POSTAL Book Package 2023

CIVIL ENGINEERING

Surveying and Geology

Objective Practice Sets

Contents

MADE EASY Publications

1 CHAPTER
Introduction

Q.1 Which of the following is an obstacle to chaining but not to ranging?
(a) River
(b) Hillock
(c) Building
(d) None of the above

Q.2 Match **List-I** with **List-II** and select the correct answer using the codes given below the lists:

List-I
A. Topographical surveys
B. Geodetic surveys
C. Engineering surveys
D. Cadastral surveys

List-II
1. To obtain data for carrying out any type of project such as roads, railways, water supply, etc.
2. To show boundaries of fields, buildings, etc.
3. To furnish data for size and shape of the Earth
4. To show natural features of the country such as rivers, hills, streams, lakes, roads, bridges, towns etc.

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	2	1	4	3
(c)	1	3	4	2
(d)	4	3	1	2

Q.3 Which one of the following closely represents the shape of the earth?
(a) Spheroid (b) Ellipsoid
(c) Oblate spheroid (d) Prolate spheroid

Q.4 The principle of 'working from whole to part' is used in surveying because
(a) plotting becomes easy
(b) survey work can be completed quickly
(c) accumulation of errors is prevented
(d) All of the above

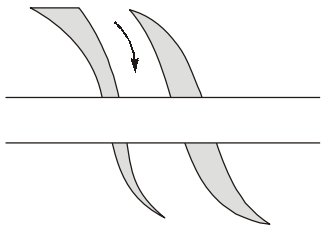
Q.5 Geodetic surveying is different from plane surveying because of
(a) the curvature of earth
(b) the large difference of elevations between various points
(c) coverage of very large area
(d) undulations of very large area

Q.6 Systematic errors are those errors
(a) whose effects are cumulative and can be determined
(b) which cannot be recognized
(c) whose character is not understood
(d) whose effect is recognized but character is not understood

Q.7 Which of the following tape is least affected by temperature changes and is highly precise?
(a) Linen tape (b) Metallic tape
(c) Steel tape (d) Invar tape

Q.8 **Statement (I):** The fundamental principle of surveying is 'to work from the whole to the part'.
Statement (II): Working from the whole to the part ensures prevention of accumulation of possible errors in survey work over large areas.
(a) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)
(b) Both Statement (I) and Statement (II) are individually true but Statement (II) is NOT the correct explanation of Statement (I)
(c) Statement (I) is true but Statement (II) is false
(d) Statement (I) is false but Statement (II) is true

Q.9 The conventional sign shown in figure represents a



(a) Shrinkage factor is 0.9
(b) Shrinkage factor is 1.11
(c) The revised scale is 1 : 1111
(d) The revised scale is 1 : 900

Q.24 Which of the following pairs is/are correctly matched?
(a) Topographical Surveying : To determine the natural features of a country.
(b) Cadastral Surveying : To determine the boundaries of fields, estates, houses etc.
(c) Astronomical Survey : Carried out for determining the absolute locations.
(d) Engineering Survey : To locate the premises, streets, water supply and sanitary systems etc.

■■■■

Answers Introduction

1. (a)	2. (d)	3. (c)	4. (c)	5. (a)	6. (a)	7. (d)	8. (a)	9. (a)	10. (c)
11. (a)	12. (d)	13. (b)	14. (b)	15. (a)	16. (a)	17. (d)	18. (d)	19. (c)	20. (d)
21. (a, b, c, d)		22. (a, c, d)		23. (a, c)		24. (a, b, c)			

Explanations Introduction

1. (a)
River is an obstacle to chaining but not ranging.

3. (c)
The actual shape of the earth is an oblate spheroid. It is an ellipsoid of revolution, flattened at the poles and bulging at the equator. The length of the polar axis is about 12, 113.168 km and that of equatorial axis is about 12, 756.602 km. Thus polar axis is shorter than the equatorial axis by about 43.434 km.

4. (c)
Working from whole to part prevent accumulation of error.

5. (a)
Geodetic survey in different from plane survey because in geodetic survey curvature of earth is also taken in consideration.

6. (a)
Systematic error lead to predictable and consistent departure from the true value. They have a cumulative effect can be eliminated after determining them.

7. (d)
Invar tape in least effected by temperature. It is because of this only that for precise and accurate surveying invar tape is used.

10. (c)
Corrected scale

$$= SF \times RF = \frac{15}{16} \times \frac{1}{1600} = \frac{1}{1706.67}$$

11. (a)
(i) $\frac{1\text{ cm}}{5000} \Rightarrow 1\text{ cm} = 50\text{ meter}$
(ii) $\frac{1}{42000}$
(iii) $\frac{1}{300000}$
(iv) $\frac{1}{500000} = 1\text{ cm} = 5\text{ km}$
Of all of above (i) is the one having greatest value, so (a) is correct option.

12. (d)
For cross sections and profile levelling sufficient data for sewage disposal and water supply work is collected.
Topographic Survey to show features of the country.
Cadastral Survey use to show boundary of field and building etc.
Geodetic Survey for size and shape of earth.

13. (b)
Well condition triangle is one in which all angles are more than 30° and no angle is greater than 120°.