

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-II [All Branch] examination June 2009****Subject code: 110004****Subject Name: Elements of Civil Engineering****Date: 11/06/2009****Time: 10:30am-1:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1

- (a) Explain the importance of planning, scheduling and construction management in construction activities. **05**
- (b) What is 'Surveying'? What are its objects and applications? Explain briefly its primary divisions. **04**
- (c) Classify the buildings based upon occupancy and structure. List the common building components and state their functions. **05**

Q.2

- (a) What is the role of transportation in national development? Classify the different ways of transportation and state their importance. **07**
- (b) Explain the water requirements for different uses. Also, discuss about the conservation of water. **07**

OR

- (b) Enlist various instruments used in chaining and describe with sketch any two of them. **07**

Q.3

- (a) Explain with sketch the open cross staff and its use for setting out the right angle to a chain line. **05**
- (b) Describe the procedure of temporary adjustment of a prismatic compass. Also, differentiate between prismatic compass and surveyor's compass. **05**
- (c) A survey line AB intersects a pond as an obstacle. A and B are on the either side. To continue the line passing this obstacle, station M and N are taken such that M, B and N are on the same straight line. Distances AM, MB, BN and AN are measured to be 150m, 100m, 120m and 200m respectively. Find the length of line AB. **04**

OR**Q.3**

- (a) Define the following terms used in compass survey: **04**
 - (i) True bearing, (ii) Whole circle bearing, (iii) Quadrantal bearing, (iv) Magnetic declination.
- (b) Explain the procedure followed in field work and plotting work for the chain and compass traversing. How would you balance the closed traverse by graphical method? **05**

- (c) The following bearings were observed with a compass for the closed traverse ABCDA. **05**

Line	F. B.	B. B.
AB	120°	300°
BC	200°	20°
CD	310°	131°
DA	30°	209°

Where do you suspect the local attraction? Find the included angles and corrected bearings of the lines.

Q.4

- (a) Explain with sketch temporary adjustment of a dumpy level. **04**
- (b) Describe with a sketch, the planimeter and explain how will you determine the area of irregular figure using it. **05**
- (c) The following readings were taken with a dumpy level and 4m leveling staff. The instrument was shifted after 3rd and 6th readings. The readings are: 2.665, 3.225, 2.905, 1.850, 0.980, 2.620, 1.585, 0.960, 0.425m. Enter the above readings in a page of level book and calculate the RL of points, if the first reading was taken with a staff held on a benchmark of 240m. Use rise and fall method. Apply arithmetic check also. **05**

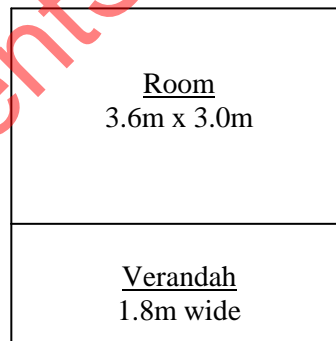
OR

Q.4

- (a) Explain the requirements, types and uses of bricks. **04**
- (b) Draw detailed sketch showing various components of typical highway cross section in embankment. List various types of materials used in highway construction and explain any one of them in detail. **05**
- (c) Explain general principles of building planning. **05**

Q.5

- (a) Draw detailed plan and sectional elevation of building from the following line sketch. Take brick wall thickness = 30cm and plinth height = 45cm. Suitably place the door, windows and cupboard. **06**



- (b) Draw detailed sketch of cross-section of stem of an exogenous tree. Also, discuss about various types of industrial timbers and their uses. **04**
- (c) What is hydrology? What are its applications? **04**

OR

Q.5

- (a) Discuss about working principle, special features and applications of 'Total Station'. **05**
- (b) Describe different types of loads acting on a building. **04**
- (c) List various types of traffic control devices and explain with sketch any two of them **05**
