

6. Εὐαγγελιστὴς καὶ ποιητὴς ὁ ἑβραϊστὴς :-

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(+)] $\hat{A}x^0$ [\tilde{o} EIE+ÉbÉáÉE<QSEÒ xEE´EE°EE½E °EEÈ +ÉEñEÈ ÈÈfÈ.

(f) $b = (f_0 + f_1 \lambda + f_2 \lambda^2) \in \mathbb{F}_q[x]/(x^3 - 1)$, $\lambda^3 = 1$, $\lambda \neq 1$, $\lambda^2 \neq 1$, $\lambda^2 = \lambda^{-1}$, $\lambda^2 + \lambda + 1 = 0$, $\lambda^2 + \lambda = -1$.

$$(E_0) \quad (1) \quad \frac{1}{2} \rho \frac{dE_0}{dt} + \dot{M} E_0 = 0.$$

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(2) $\text{E}^{\circ}\text{Fe}^{+}/\text{E}^{\circ}\text{Fe} + \text{E}^{\circ}\text{Ce}^{4+}/\text{Ce}^{3+} < \text{E}^{\circ}\text{O}_2/\text{H}_2\text{O}$ or $\text{E}^{\circ}\text{Fe}^{+}/\text{E}^{\circ}\text{Fe} + \text{E}^{\circ}\text{Ce}^{4+}/\text{Ce}^{3+} > \text{E}^{\circ}\text{O}_2/\text{H}_2\text{O}$?
 a) $\text{E}^{\circ}\text{Fe}^{+}/\text{E}^{\circ}\text{Fe} + \text{E}^{\circ}\text{Ce}^{4+}/\text{Ce}^{3+} < \text{E}^{\circ}\text{O}_2/\text{H}_2\text{O}$
 b) $\text{E}^{\circ}\text{Fe}^{+}/\text{E}^{\circ}\text{Fe} + \text{E}^{\circ}\text{Ce}^{4+}/\text{Ce}^{3+} > \text{E}^{\circ}\text{O}_2/\text{H}_2\text{O}$

$$^a \text{EES}\bar{\text{E}}\bar{\text{O}} \quad \text{EES}\frac{1}{2}\bar{\text{E}}\bar{\text{O}} \quad \text{E}\pm\text{E}\frac{1}{2}\bar{\text{E}}.$$

(b) $E_{\mathbb{Q}} \otimes_{\mathbb{Q}} E_{\mathbb{Q}} \cong \{ \tau u \otimes v + \bar{\tau} u \otimes \bar{v} \mid u, v \in E_{\mathbb{Q}} \} \cong E_{\mathbb{Q}} \oplus E_{\mathbb{Q}}$.

(ENGLISH)

[TIME ALLOWED — 3 HOURS]

(MARKS — 100)

LEVELING (THEORY-I)

Instructions.—(1) All questions are *compulsory*.
 (2) Figures to the right indicate *full* marks.

- | | Marks |
|--|--------------|
| 1. (a) Fill in the blanks (any <i>five</i>) :— | 5 |
| (i) In leveling, station means the point at which the | |
| (1) Staff is held (2) Staff is moved. | |
| (ii) The least count of a metric leveling staff is | |
| (1) 5mm. (2) 10mm. | |
| (iii) Modern fitting level is then dumpy level. | |
| (1) Accurate (2) Not more accurate. | |
| (iv) In case of direct vernier both scales are read in the | |
| (1) Both direction (2) Same direction. | |
| (v) Retardation method is used for measuring | |
| (1) Vertical angles (2) Horizontal angles. | |
| (vi) The diameter of the graduated circle on the plate | |
| defines the size of the headlight. | |
| (1) Lower (2) Upper. | |
| (b) State whether the following statements are <i>true</i> or <i>false</i> (any <i>five</i>) :— | 5 |
| (i) Bubble of leveling instrument should always be in centre. | |
| (ii) In leveling station is a point where level is set up. | |
| (iii) The first entry in the level book is always a back sight. | |
| (iv) In theodolite surveying, theodolite is used for measuring of angles. | |
| (v) For general survey work 8cm. to 12cm. sized theodolite are used. | |
| (vi) Theodolite survey is not used for laying out the alignment of tunnel. | |
| (c) State the long form of following (any <i>five</i>) :— | 5 |
| (i) R.L. (ii) B.S. | |
| (iii) G.T.S. (iv) C.P. | |
| (v) H.I. (vi) F.S. | |

- (d) Match the following (any *five*) :— 5
- | ‘ A ’ Group | ‘ B ’ Group |
|-----------------------|--|
| (i) Theodolite | (a) Mean sea level at Karrachi |
| (ii) Folding staff | (b) Circular type |
| (iii) Compass | (c) Both scales are graduated in same direction. |
| (iv) Direct vernier | (d) For observing bearing |
| (v) Prismatic compass | (e) Jonathan Sisson |
| (vi) Datum | (f) 4m. in length. |
2. Attempt any *two* of the following :— 16
- (a) (i) What is leveling and what is its purpose ?
(ii) What are the different types of levels ? Give their points of difference ?
- (b) (i) What are the common mistake in leveling ?
(ii) What are the source of error in leveling ?
- (c) (i) What is vernier ? What are its various types and what principle each is based ?
(ii) How the theodolite in clarified ? Describe it.
3. Attempt any *two* question of the following :— 16
- (a) What are the objects of the leveling ?
(b) Describe the temporary adjustment of a transit theodolite ?
(c) Write a note on general care and up-keep of a survey instruments.
(d) Describe the temporary methods of reduction of levels.
4. Write brief answers (any *two*) :— 16
- (a) Define following (any *two*) :—
(i) Parallax
(ii) Back sight and Fore sight
(iii) Change point
(iv) Datum.
- (b) What is the closing error and what are the errors for it ?
(c) Compare dumpy level with I.O.P. level.
(d) What instruction should be followed by a level man and staff man.
5. Write short notes on the following (any *four*) :— 16
- (a) Bench mark
(b) Differential leveling
(c) Leveling staff
(d) Permanent bench mark
(e) Prolonging a straight line.

6. Attempt any *two* questions of the following :—

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- (a) Sketch very neatly a Transit theodolite and name its various parts.
- (b) Draw a neat sketch a Dumpy level naming its various parts.
- (c) Explain how would you measure a —
 - (i) Vertical angel
 - and
 - (ii) bearing of a line with theodolite.
- (d) Differentiate between collimation method and rise and fall method.
