

MAHARASHTRA STATE BOARD OF SKILL DEVELOPMENT EXAMINATION, MUMBAI

Examination--July, 2020

ADVANCE DIPLOMA IN INDUSTRIAL SAFETY

[~~Ε~~ϣ—3 ιέέ°έ]

(BE^{thÉ} M^{öÉ}—100)

0°E]0 <xÉ E&ÉÉ0±É <B÷]0 (ÊÉ+®07)

ᾠδὴ εἰς τὴν ἑξῆς.—(1) Ὁ ἔς | ἐπὶ | κέ + ἐκ' ἑ' ἑς + ἐν/2 | ἐ.

[illegible][illegible]

(4) $+E \nabla^2 E + O_{\pm} \nabla^2 E \nabla E$ báé MẸ̀Ẹ̀ Ẹ̀Ẹ̀.

1. {ÉÖ}+É ¶ÉnÜä^aÉE¶É ¶ÉnÜ'ÉEÇ^aÉ Ex'EbÉ :—

(+) ^oE_AE_B[®]E_C {E_DE_FE_G}.....

(1) $B_{\pm} \in \mathbb{R}^{N \times N}$

(2) $+ \hat{t}^0 \{ b \div$

(3) $+ \pm E \dot{\pm} \dot{E}$

(4) $\pm E \approx \pm \frac{1}{2} \hbar \omega$.

[illegible]

(1) + ÎMKE°ÉΘUÉE

(2) [®] $\frac{1}{2} \times \frac{1}{2}$ inch square

(3) $\circ \text{IÉÉxÉä}$

(4) PÉ®EàÉÉ.

(Eo) Eo[@] w fēxā + ēvfxē^f fēxōfē[@] u + ēmōfē^e mē^e lāvūhē ē^e 3^a ēsēō iē[@] ūbū Eo[@] mā + ēmē^e
+ ēnē^e afē^e o[@] fē^e lōvīēⁱ o[@] ēgēdē, fē^e/pū vēhē^a fē^e d jē^e fē^e + fē[@] v fē^e iē^e + ēū
xē^f tā
.....

(1) 5.5 "É0.

(2) 10.5 "É0.

(3) 11.5 "E0.

(4) 22.5 "É0.

$$(b) = i\epsilon \bar{\psi} \gamma^\mu \psi + i \bar{\psi} \gamma^\mu \partial_\nu \psi - i \partial_\nu \bar{\psi} \gamma^\mu \psi = i\epsilon \bar{\psi} \gamma^\mu \not{\partial} \psi + \epsilon \partial_\nu \bar{\psi} \gamma^\mu \psi - \epsilon \bar{\psi} \gamma^\mu \partial_\nu \psi.$$

(1) $\circ; \partial \mathbb{E}] \mathbb{E} \partial^\circ \ddot{u} \{ \mathbb{E}$

(2) $+ \acute{e}^{\circ} \acute{e}^{\prime} \acute{e} \chi \acute{e}$

(3) $\{E:CE\}^{\otimes}$

(4) b1a(1)(ii)

(\leq) vEEEdnfEEO oEE EOFOSO EEEZEEEO Eo®WEE EE(E+faEE EdENnEjE.

(1) $V \in \mathcal{E}^0 \Rightarrow \mathcal{E}^0 \neq \emptyset$

(2) $\mathbb{E} \{ \mathbb{E}^{\mathbb{R}} [\tilde{0}] \}$

(3) $\neg A \leftrightarrow \neg B$

(4) $B \vdash B \circ b \circ B$.

[illegible]

(1) Ê'ÉYÉÉxÉ iÉK'É

(2) +Ê!ÉªÉÉÉÉÉÉÈ ìÉk Éä

[illegible]

(M) Eò ÈÒ nî ÌSáíE TóEò + MÈÍE nî ÍSÉE |ÉÍEíE® uEò @náfE É` ò Émfo.....

$$S_{\text{E}0}^{\text{E}bZ\text{E}E} < x_{\text{E}}^{\text{E}0\pm\text{E}0} + \text{E}^{1/2}\text{E}$$

(2) 1.0-15 psig

(3) 0.5-10 psig

(4) 1.0-10 psig

$$[\pm E] \text{ 或 } \{E/2\}$$

- [illegible]

CON 1417

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

SAFETY IN CHEMICAL INDUSTRY (THEORY-VII)

- 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*.

Marks

1. Select the correct word/sentence of the following :—

20

- (i) Corrosive substances
 (a) LPG (b) Acid
 (c) Alkali (d) Alcohol.
- (ii) Color are used extensively for safety purposes, red colour use for
 (a) Fire protection (b) Night visibility
 (c) Locations (d) Housekeeping.
- (iii) As per factories act, provisions for protection against fire, to provide safe escape in case of fire, travel distance to the exit should not exceed
 (a) 5.5 m. (b) 10.5 m.
 (c) 11.5 m. (d) 22.5 m.
- (iv) The operation which yields very high purities of the product is termed as a
 (a) Crystallization (b) Distillation
 (c) Separation (d) Dryer.
- (v) A is document that is use when transporting hazardous material.
 (a) Risk Assessment (b) Work Permit
 (c) Tremcard (d) MSDS.
- (vi) A unit operation is tool derived by a
 (a) Science principles
 (b) Engineering principles
 (c) Science and engineering principles
 (d) Chemical reaction principles.
- (vii) Low pressure tank are designed to withstand internal pressure in the range of
 (a) 0.5-15 psig (b) 1.0-15 psig
 (c) 0.5-10 psig (d) 1.0-10 psig.

[Turn over

- (viii) Minimum safety distance for flammable corrosive and toxic gases of water capacity of vessel is above 40,000 liters.
- (a) 1 m (b) 1.5 m
(c) 2 m (d) 2.5 m.
- (ix) Distance between tank and building containing flammable material for fixed roof tank should be
- (a) 6 m (b) 10 m
(c) 15 m (d) 20 m.
- (x) For storage of liquid at atmospheric pressure and temperature, the fluids referred as
- (a) Volatile liquid (b) Gas under pressure
(c) Flashing liquid gas (d) Refrigerated liquified.
2. Write answers in detail (any two):— 16
- (a) Corrosive substance.
(b) Fire Detection and alarm system.
(c) State the provision of protection against fire (as per factories act.
(d) Explain the role of fire extinguisher in fire protection.
3. Write answers of the following (any two):— 16
- (a) Explain the ON-SITE emergency preparedness plan.
(b) Explain the corrosion in chemical process industries.
(c) Write the importance of colour coding.
(d) Write in detail the relevant provisions on safety from the factories Act, 1948.
4. Answers the following (any two):— 16
- (a) Checklist for bulk storage of Ammonia.
(b) State the safety precaution while working with chemicals.
(c) Write in detail the significance of start up and shut down procedure in chemical plant.
5. Write answers in detail (any two):— 16
- (a) State the safety precaution while working with chemical.
(b) State the checklist for inspecting bulk storage LPG.
(c) Write about the Insecticide, pesticides-control, precaution and prevention.
6. Answer the following in detail (any two):— 16
- (a) Discuss the importance of Color coding.
(b) Explain crystallization process with safety aspect.
(c) Write about start up and shut down procedure of plant.
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