Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-I Remedial Examination March / April 2010

Subject code: 110004

Subject Name: Elements of Civil Engineering

Date: 03 / 04 /2010 **Time: 12.00 Noon – 02.30 pm**

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)** 'Economy and growth is influenced by infrastructural development of the country.' Justify the statement giving appropriate reasons. **04**

(b) Discuss the importance of planning and scheduling in project management. **04**

(c) Answer any two from following questions: **06**

1. Differentiate between geodetic survey & plane survey.
2. Write fundamental 2nd principle of surveying.
3. What are the conventional signs used to denote: railway line & Road Bridge.

Q.2 **(a)** 1. Explain and state the uses of Steel arrow & Optical square in linear measurements. **03**

2. A steel tape was standardized as 30.00m at 18^0C temperatures. A line was measured as 480.0m at mean temperature of day as 30^0C. Calculate the true length of line, if coefficient of thermal expansion for steel is 0.000012 per ^{0}C rise in temperature. **04**

(b) 1. Differentiate between prismatic compass & surveyors' compass. **03**

2. Following are the fore bearing observed on a closed traverse ABCDA. (No local attraction). Compute the included angles for traverse and shoe the check. **04**

Line	F. B. of line
AB	124^0 30'
BC	68^0 15'
CD	312^0 45'
DA	197^0 45'

OR

Q.2 **(b)** 1. Explain the working and use of dumpy level or planimeter **03**

2. Following are the staff readings observed with a level. First observation taken on TBM of RL. 175.00m. complete the field book and show necessary checks. **04**

Station	B. S.	I. S.	F. S.	H.I.	R.L.	Remarks
1	2.225			?	?	B.M.
2		1.605		?	?	
3	2.090		0.955	?	?	?
4		1.860		?	?	
5	0.600		1.260	?	?	?
6			0.985	?	?	

Q.3 **(a)** 1. Give detailed comparison between: Load bearing structure & framed structure. **07**

2. State functions of any four building components.

(b) 1. Explain following principles of building planning: Aspects, Roominess & Circulation. **07**

2. Draw front elevation of given building to the scale 1:50. Refer given plan and data given in sketch no. 01. Assume any other data, if required, if not given.

OR

Q.3 **(a)** 1. Write detailed note on 'building loads'. **07**

2. What is importance of building byelaws? Explain byelaws for margin & projections in margin.

(b) 1. Sketch typical layout of an industrial building. Explain purpose of each segment/components of layout prepared by you. **07**

2. Draw section of given building at given plane 'XY' to the scale 1:50. Refer given plan and data given in sketch no. 01. Assume any other data, if required, if not given.

Q.4 **(a)** Classify materials based on their uses, giving example of each. Explain following properties of materials: Permeability, hardness, elasticity & compressive strength. **07**

(b) Answer following questions: **07**

1. Differentiate between hydraulic lime and fat lime.
2. Enlists characteristics of first class bricks.

OR

Q.4 **(a)** Explain term 'Cement'. Discuss various cement compounds produced during manufacturing of cement. Enlists physical properties of cement. **05**

(b) Explain preparation, properties and uses of cement concrete. **04**

(c) Answer following questions: **05**

1. State important advantages and disadvantages of timber in construction.
2. State any four properties & two uses of cast iron.

Q.5 **(a)** State salient features of any two transport systems. **04**

(b) Sketch & explain importance of maintaining hydrological cycle of water. **04**

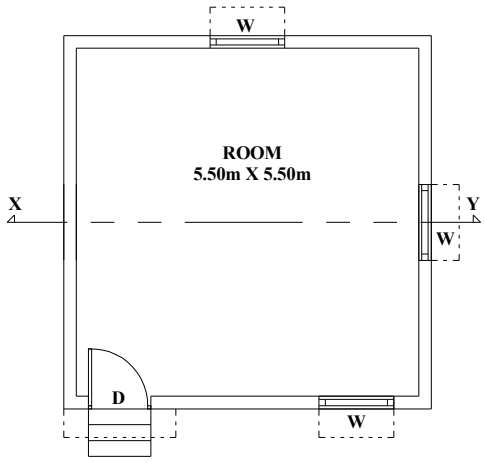
(c) Define terms: tube well, infiltration & transpiration. Explain water shed development. **06**

OR

Q.5 **(a)** Write note on: subsurface water resources. **04**

(b) Give functional classification of non-urban roads. Explain any one in detail. **04**

(c) What is BOT project? Give advantages and disadvantages of BOT projects. **06**



PLAN

DATA:
Plinth height= 60 cm.
Floor height = 3.00 m.
Wall thickness = 20 cm.
Slab thickness = 12 cm.
Perapet height =90 cm.
D = 10DT21.
W = 12WT12.

SKETCH No. 01