvE |EEmEeE xEEa tE.
- (Eo) EeEeEeSeE eEeE E EdeEe f+e%h ?
- (b) Ede]o +EeESeA |EEdeu f+e%h ? iaEE(Eeoo) BEdeSeo EEE%eEo IEEeEaEEe f+e%h ?
5. E]EE f+e%h (EdehEiaEe%o SEe) :- 16
- (+) +EEe EabME EEEe (e) EEEbEo
- (Eo) +EEe meEa (b) {+Ee e]o VEe<Eo
- (<) +EEeEvE EoeE+EbE
6. JfE+fo+e(Eeoo) EdehEiaEe%o nme |E|xEESeo =ke@u f+e%h :- 16
- (+) EEEeME EabMESeA oEeEa EdehEia? iaEE(Eeoo) +Ee oEeESeo EEE%eEo f+e%h.
- (e) +EEe EabMESeA =EEeA f+e%h ? iaEE(Eeoo) BEdeSeo EEE%eEo f+e%h ?
- (Eo) {+Ee EabME +EEhE {E<E EabME aEEaEEeEo+e ;oEo o{E'} oEoE ?
- (b) +EEbEo |EEhEa +Ea%e÷ {EEZE EEEEvEa 10 E.E. Eo. VEeSeE B.E.B.E. {+EeSeo EoeE+e %e]o VEe<Eo +EEe EabME EoEmESeo EEE f+e%h ?



(ENGLISH)

[TIME ALLOWED — 3 HOURS]

(MARKS — 100)

WELDING (THEORY-I)**Marks**

1. (a) Fill in the blanks (any *five*) :— 5
- (i) A is used for cleaning the surface of job.
 - (ii) and methods are used for welding.
 - (iii) Butt welding is also known as welding.
 - (iv) When work is completed, first stop the supply of and then
 - (v) Distance between electrode and surface of job is known as
 - (vi) device used for holding electrodes.
- (b) Write *true* or *false* (any *five*) :— 5
- (i) Hand Gloves are used for protect the hands from backing hot sparks.
 - (ii) Oxidizing flame is produced when almost equal volume of Oxygen and acetylene cylinder.
 - (iii) An aluminum metals cannot be welded by A.C. welding machine.
 - (iv) Reverse polarity will select for welding of brass by are welding.
 - (v) Chipping hammer is used for removal of rust on the job after welding.
 - (vi) 30 to 35 m.m. are the maximum length of electrode stub end as per standard.
- (c) Write long form of following (any *five*) :— 5
- | | |
|----------------|---------------|
| (i) G.T.A.W. | (ii) T.I.G. |
| (iii) D.C.R.P. | (iv) M.I.G. |
| (v) D.C.S.P. | (vi) S.M.A.W. |
- (d) Match the pairs (any *five*) :— 5
- | ‘ A ’ Group | ‘ B ’ Group |
|------------------|---|
| (i) Tong | (a) Draw circle on the job |
| (ii) Welding | (b) To protect the body and eyes from rays. |
| (iii) Hose pipe | (c) Melting depth |
| (iv) Hand shield | (d) To holding the hot job. |
| (v) Penetration. | (e) Permanent joint |
| (vi) Divider | (f) A device used in gas cutting for control the gas welding. |

[Turn over

2. Attempt any *two* of the following :— 16
- (a) Draw a figure of blow pipe and name its various parts.
 - (b) Write an advantages and disadvantages of A.C. welding process.
 - (c) Write the Classification of Welding.
 - (d) Write an explanation of mandatory code of electrode E5331R13.
3. Attempt any *two* of the following :— 16
- (a) What are the different types of flames in gas welding ? Write any two properties of flames ?
 - (b) Draw and explain the figure of electrode holder, name its various parts.
 - (c) State the effect of arc length in the arc welding.
 - (d) Differentiate between Back fire and Flash back.
4. Write in brief answer (any *two*) :— 16
- (a) Write the welding terms and explain any two ?
 - (b) Draw the figure of acetylene cylinder and name its various parts.
 - (c) Explain briefly the construction and work of regulator.
 - (d) What are the different types of cast irons ? Explain briefly any one of them ?
5. Write a short notes (any *four*) :— 16
- (a) Arc Welding Machine. (b) Distortion
 - (c) Arc blow (d) Plain butt joint
 - (e) Oxygen cylinder.
6. Attempt any *two* of following :— 16
- (a) What are the basic welding joints ? Explain any one of them ?
 - (b) Which are the types accessories of arc welding and explain any one.
 - (c) Write the differences between Plate welding and Pipe welding.
 - (d) Write job sequence for arc welding for Butt weld single " V " butt joint M. S. Plate 10 m.m. position overhead as per drawing.

