Question bank

Professional Practise

Q1.

a) What are steel stanchions?

b) What do you understand by analysis of rates?

c) List various factors upon which rates of particular item of work depends upon.

d) What do you mean by out turn work?

e) Give Classification of Timber.

f) Define dismantling?

g) What is tender and tender document?

h) What do you mean by piecework agreement?

i) What are Liquidated damages?

j) Define permanent imprest?

k) Explain the term Schedule of rates.

l) Classify the contracts.

m) List the different methods for calculating the earthwork in Road construction.

n) What is Index Plan?

o) Explain the term Temporary imprest.

p) Write the detailed specifications of first-class Brickwork.

q) Why measurement books are considered very important account records?

r) What is a Temporary advance?

s) What do you understand by analysis of rates?

t) Explain the term Arbitration.

u) What is meant by 'Lay out plan'?

v) What is meant by item rate contract?

w) What is a 'petty work'? How does it differ from minor work?

x) List any two approximate methods of building estimation.

y) What is meant by schedule of rates?

z) What are 'transfer entries'?

aa) How is material at site account differ from stock account?

bb) Differentiate between 'lead and lift'.

cc) What is a 'cash book'?

dd) What is meant by physical verification of stores?

1. What is a muster Roll? What are the various parts of Muster Roll? What are the rules for preparation of Muster Roll?

2. Prepare a detailed estimate of the Madras Terrace Roof of a room of 3x4.5m in size. The beams are of sal wood 8x16cm size spaced 45cm centre to centre. The ceiling shall be finished with two coats of coal tar and the exposed faces shall be painted with two coats of painting over one coat of priming?

3. Give detailed specification for use of Lime concrete in Foundation?

4. Enumerate general conditions for contract?

5. Estimate the material and cost of 12mm plaster to be provided in the ratio of 1:6 for an area of 50 sqm

6. Enumerate general specifications for various classes of buildings?

7. What are the various rules and methods of measurement followed for preparation of the estimates and bills of quantities for earthwork?

8. Write the detailed specifications for Earthwork in excavation in foundation.

9. Explain the difference between Main Cash book and Subsidiary Cashbook.

10. Discuss the Main features of PWD systems of Accounts. Explain different types of estimates, Write a short note on detailed estimate.

11. How present-day cost of a building can be worked out?

12. Give differences between the followings:

a) road metal account and material at site
b) technical sanction and administrative approval
c) major work and minor work
d) security deposit and earnest money

13. What is purpose, importance and factors on which analysis of rates of items depend? Discuss in detail.

14. Discuss different kinds of arbitration according to Arbitration Act. What are the advantages of arbitrations over a court decision?

15. Write the detailed specifications for Earthwork in excavation in foundation.

16. Explain the difference between Main Cash book and Subsidiary Cashbook.

17. Discuss the Main features of PWD systems of Accounts.

18. Explain different types of estimates, Write a short note on detailed estimate.

19. How present-day cost of a building can be worked out?

20. Estimate the quantity of earthwork in a tabular form for the portion of a road from the following data:

21. Formation width of Road 8.0m, Side Slope 1.5:1 in banking, l: l in cutting. Distance between stations = 50.0m, Assume Ground as Level.

Station	0	1	2	3	4	5
PL of Ground	102.0	101.5	102.5	102.5	102.5	102.75
RL of formation	102.0 >>>>> upward 1:200					

22. Draw a page of a cashbook. Explain with examples how receipt and payment sides are filled

23. Explain the following:

- Indent Form and its use.
- Regular Establishment.
- Work Order.
- Muster Roll.

24 What is a lump sum contract? What are its essential characteristics? How are the payments under such contracts adjusted?

25 Calculate the quantity of earth work for 500 m length of a road in a uniform ground the heights of banks at the two ends being 1.00 m and 1.50 m. The formation width is 10 m and side slopes 2 : 1 (H : V). Assume there is no transverse slope.

26 List any five checks applied to muster rolls.

27 What documents are submitted by the SDE to divisional office every month? What action is taken on these in the divisional office?

28 Explain the major items of construction work which require quality control.

29 From the plan and part cross section of the hexagonal compound wall given in the figure below, estimate the quantities of :

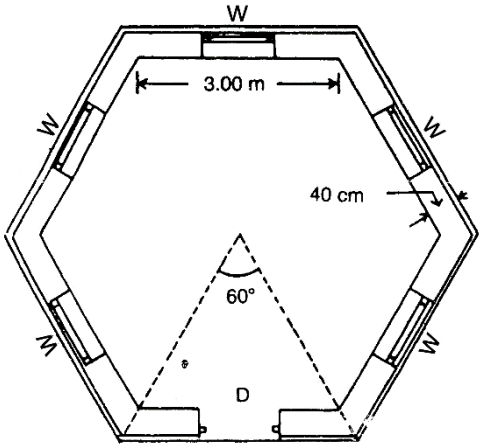
a) Earth work in foundation

b) Lime concrete foundation

c) I Class brick work in foundation and plinth in lime mortar

d) I class brick work in superstructure in lime mortar

e) 12 mm cement plastering 1 : 6 inside and outside walls. Also, prepare an Abstract of the quantities.

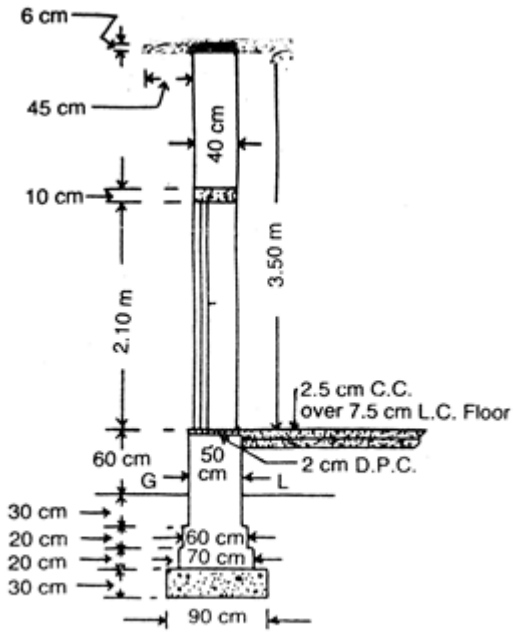


Plan

SCHEDULES :-

D-120 cm × 210 cm(1.20 m × 2.10 m)

W-110 cm × 150 cm(1.10 m × 1.50 m)



CROSS SECTION OF WALL THROUGH DOOR

30. Prepare an analysis of rates for an RCC Column work excluding cost of steel including centering, shuttering, bending and binding. Use Concrete mix 1:3:6. Use any rate (CPWD/PPWD) as applicable. Calculate the rate per m3. Give the specifications.

31 Differentiate clearly between the following:

i) Piece work agreement and work order

ii) General and retailed specification

iii) Road metal account and material at site

iv) Technical sanction and administrative approval

Survey and Geomatics

32. What are the two basic principles of surveying?
33. What are the factors on which precision of survey-depends?
34. Give the conventional signs used to represent the following surface features on a survey map
35. Canal (ii) Unmetalled road
36. What is a well-conditioned triangle?
37. What is the importance of parallax measurement?
38. What is meant by 'Tie line'?
39. Differentiate between open and closed traverse.
40. What is meant by true bearing of a line?
41. What is meant by orientation of the table in plane table surveying?
42. Define Bench mark. How is it established?
43. What do you understand by horizontal equivalent in contouring?
44. Differentiate between Claw screw and Tangent screw.
45. What is Traverse? List various types of traverse.
46. What is meant by 5° curve? What will be the corresponding radius of the curve?
47. Define the terms 'Point of curve' and 'Point of tangency'.
48. What is Tachometry? Describe its uses.
49. What is Baseline? List the methods for baseline measurements.
50. An offset is measured with an accuracy of 1 in 40. If the scale of plotting is 1 cm = 20m, find the limiting length of the offset so that the displacement of the point on the paper from both sources of error may not exceed 0.25 mm.
51. Define local attraction and how to detect it. Why is it important to 'work from the whole to part and never from part to whole' in surveying.
52. What is Bowditch rule?
53. What is the minimum number of ranging rods required for ranging?
54. What are the principles of surveying?
55. Differentiate between FB and BB.
56. What is meant by well-conditioned triangle? Why is it necessary to use it?
57. Name the various plane table accessories.
58. Distinguish between line of collimation and line of sight.

59. What are face left and face right observations?
60. Deduce the relationship between degree and radius of curve.
61. A chain line AB crosses a river, C and D being on the near and distant banks, respectively. A point O at right angle to AB from C is fixed at 50 m and at O the bearings of D and A are taken so that the included angle DOA is 90°. AC is then measured as 30 m. find the width of the river.
62. Explain the Bowditch and transit rule for adjustment of closing error in theodolite surveying.
63. From the following data calculate the height of the chhajja from the floor level: RL of the floor –100.000, staff reading on the floor - 3.125. staff reading at the bottom of the chhajja with the staff held inverted is 1.875.
64. What is tangential tachometry? Explain its general theory?
    What are the different methods of locating contours? Describe merits and demerits of each.
65. What are the characteristics of contours? Explain clearly with diagrams.
66. Explain the Three Point Problem giving details of different types of solutions to the problem. When does the theory to solve the problem fail?
67. How are curves classified? Explain the following terms in connection with curves
    (a) Vertex
    (b) Arc length
    (c) Long chord of the curve
    (d) Summit
68. The chainage of the intersection of two straights having the deflection angle of 50° is 1680.5 m. If the radius of the curve is 450 m, calculate the following
    a) Tangent distance. b) Length of curve. c) Length of long chord. d) Degree of curve.
69. What is Baseline? Explain the different methods of baseline measurements.
70. What are the possible sources of error while using a theodolite? How can they be eliminated?
71. Differentiate between surveyors' compass and prismatic compass. What types of adjustments are made in these compasses?
72. What do you mean by two-point problem in plane table surveying?
73. Write any two characteristics of Earth Resources Satellite.
74. Differentiate between Crab and Drift.
75. Explain the objective and the basic principle of triangulation. Also, explain the different triangulation systems.
76. Define photogrammetry.
77. What is the effect of curvature of earth on surveys? How can they be removed? Explain.
78. What is an Angle of Parallax?
79. Define radiometric resolution.
80. How is vertical angle measurement made with the help of Total Station?
81. Explain the objective and the basic principle of triangulation.
82. Explain various types of EDM instruments in detail.

83. Why atomic clocks are used in GPS survey? Name and explain **any two** segments of GPS system
84. The following bearings taken on a closed compass traverse:

Line	F.B.	B.B.
AB	80° 10'	260°00'
BC	120° 20'	301° 50'
CD	170° 50'	350° 50'
DE	230° 10'	49° 30'
EA	310° 20'	130° 15'

Compute the interior angles and correct them for observational errors. Assuming the observed bearing of the line CD to be correct adjust the bearing of the remaining sides.

85. Give the primary classification of 'Survey' and distinguish between them.
86. Explain the chaining operation. Who is the actual surveyor- leader or the follower? Why? A road 1557m long was found, when measured by a defective 30m chain, to be 1550m. How much correction does the chain need?
87. Explain atmospheric windows.
88. Draw schematic diagram of geodimeter.
89. What is WGS-84?
90. Discuss in brief salient features of Meteorological satellites.
91. Define remote sensing.
92. What is a two-point problem? Explain with a neat sketch the procedure of solving a two-point problem in plane table surveying.
93. What are the characteristics of contour lines?
94. What is a satellite station and phase of a signal?
95. Discuss crop health monitoring from remotely sensed imageries.
96. Explain applications of remote sensing in hydrological science.
97. What is Geodimeter used for?
98. Define GIS
99. Why atomic clocks are used in GPS survey? Name and explain **any two** segments of GPS system.
100. Why is balancing of back sight and foresight necessary? Explain with a neat sketch. To find the RL of station B, two observations are taken by a theodolite from station A one to a BM and the other to the station B. The record are as follows:

Inst. St.	Staff St.	Target	Vertical angle	Staff reading	Remarks
A	BM	Lower	–10°0’	0.655	RL of BM = 510.500m
		upper	–7°0’	2.655	
A	B	Lower	–5°0’	1.250	
		upper	+4°0’	3.200	

Find the RL of B and the distance between the BM and station

101. Find the missing figures and complete the level page book. Apply usual arithmetic checks.

Station	BS	IS	FS	HI	RL	Remarks
1	1.175			X	100	BM
2		X			98.975	
3		1.470			X	
4	2.00		X	X	98.100	CP
5		1.900			X	
6		X			97.200	
7	3.5		2.5	101.10	97.600	CP
8			2.65		X	

b) What are constants of a tachometer and how they are determined?

102 The following data is available for a closed traverse ABCDEA:

Line	Length	Bearing
AB	130	92°
BC	158	174°
CD	145	220°
DE	308	279°
EA	337	48°

Check for angular error and correct it, if necessary.

b) The elevations of two proposed triangulation stations A and B, are 140m and 416m above MSL, resp. The elevation of an intervening peak at C, 60km from A, which is likely to obstruct the line of sight, is 150m: Ascertain if A and B are intervisible, and if not, find the height required, for the scaffold at B so that the line of sight clears C by 3 m.

103. Write short notes on:

a) Rise and fall method

b) Temporary adjustments of theodolite

c) Elements of simple circular curve

104. Name various sensors on board of Indian Remote sensing satellites (IRS).

105.What do you understand by spatial data and attribute data? How are they integrated to make a GIS?