Shivaji University , Kolhapur

Questio71813n Bank For Mar 2022 (Summer) Examination

Subject Code :71813 Subject Name : Basic Civil Engineering

Common subject Code (if any) _____

Section I

Q. No. 1 A) Each question for 6 marks

1. "Civil Engineering is very much relevant to other branches of engineering" Explain this statement.
2. Explain the role of civil Engineer in various construction activities.
3. Enlist and discuss the scope of various sub- branches of civil Engineering.
4. Explain co - relevance of civil engineering with other branches of engineering in details.
5. Enlist various principles of building planning. Explain privacy, sanitation in details.

Q. No. 1 B) Each question for 6 marks

1. What is meant by building bye laws? Write down specific bye laws for F.S.I.
2. Write a note on Building bye laws for building line and control line with neat sketch.
3. Write down the specific bye laws for
   i) Open space requirement.
   ii) ii)Height of building
4. Explain Aspect, Prospect, Grouping and Privacy as a building planning principle.
5. What are the principles of planning? Explain in brief any two.

Q. No. 2 A) Each question for 6 marks

1. Explain substructure and super structure as a component of building with the help of neat sketch.
2. Explain with neat sketch different elements of building and mention their functions.
3. Explain with neat sketch different elements of super structure.
4. What are the various factors affecting bearing capacity of soil?

5. What is bearing capacity of soil? Explain its importance in building construction.

Q. No. 2 B) Each question for 5 marks

1. What is foundation? What are its different types? Explain any one.
2. Differentiate between the following:
    a. i)Substructure and super structure
    b. ii) Shallow and deep foundation
3. What are the various types of foundation? Explain the basis on which you will select each type of foundation for a particular situation.
4. Explain with neat sketch well foundation. Write its suitability.
5. Give classification of foundation and write suitability of each type.

Q. No. 3 A) Each question for 6 marks

1. Differentiate between
    I. P.C.C and R.C.C
    II. Load bearing structure and framed structure
    III. R.C.C and R.M.C
2. Explain various types of loads with suitable examples.
3. Explain in brief types of loads considered in the design of building.
4. What are different grades of concrete? write note on P.C.C.and R.C.C
5. Write advantages of framed structure overload bearing structure.

Q. No. 3 B) Each question for 5 marks

1. Write a note on defects of timber and seasoning of timber.
2. Draw neat figures of cross sections of rolled steel sections commonly used in steel framed structure.
3. Write down uses of plastic and aluminium in building construction.
4. Explain importance of cement as a building material. State types of cement with their properties and use.
5. What are the characteristics of good brick?

Q. No. 4 Each question for 4 marks

1. Write a note on orientation of building.
2. Write a note on Scope of civil engineering.
3. Write a short note on safety of building against fire and lightening.
4. Enlist various sub branches of civil engineering. Explain Irrigation engineering in details.
5. Explain Furniture Requirements and Roominess as building planning principle.
6. Write a note on pile foundation.
7. What do you mean by strength and stability of building?
8. Write short note on deep foundation.
9. What is meant by safe bearing capacity of soil? Explain its importance.
10. Write a note on types of soil and rocks as foundation strata.
11. Write a note on concept of stability.
12. Write short note on shallow foundation.
13. What are the methods of improving bearing capacity of soil?
14. Differentiate between
    a. Uniform and differential settlement
15. Write a note on ‘Curing of concrete’.
16. Write a note on ‘Ready mix concrete’.
17. What are the types of roofing materials commonly used in building?
18. Explain grades of concrete and their significance.
19. How will you classify various loads coming on a structure?

Section II

Q5. a) 4 Marks

1 Define surveying. What is the object and principles of Surveying?

2 Distinguish between plane and geodetic surveying.

3 What is local attraction? Explain how you will detect the local attraction

4 What is bearing of a line? Explain the types of Bearing. What are the designation systems of bearings?

5 Differentiate between WCB and RB system.

Q5. b) 7 Marks

1 A 20 m chain which was tested before the measurements and found correct. After measuring the distance 1400 m, it was tested again and found to be 12 cm too long.At the end after measuring total distance of 3000 m it is tested again and found to be 10 cm too long.. Find the true distance measured.

2 The following bearings were observed while running a closed compass traverse ABCDA.

Line	AB	BC	CD	DA
F.B	$44^0\ 30^0$	$124^0\ 30^0$	$181^0\ 0^0$	$289^0\ 30^0$
B.B	$226^0\ 30^0$	$303^0\ 15^0$	$1^0\ 0^0$	$108^0\ 45^0$

Calculate the included angles and corrected F.B and B.B.

3

The plan of an old survey plotted to a scale of 1 cm = 40 m was found to have shrunk; so that a line originally 200 mm long was found to measure 195 mm now. The plan was also recorded that 20 m chain used in survey was 60 mm too short. The area of a certain plot on the map was measured by a planimeter now and was 128.35 cm2. Find the true area in ground.

4 Following are the bearings in closed compass traverse.

Line	AB	BC	CD	DE	EA
F.B	$30^0\ 0^0$	$50^0\ 0^0$	$157^0\ 30^0$	$243^0\ 30^0$	$311^0\ 0^0$
B.B	$210^0\ 0^0$	$231^0\ 30^0$	$335^0\ 30^0$	$65^0\ 0^0$	$130^0\ 0^0$

Find - i) Included angles.

ii) Corrected bearings.

iii) Corrections.

5 A 20 m chain which was tested before the measurements and found correct. After measuring the distance 1400 m, it was tested again and found to be 12 cm too long. At the end after measuring total distance of 3000 m it is tested again and found to be 10 cm too long.. Find the true distance measured.

Q6 a) 05 Marks

1 How will you find out area of a given figure by using planimeter?

2 Explain the following terms: RL, BM, BS, FS, CP

3 Explain various characteristics of contour?

4 State various types of levelling and explain when to adopt fly levelling.

5 State and explain methods of reduction of levels.

Q6 b) 07 Marks

1 The following consecutive reading were taken with a level and a staff on a continuous sloping ground at 20 m interval.

0.602(BM= 192.12) , 1.234,1.860, (2.574 and 0.238) C.P , 0.914,1.936, (2.872 and 0.568) C.P, 1.824, 2.722.

Draw up a page of level book using rise and fall method .find out R.Ls of all point . Calculate gradient of line joining first and last station. Write sample calculation.

2 A series of levels obtained in levelling work is given below:

4.145(BM of R.L 230.555) , 3.490, 1.555, 2.385, 3.685,2.255, 4.005, 2.305, 1.485, 3.745

The levelling instrument was shifted after taking fourth and eighth readings. Rule out a page of levelling field book, enter above readings correctly in it, calculate R.L of each point and apply necessary checks.

3 The following consecutive readings were taken with a level and a 4 m levelling staff on a continuous sloping ground at 30 m interval.

0.855 (on A),1.545,2.335,3.115,3.825,0.455, 1.380, 2.855, 3.455, 0.585, 1.015, 1.850, 2.755, 3.845 (on B)

The R.L of A was 380.500 m. Make entries in a level book and apply usual checks. Determine gradient of AB. Use rise and fall method only. Write sample calculations.

4 During a levelling work on sloping ground following staff readings were observed with a level and a 4 m levelling staff on a continuous sloping ground at 20 m interval.

0.235, 1.250, 1.835, 2.135, 0.880, 3.295, 0.455, 0.995, 1.785, 2.350

If reduced level of 1st point is 500.850 m, Calculate RL's of all points by rise and fall method. Also calculate gradient of a line joining first and last point.

5 The following consecutive reading were taken with a level and a staff on a continuous sloping ground at 20 m interval.

0.540, 1.245, 2.375, 3.885, 1.245, 2.560, 3.780, 0.875, 1.625, 2.960

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The R.Ls of 1st station was 350.000. Make entries in the level book page and apply usual checks.Determine gradient of line joining 1st and last station. Use rise and fall method.Show sample calculations.

Q7 a) 06Marks

Q7 **1** What are the different types of 'Rail Gauge'?

2 Draw a labelled cross section of bituminous and concrete pavement.

3 Draw a typical c/s of road in cutting and embankment showing details.

4 State the types of dams. Explain gravity dam with a neat sketch.

5 Explain with neat diagram functions of the following units of water treatment plant.

i) Aeration unit

ii) Flocculation unit

iii) Filtration unit

iv) Chlorination unit

Q7 b) 05Marks

1 Write a note on gravity dam with the help of neat diagram.

2 Write a note on earthen dam with a figure showing various components.

3 Differentiate between rigid and flexible pavement.

4 Along with neat sketch show various components of railway track (Broad Gauge).

5 What are the different types of 'Rail Gauge'?

Q8 Solve any three out of given four (4m each)

Q8 1 Differentiate between WCB and RB system.

2 Explain various are the types of scale in detail?

3 Explain various types of bearings ?

4 If magnetic declination at a station A is 2^0 W and Magnetic bearing of a line is $45^0\ 0^0$

What will be its true Bearing ?

5 Calculate BB of a Lines:

a) $45^0\ 0^0$

b) $145^0\ 0^0$

c) S $45^0\ 0^0$ E

d) N $45^0\ 0^0$ W

6 Change the designation Systems of the bearing

a) $45^0\ 0^0$

b) N $45^0\ 0^0$ E

c) S $45^0\ 0^0$ W

d) N $50^0\ 0^0$ W

7 Draw a neat sketch of Prismatic Compass and name all its parts.

8 Draw a neat sketch and Explain construction of Metric Chain and Open cross staff and name all its parts.

9 Draw a sketch of Dumpy Level and name all its components also explain its construction.

10 Draw a neat sketch and Explain construction of Open cross staff and French cross staff.

11 Define offset ? What are the types of offset? How offsetting is done with open cross staff ?

12 When ranging is necessary? What is ranging? How ranging is carried out?

13 Write Note on: 'Types of Benchmarks'

14 Write Note on: Profile levelling and Cross sectioning

15 Define the terms: Axis of Telescope, Line of collimation, Axis of Bubble Tube and vertical Axis

16 Define the terms: Level surface and Level Line, Plumb Line, Reduced Level (RL), datum surface etc.