Enrollment No [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

L.D.R.P. Institute of Technology & Research, Gandhinagar
Remedial Examination, B.E. - Sem-VI – April'15

Branch: Civil
Subject: Design of RC Structure
Time: 12:00 to 13:30

Date: 07/04/2015
Subject Code-CV-603
Marks: 30

Instructions:

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

Q-1 (A) Explain load transfer system in load bearing structure and frame structure with net sketch. [5]

(B) List a few Indian standard codes that are followed while designing structures made of Concrete. [5]

Q-2 (A) Explain the modes of failure for Under- reinforced and Over- reinforced beam. [5]

(B) Design a doubly reinforced section for a rectangular beam having an effective span of 8.0 m. The superimposed load is 38 kN/m and size of beam is 230 mm x 450 mm. Assume the suitable data. Design for the M25 and fe415 grades of materials. [5]

OR

(A) An R. C. C. beam has cross section of 230 X 500mm deep is reinforced by 4-16mm bars in tension zone. If it is loaded by factored shear force of 500kN, design for the appropriate vertical shear reinforcement with 8mm dia. bars. [5]

(B) Find the Moment of Resistance of a T beam of M15 Concrete grade with following details: Df = 120mm; bf = 800mm; d = 400mm; bw = 230mm; Ast = 3-25mm dia Fe415 bars

Q-3 (A) Design an isolated sloped footing for the column of size 300mmx400mm reinforced with 8 bars of 16mm diameter carrying an ultimate load of 1000kN. The safe bearing capacity of soil is 180kN/m2. Assume effective cover for bottom steel is 60mm. [5]

(B) Enumerate the difference between short and slender columns. State the code specifications for: [5]
   a) Minimum eccentricity for design of columns
   b) Longitudinal reinforcement
   c) Lateral ties

OR

(A) Design a short rectangular column to carry an axial load of 600KN. Unsupported length of column is 3.0m. Take M20 grade of concrete and Fe415 grade of steel. [5]

(B) Explain the assumptions made in the Limit state of collapse in Flexure. [5]

L.D.R.P. Institute of Technology & Research, Gandhinagar
Mid Semester Examination, B.E. - Sem-VI – March'2015

Branch: Civil
Subject: Design of RC Structure
Time: 12:00 to 13:30

Date: 03/03/2015
Subject Code-CV-603
Marks: 30

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

Q-1 **(A)** Explain the assumptions made in the Limit state of collapse in Flexure. **[5]**

(B) Explain different end conditions of columns with their effective length. **[5]**

Q-2 **(A)** Derive equation for Depth of Neutral Axis and Moment of Resistance for a singly reinforced balanced beam section with Sketch. **[5]**

(B) Design a doubly reinforced section for a rectangular beam having an effective span of 6.0 m. The superimposed load is 42 kN/m and size of beam is 230 mm x 450 mm. Assume the suitable data. Design for the M25 and fe415 grades of materials. **[5]**

OR

(A) A simply supported R. C. C. beam of span 5m carries working udl of 10kN/m throughout the span. Design the beam for bending reinforcement only assuming the width of the beam as 230 mm, effective cover as 45 mm and main steel bars of dia. 20 mm. **[5]**

(B) Find the Moment of Resistance of a T beam of M15 Concrete grade with following details: Df = 120mm; bf = 800mm; d = 400mm; bw = 230mm; Ast = 4-20mm + 1-10mm dia Fe415 bars **[5]**

Q-3 **(A)** Calculate the area of steel required for a short RCC column 450mmx450mm to carry an axial load of 1000kN. Use fck=20MPa and Fe415 grade of steel. **[5]**

(B) Differentiate short column and long column. **[5]**

OR

(A) Design a short rectangular column to carry an axial load of 700KN. Unsupported length of column is 3.5m. Take M20 grade of concrete and Fe415 grade of steel. **[5]**

(B) Explain load transfer system in load bearing structure and frame structure with net sketch. **[5]**

Kadi Sarva Vishwavidyalaya

LDRP INSTITUTE OF TECHNOLOGY & RESEARCH, GANDHINAGAR.

B.E. 6th Semester

MID SEM EXAMINATION

Date/Day : 05/03/14 , Thrusday   Branch   : Civil Engineering

Subject Name & Code : GEOTECHNICAL ENGINEERING-2   Max. Marks   : 30
Time   : 12:00 Noon to 1 :30 PM

Instructions:1) All questions are **compulsory**

2) Figures to the **right** indicate full marks.

3) Indicate **clearly**, the options you attempt along with its respective question number.

Q.1   (a)   Write short note on "New Marks chart".   [5]

(b)   Distinguish between active earth pressure and passive earth pressure.   [5]

Q.2   (a)   Write a note on Coulomb's wedge theory.   [5]

(b)   A retaining wall 10m high retains a cohesion less soil with an angle of internal friction   [5]
35^0 . The surface is level with the top of the wall . The unit weight of the top 3m of the
fill is 1.6t/m^3 and that of the rest is 2.0 t/m^3.Find the magnitude and application of the
resultant active thrust.

OR

Q.2   (a)   What is reconnaissance? What type of information is obtained in reconnaissance? What   [5]
is its use?

(b)   The field N value in a deposit of fully submerged fine sand was 40 at a depth of 6m.   [5]
The average saturated unit weight of the soil is 19 KN/m^3. Calculate the corrected N
Value as per IS:2231-1981.

Q.3   (a)   What factor determines whether a foundation type is in shallow or deep foundation   [5]
category?

(b)   Two railway wagon line in a harbor yard are located at 4m c/c. The average loads are   [5]
130 KN/m 50 KN/m respectively. Find the vertical stress induced by this line loading
at a depth 2m beneath each load and half way between them. If a 600 KN crane is
installed exactly midway between the lines, what additional stress is caused below the
crane at same depth?

OR

Q.3   (a)   Write the equation for estimation of pile capacity by Hiley's formula. Identify each   [5]
term of the equation. Discuss any two limitations of this formula.

(b)   A underground water tank of size 4m x 4m carries a load of 200 KN/M^2.Determine   [5]
vertical stress increment at a point 4m below the center of the loaded water tank using
Boussinesq's theory.

************All THE BEST************