Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– 1st/2nd (NEW SYLLABUS) EXAMINATION – SUMMER 2015

Subject code:2110004 **Date: 12/06/2015**

Subject Name: Elements of Civil Engineering

Time: 10.30am-01.00pm **Total Marks: 70**

Instructions:

1. **Question no 1 is compulsory. Attempt any four out of remaining six questions.**
2. **Make suitable assumptions wherever necessary and mention it clearly.**
3. **Figures to the right indicate full marks.**

Q.1 (a) (1) The scope of Civil Engineering is 07

(a) Planning, designing and estimating
(b) Supervision of construction
(c) Maintenance of work
(d) All the above

(2) The object of surveying is to prepare a
(a) Drawing (b) Cross section
(b) Sketch (d) Map

(3) The main principle of surveying is to work from
(a) Part to the whole (b) Whole to the part
(c) Higher to lower level (d) Lower to higher level

(4) Survey which carried out to represent mountains, valleys, rivers, forests and other details of a country are known as
(a) Cadastral surveys (b)Engineering surveys
(c) Mine surveys (d) Topographical surveys

(5) The compass box is made up of
(a) Iron (b) Aluminium
(c) Brass (d) Steel

(6) The vertical angle between the longitudinal axis of a freely suspended magnetic needle and the horizontal is called
(a) Declination (b) Azimuth
(c) Dip (d) None of the above

(7) The surface of still water is considered to be
(a) Level (b) Horizontal
(c) Curved (d) Smooth

(b) (1) The area of irregular shape can be measured by 07
(a) Pentagraph (b) Chain
(c) Theodolite (d) Planimeter

(2) Total station is used for
(a) measuring horizontal, vertical and slope distance
(b) measuring horizontal, vertical and percentage of slope
(c) measuring height of an object
(d) all the above

(3) Pl an is prepared by taking the cross section at
(a) Foundation level (b) Sill level
(c) Slab level (d) Lintel level

(4) Rainfall and snowfall is
(a) Dead load (b) Live Load
(c) Load on floors (d) None

(5) The earth's water circulatory system is known as
(a) water cycle (b) Hydraulic Cycle
(c) Monsoon Cycle (d) None of the above

(6) Main ingredient in the cement composition is
(a) Silica (b) Lime
(c) Clay (d) Alumina

(7) "No parking" sign is the type of
(a) Regulatory sign (b) Warning sign
(c) Informatory sign (d) None

Q.2 (a) Differentiate between Plane surveying and Geodetic Surveying 03
(b) Explain fundamental principal of surveying in detail. 04
(c) The observed bearing of a traverse are given in the following table. Calculate included angles and apply necessary correction. 07

Line	Fore Bearing	Back Bearing
PQ	$110^{o}30^{'}$	$290^{o}30^{'}$
QR	$160^{o}00^{'}$	$340^{o}30^{'}$
RS	$310^{o}30^{'}$	$130^{o}30^{'}$
ST	$12^{o}30^{'}$	$192^{o}30^{'}$
TP	$95^{o}00^{'}$	$275^{o}00^{'}$

Q.3 (a) Differentiate between Plan and Map 03
(b) Briefly explain the role of Civil Engineer in infrastructure development. 04
(c) Differentiate between load bearing and framed structures 07

Q.4 (a) Which are the objectives of watershed development? 03
(b) Write steps involved in the watershed development. 04
(c) What are the advantages and disadvantages of water ways and airways? 07

Q.5 (a) Draw the neat sketch for the following :Spread footing foundation for the 20 cm wall 03
(b) Draw the neat sketch for the following : RCC lintel with Chajja 04
(c) Enumerate various principles of planning and explain any two in detail. 07

Q.6 (a) Which are the various aids and devices used to control, regulate and guide traffic in the cities? 03
(b) Explain the above application for the cities like Ahmedabad, Baroda, Surat? 04
(c) The following consecutive readings were taken using 4 meter leveling staff with a dumpy level on continuously slopping ground at 30 meter interval: 0.570,1.235,1.750,2.220,2.665,3.410,1.005,1.835,2.165,3.550,0.825,0.965,1.730,and 2.320 m. 07
The R.L of starting point was 100.00 mt. Find R.L of other points by Rise and fall method and apply check.

Q.7 (a) Enlist the various materials used in building construction. 03
(b) Enlist the different types of cement. Discuss uses of cement. 04
(c) Explain the role of transportation in development of country. 07