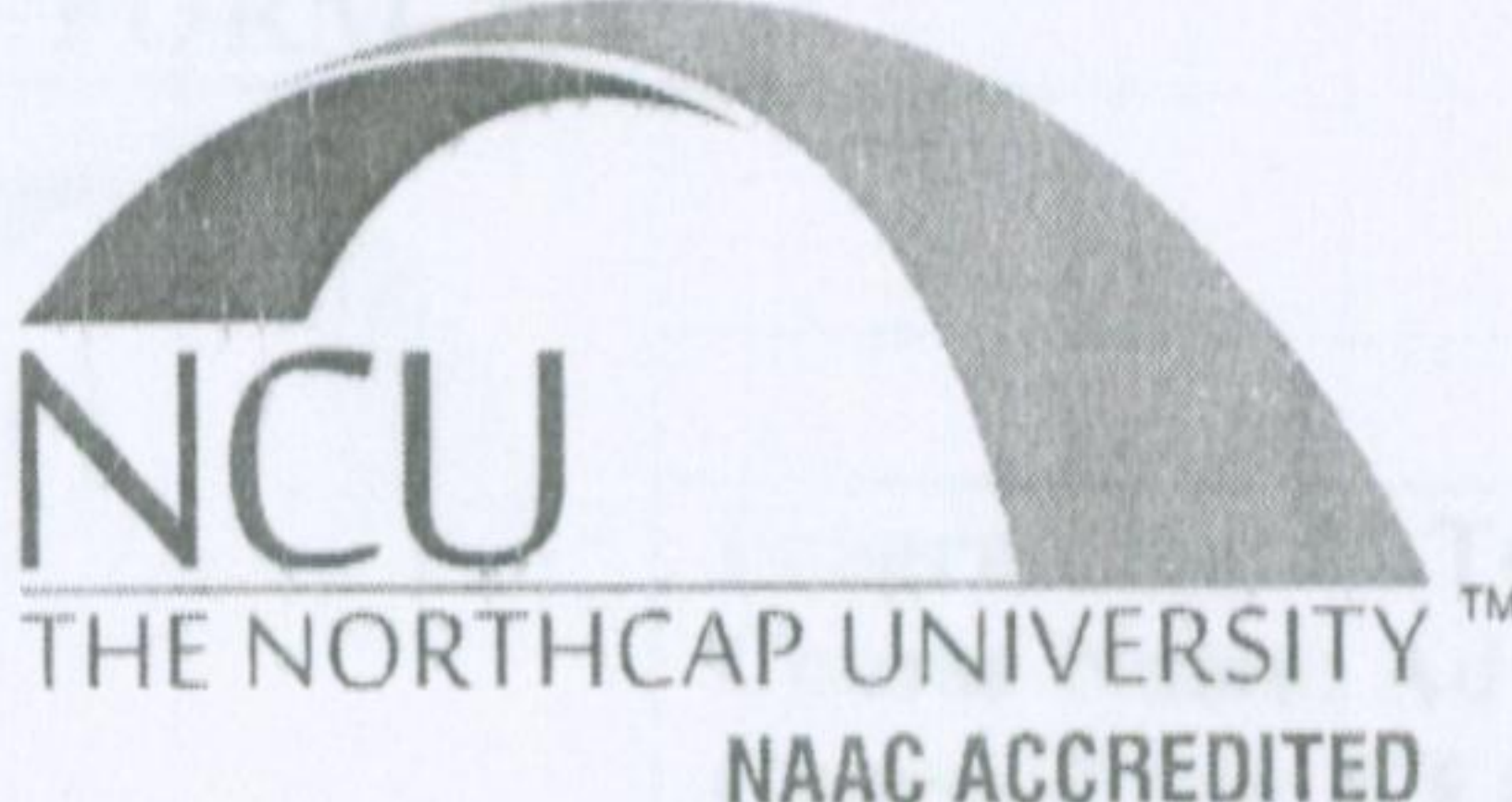
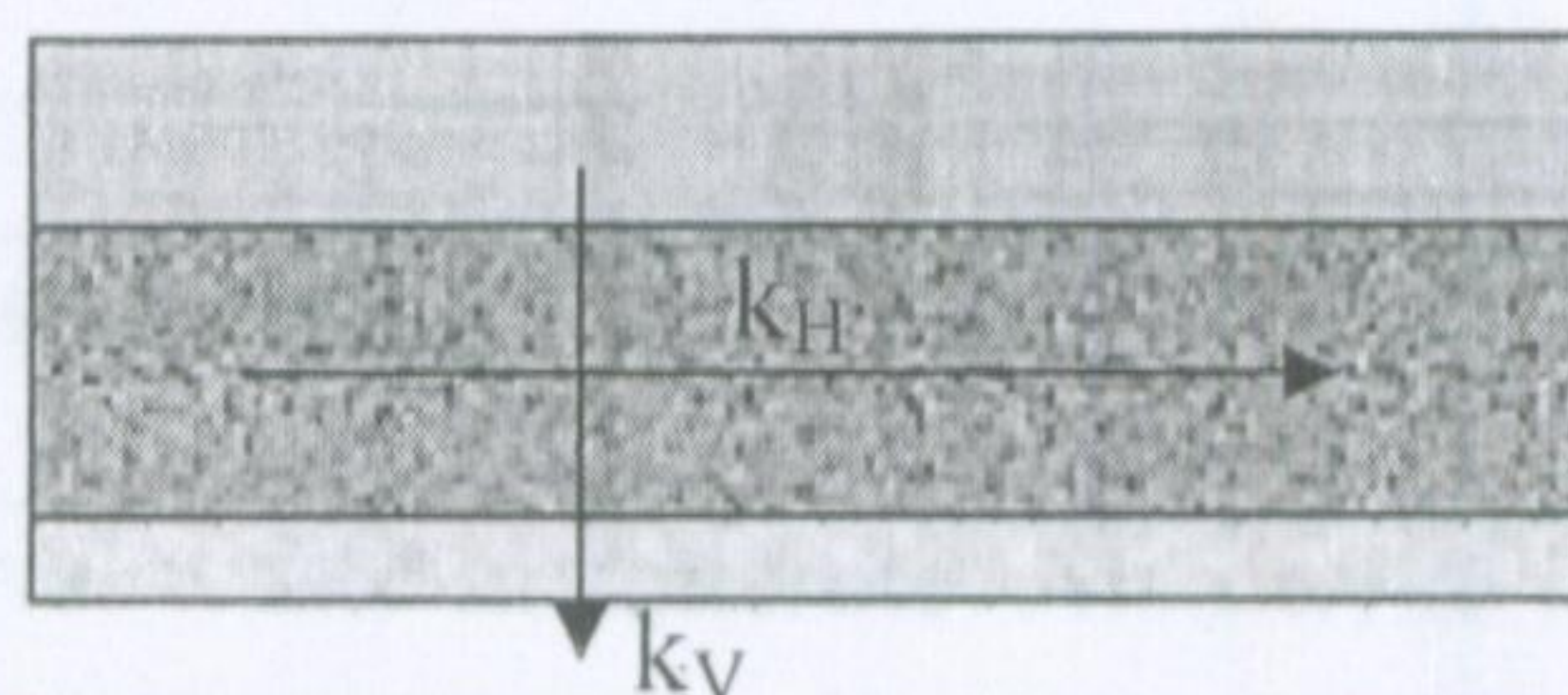
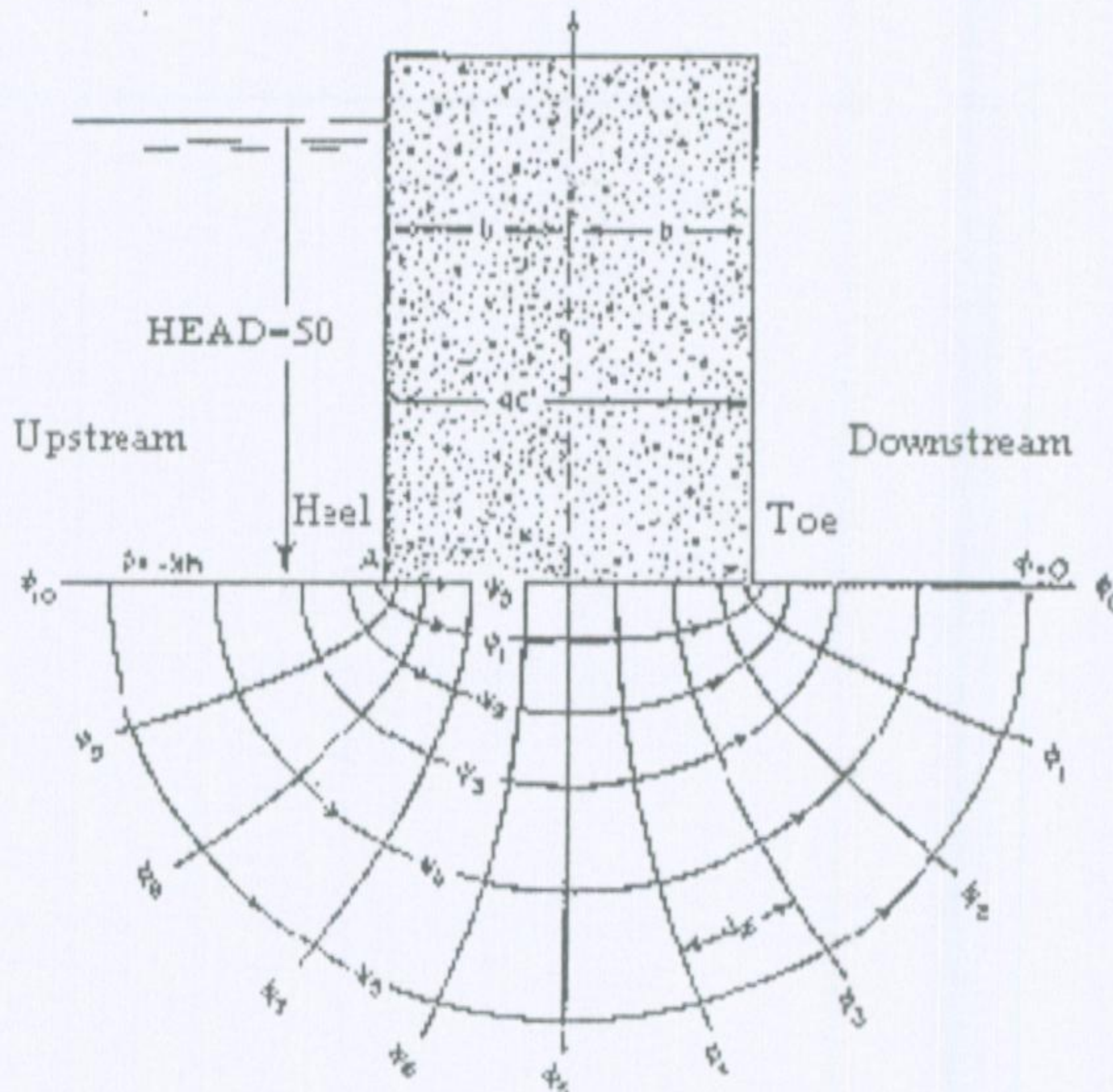
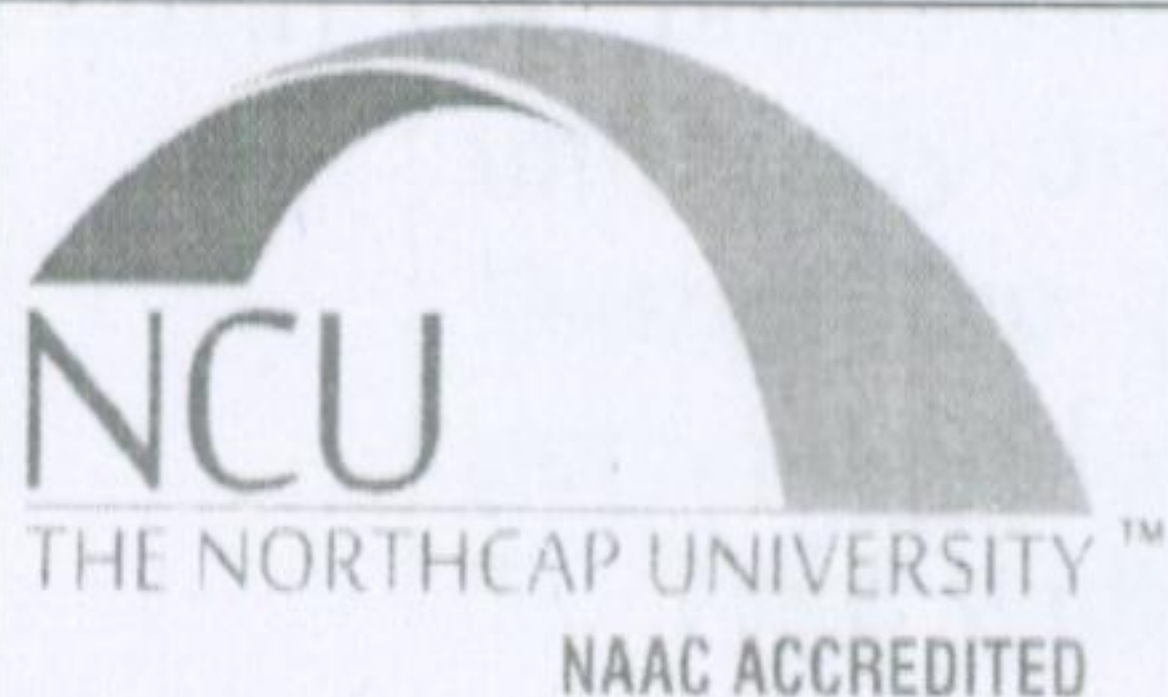


 THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester:
	Programme: B.Tech Civil Engineering		Session: (Jan-Jun)
	Course Name: Soil Mechanics		Maximum Marks: 40
	Course Code: CEL301		Duration :1hr
			Sheet 1 of 1

Note: 1. All questions are compulsory. *
2. Marks are indicated against the questions.

15 OCT 2016

Q1a) Estimate the ratio k_H/k_V for the following layered soil. Thickness of each layer from top to bottom is 1.5m, 3m and 0.5 m, respectively and the respective coefficient of permeability values are 0.35 mm/sec, 0.90 mm/sec and 0.05 mm/sec. Also, estimate the discharge in each layer, when the flow is parallel to layering under a hydraulic gradient of 0.75. Similarly, estimate the potential head loss in each layer when the flow is perpendicular to the layering and discharge is 0.0005 m³/sec. [10]		CO-2
Q1.b) For a sedimentary soil deposit, which solution is more appropriate – Boussinesq's or Westergaard's? State the assumptions involved in both the theories. [5]		
Q2.a)  As shown in the above figure, CC water retaining structure of bottom width 20 m and height 55m is used to retain water. With the given Head (H) = 50 m, estimate the quantity of seepage discharge through the foundation of the water retaining structure. Also, estimate factor of safety with respect to uplift force. $K = 20 \times 10^{-5}$ m/sec. [10]		CO-2
Q2.b) Derive the expression used for the estimation the coefficient of permeability of soil using failing head method in the laboratory. [5]		

	Minor 2		Review Date: 01/03/2014
	School of Engineering		Semester: VII
	Programme: B.Tech. Civil Engineering		Session: (Jul-Dec)
	Course Name: Advanced Design of Concrete Structures		Maximum Marks: 30
	Course Code: CEL 401		Duration :1hr
			Sheet 1 of 2

Note: 1. Answer **all** questions

- Marks are indicated against the questions.
- Assume suitably in case of missing data
- Write the question number on your answer sheet according to question paper
- Use of **IS: 456-2000** is permitted.

15 OCT 2016

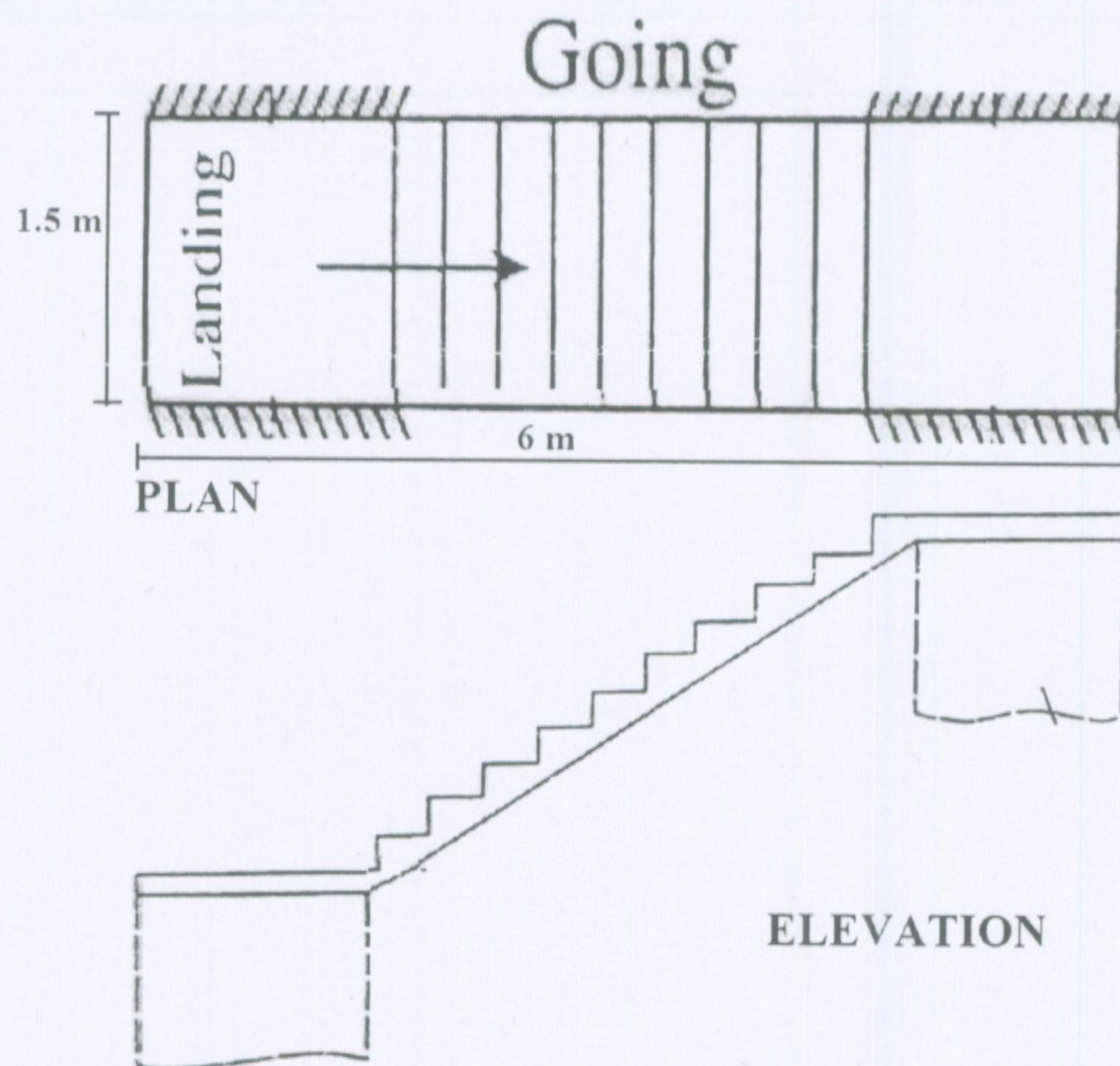
COs

- Ability to analyze and design continuous beams and slabs.
- Ability to analyze and design foundations for structures.
- Ability to analyze and design prestressed concrete members.
- Ability to analyze and design staircases.
- Familiarity with structural design procedures and analysis methods for water tanks.
- Ability to analyze and design retaining structures.

Q1

A single flight staircase is to be designed for a residential duplex bungalow (non-crowded) as shown in figure in an open space measuring 6 m x 1.5 m (clear distance). The vertical distance between floors is 1.95 m and the width of the supports for landing in the direction of span of the stairs is 1.2 m each. Assuming rise of each step to be 0.15 m and total thickness of the waist slab equal to $1/24^{\text{th}}$ of the effective span. Calculate the number of risers and treads to be constructed. Also find out the amount of steel required to be provided as main reinforcement. Use 12 mm diameter bar with a clear cover of 20 mm, M20 grade of concrete and Fe415 grade of steel. Draw a clear sketch giving detailing of the reinforcement as well. (Assume Floor finish = 1.0 kN/m^2)

(15 Marks)



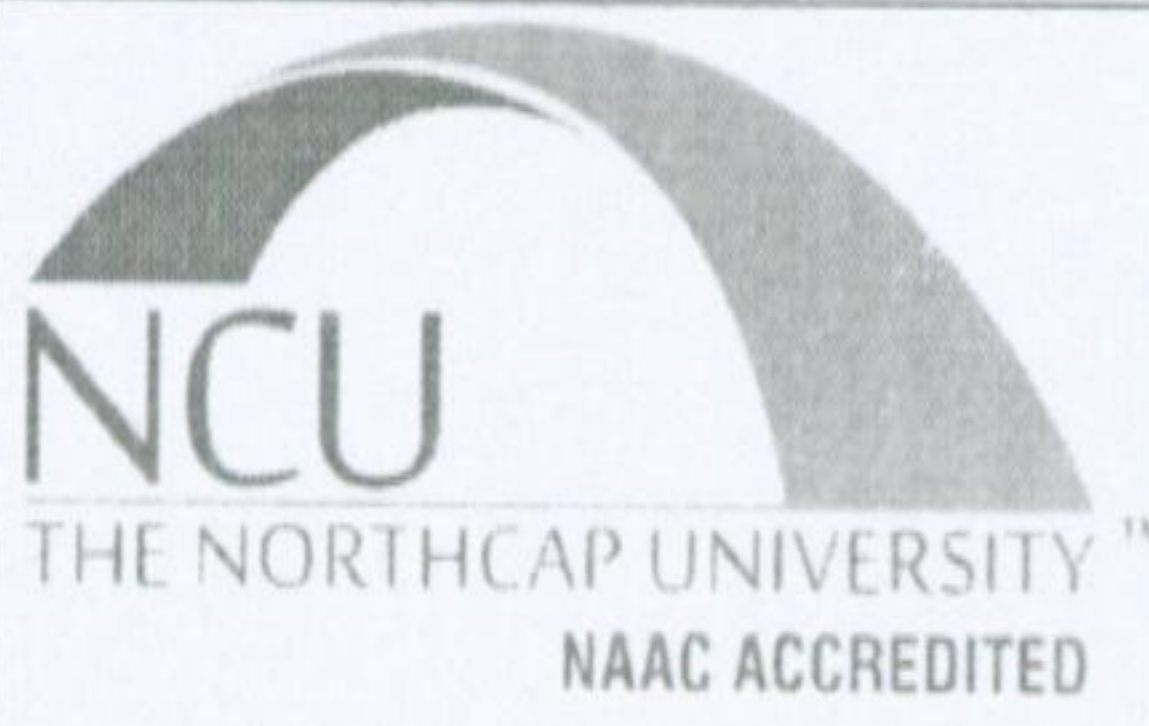
CO4

Issued by:

Approved by:

Date:

Date:

 NCU THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor 2		Review Date: 01/03/2014
	School of Engineering and Technology		Semester: I
	Programme: M.Tech. Civil Engineering (FT & PT)		Session: (Jul-Dec)
	Course Name: Advanced Foundation Engineering		Maximum Marks: 30
	Course Code: CEL 503		Duration :1hr
			Sheet 1 of 2

Note: 1. Answer **all** questions

2. Marks are indicated against the questions

3. Assume suitably in case of missing data

4. Write the question number on your answer sheet according to question paper

15 OCT 2016

Q1(a)	Give a brief note on what happens to the bearing capacity of two closely spaced footing if their failure zones interfere with each other. Discuss all four possible cases for continuous footings resting on granular bed.	8 Marks															
Q1(b)	A continuous foundation of width 3 m is supported on a sandy deposit and is kept at an embedment depth of 1.5 m from the ground surface. The load on the foundation acts at an eccentricity of 0.3 m from the centroid of the geometry. Find the ultimate bearing load on the eccentrically loaded foundation using Reduction Factor Method if properties of the deposit are: $\gamma = 18.0 \text{ kN/m}^3$, $\phi = 30^\circ$. Use Meyerhof's bearing capacity and depth factors. For $\phi \geq 10^\circ$, $F_{cd} = 1 + 0.2 \left(\frac{D_f}{B} \right) \tan \left(45 + \frac{\phi}{2} \right)$ $F_{qd} = F_{\gamma d} = 1 + 0.1 \left(\frac{D_f}{B} \right) \tan \left(45 + \frac{\phi}{2} \right)$ <table border="1"> <thead> <tr> <th>D_f/B</th><th>a</th><th>k</th></tr> </thead> <tbody> <tr> <td>0</td><td>1.862</td><td>0.73</td></tr> <tr> <td>0.25</td><td>1.811</td><td>0.785</td></tr> <tr> <td>0.5</td><td>1.754</td><td>0.8</td></tr> <tr> <td>1.0</td><td>1.82</td><td>0.888</td></tr> </tbody> </table>	D_f/B	a	k	0	1.862	0.73	0.25	1.811	0.785	0.5	1.754	0.8	1.0	1.82	0.888	7 Marks
D_f/B	a	k															
0	1.862	0.73															
0.25	1.811	0.785															
0.5	1.754	0.8															
1.0	1.82	0.888															
Q2(a)	A mat foundation in a saturated clayey soil has dimensions of 20m X 20m and is subjected to a total load of 48 MN. If the clayey stratum has an undrained cohesion of 30 kPa and a saturated unit weight of 18.5 kN/m^3 , what would be the depth of excavation so that the mat is to behave as a floating foundation? What would be the depth of compensated foundation required if the factor of safety 2 is to be maintained against a bearing capacity failure.	7 Marks															
Q2(b)	An isolated footing is designed for rectangular column of dimension 400 X 350 mm carrying an ultimate axial load of 800 kN. The footing dimensions obtained using a bearing capacity of 110 kN/m^2 are 2.40 X 2.02 X 0.35 m. Using an effective cover of 50 mm, verify whether the column is safe in punching shear failure. (Use M20 and Fe415 grade of concrete and steel respectively)	8 Marks															

Issued by:	Approved by:
Date:	Date:

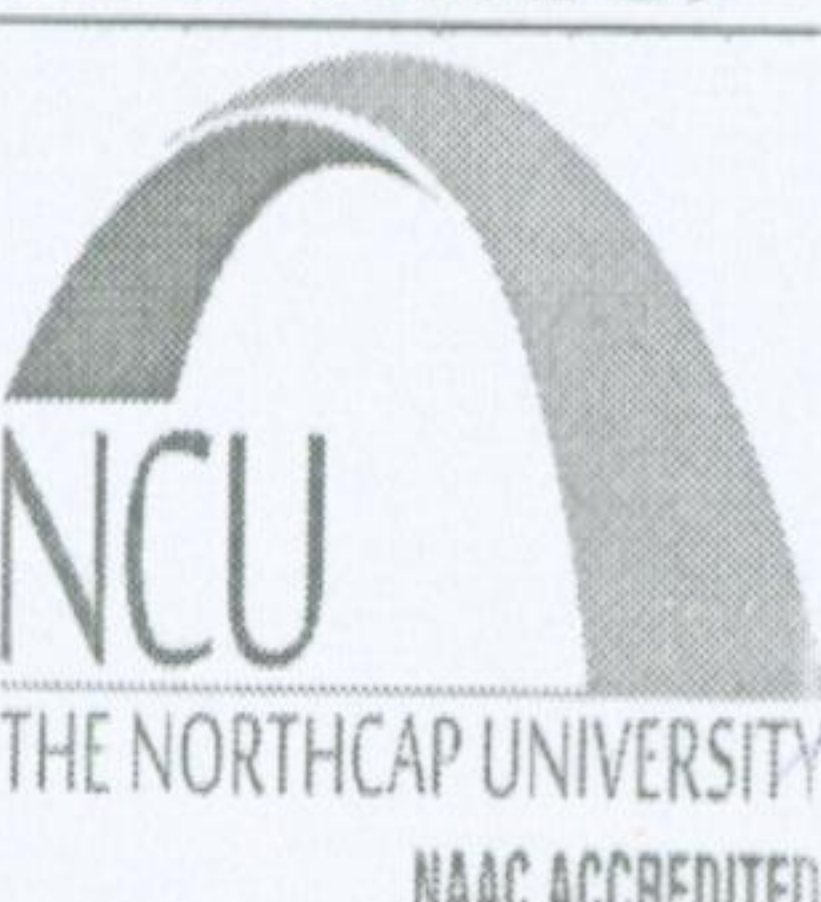
ϕ	N_c	N_q	N_γ	ϕ	N_c	N_q	N_γ	ϕ	N_c	N_q	N_γ
0	5.14	1.00	0.00	17	12.34	4.77	1.66	34	42.16	29.44	31.15
1	5.38	1.09	0.002	18	13.10	5.26	2.00	35	46.12	33.30	37.15
2	5.63	1.20	0.01	19	13.93	5.80	2.40	36	50.59	37.75	44.43
3	5.90	1.31	0.02	20	14.83	6.40	2.87	37	55.63	42.92	53.27
4	6.19	1.43	0.04	21	15.82	7.07	3.42	38	61.35	48.93	64.07
5	6.49	1.57	0.07	22	16.88	7.82	4.07	39	67.87	55.96	77.33
6	6.81	1.72	0.11	23	18.05	8.66	4.82	40	75.31	64.20	93.69
7	7.16	1.88	0.15	24	19.32	9.60	5.72	41	83.86	73.90	113.99
8	7.53	2.06	0.21	25	20.72	10.66	6.77	42	93.71	85.38	139.32
9	7.92	2.25	0.28	26	22.25	11.85	8.00	43	105.11	99.02	171.14
10	8.35	2.47	0.37	27	23.94	13.20	9.46	44	118.37	115.31	211.41
11	8.80	2.71	0.47	28	25.80	14.72	11.19	45	133.88	134.88	262.74
12	9.28	2.97	0.60	29	27.86	16.44	13.24	46	152.10	158.51	328.73
13	9.81	3.26	0.74	30	30.14	18.40	15.67	47	173.64	187.21	414.32
14	10.37	3.59	0.92	31	32.67	20.63	18.56	48	199.26	222.31	526.44
15	10.98	3.94	1.13	32	35.49	23.18	22.02	49	229.93	265.51	674.91
16	11.63	4.34	1.38	33	38.64	26.09	26.17	50	266.89	319.07	873.84

Meyerhof's Bearing Capacity Factors for Shallow Surface Footings

Issued by:	Approved by:
Date:	Date:

 NCU THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor-II	Review Date: 01/03/2014
	School of Engineering	Semester:
	Programme: M.Tech Civil Engineering	Session: (Jan-Jun)
	Course Name: Civil Engineering materials & construction	Maximum Marks: 30 Duration :1hr
	Course Code: CEL 603	Sheet 1 of 1
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions.		
Q1. Discuss the following: High performance concrete, self-compacting concrete [10]		
Q2. Discuss the relative advantages and disadvantages of materials used in Civil Engineering construction, i.e. TIMBER, STEEL, CONCRETE, [10]		
Q.3 Mention special Design considerations for a) High Rise building, b) Nuclear power plant, c) Bridges d) underground water tanks [10]		

15 OCT 2016

	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: V
	Programme: B.Tech Civil Engineering		Session: (July-Dec)-
	Course Name: Water Resources Engineering		Odd semester 2016-17
	Course Code: CEL303		Maximum Marks: 30 Duration :1hr
			Sheet 1 of 1

- Note: 1. All questions are compulsory.
2. Marks are indicated against the questions.
3. Assume any data suitably if required

15 OCT 2016

COs

1. Students will be able to evaluate the average rainfall over a catchment area
2. Students will be able to use hydrograph analysis for estimating run off.
3. Students will be able to use statistical methods to evaluate flood.
4. Students will be able to estimate the ground water potential
5. Students will be able to evaluate the crop water requirement and design the canal and reservoir accordingly.
6. Students will be able to apply different methods for water management

Q1a) Write the Khosla's formula for the estimation of runoff from a catchment and define the terms. (3 marks)

CO 2

Q1.b) Explain how you would estimate the flood discharge from known physical indication of previous flood level marks.. (4 marks)

CO 3

Q1.c) The ordinates of a 2hour unit hydrograph are given below. Catchment area is 625 sq.km.

Time hours	0	2	4	6	8	10	12	14	16	18	20
2 hour unit hydrograph ordinate cumecs	0	25	100	160	190	170	110	70	30	20	0

CO 2

- Derive the 4 hour unit hydrograph (7 marks)
- Check the depth of runoff for the 4 hour unit hydrograph (1mark)

Q2 a) Distinguish between i) flow and lift irrigation and ii) direct and indirect irrigation (4 marks)

CO 5

Q2.b) Define Duty and Delta. Derive the relationship between Duty and Delta. (4 marks)

CO 5

Q2 c).The following table give the details of crops.

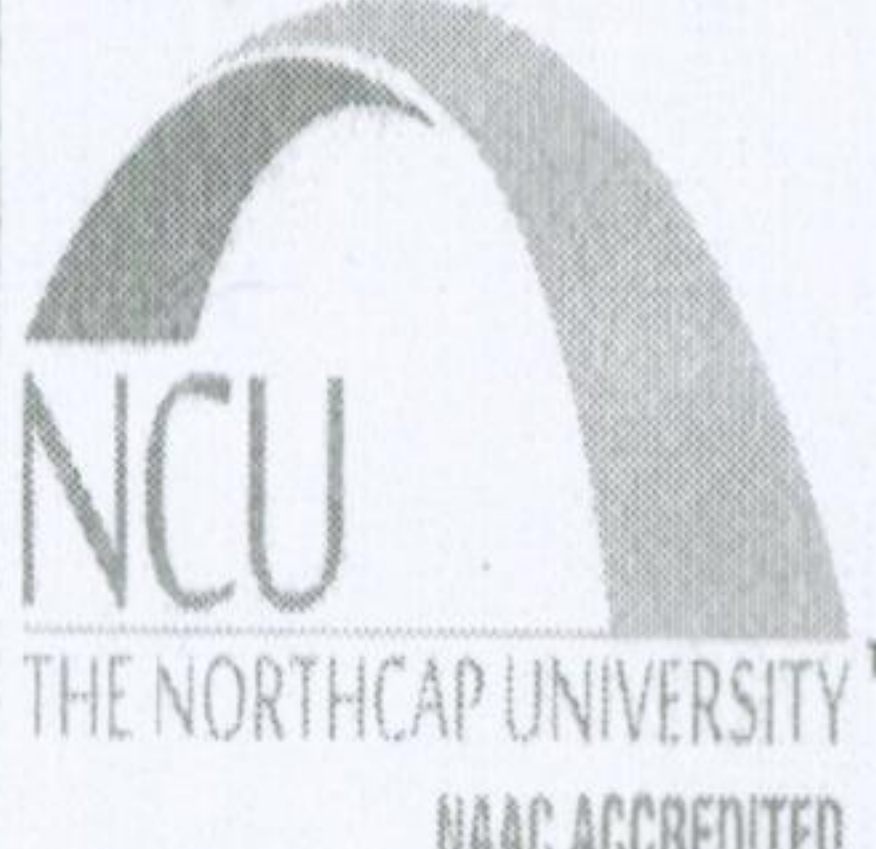
Crop	Base period- days	Duty at field- hectares per cumec	Area under crop- hectares
Sugarcane	360	800	500
Rabi	120	900	1200
Kharif	120	750	1500
Summer	90	650	1600

CO 5

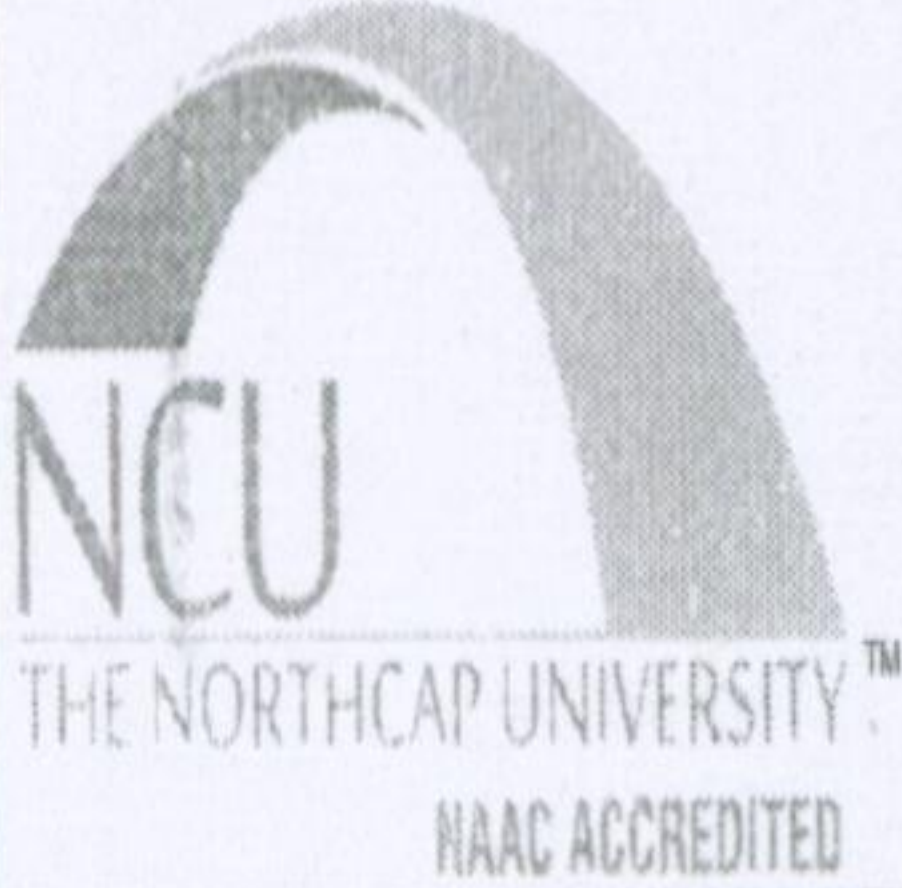
Take canal losses as 15 % and reservoir losses as 10 %

- Determine the discharge in the canal at field and head. (3+1= 4 marks)
- Determine the capacity of the reservoir. (3marks)

Issued by:	Approved by:
Date:	Date:

	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: III
	Programme: B.Tech Civil Engineering Course Name: Surveying Course Code: CEL 205		Session: (July-Dec)
			Maximum Marks: 40 marks Duration : 1hr
		17 OCT 2016	Sheet 1 of 1
Note: 1. All questions are compulsory. 2. Marks are indicated against the questions. 3. Assume suitably in case of missing data. 4. Use of Calculator is permitted.			
COs: CO1. Students will be able to carry out preliminary surveying in the field by various methods involved in chain and compass surveying. CO2. Students will have a good understanding of the methods involved in levelling and the principles involved. CO3. Students will learn about the basics of theodolite surveying and plane table surveying. CO4. Students will learn about the basics of tacheometry survey and understand the principle involved in its working. CO5. Students will be able to solve the problems based on the techniques of trigonometrical levelling and apply the same in the field.			
Q1.a) Explain the working operations of Plane Table Surveying in terms of Levelling, Centering and Orientation. (9 Marks)			CO3
Q1.b) Define briefly the four methods of balancing the closing error of traverse. (8 Marks)			CO1
Q2.a) The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings: 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 meters. Enter the above readings in a page of a level book and calculate the RL of points using any method, if the first reading was taken with a staff held on a bench mark of 432.384 m. (15 Marks)			CO2
Q2.b) Derive the expression of combined correction due to curvature and refraction in levelling. A light house is visible just above the horizon at a certain station at the sea level. The distance between the station and the light house is 50 km. Find the height of the light house. (8 Marks)			CO2

Issued by:	Approved by:
Date:	Date:

	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: VII Session: (July-Dec)
	Programme: B.Tech Civil Engineering Course Name: Design and Maintenance of Pavements Course Code: CEL 404		Maximum Marks: 30 Marks Duration: 1hr
			Sheet 1 of 1

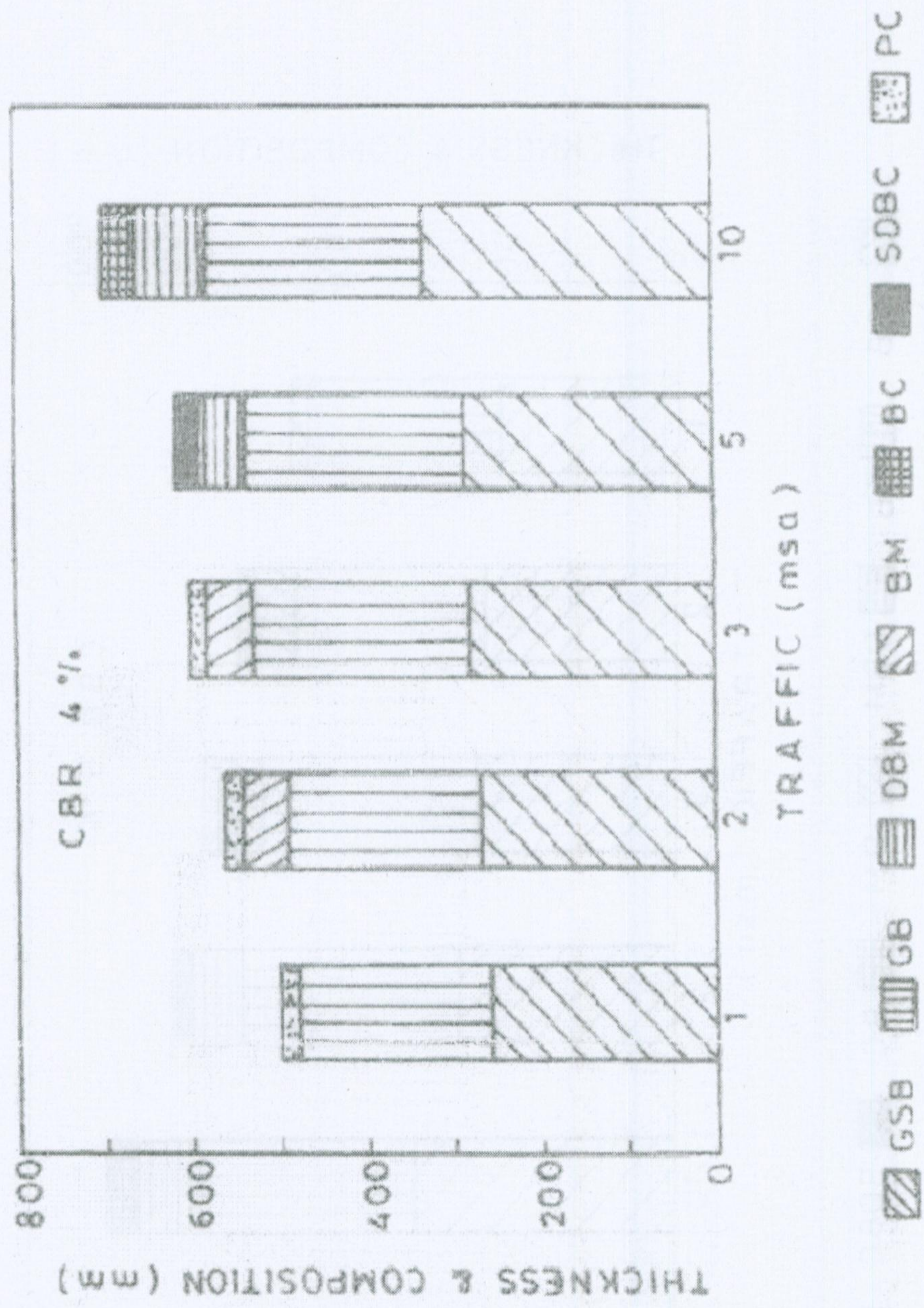
Note: 1. All questions are compulsory.
2. Marks are indicated against the questions.
3. Attempt the questions sequentially.

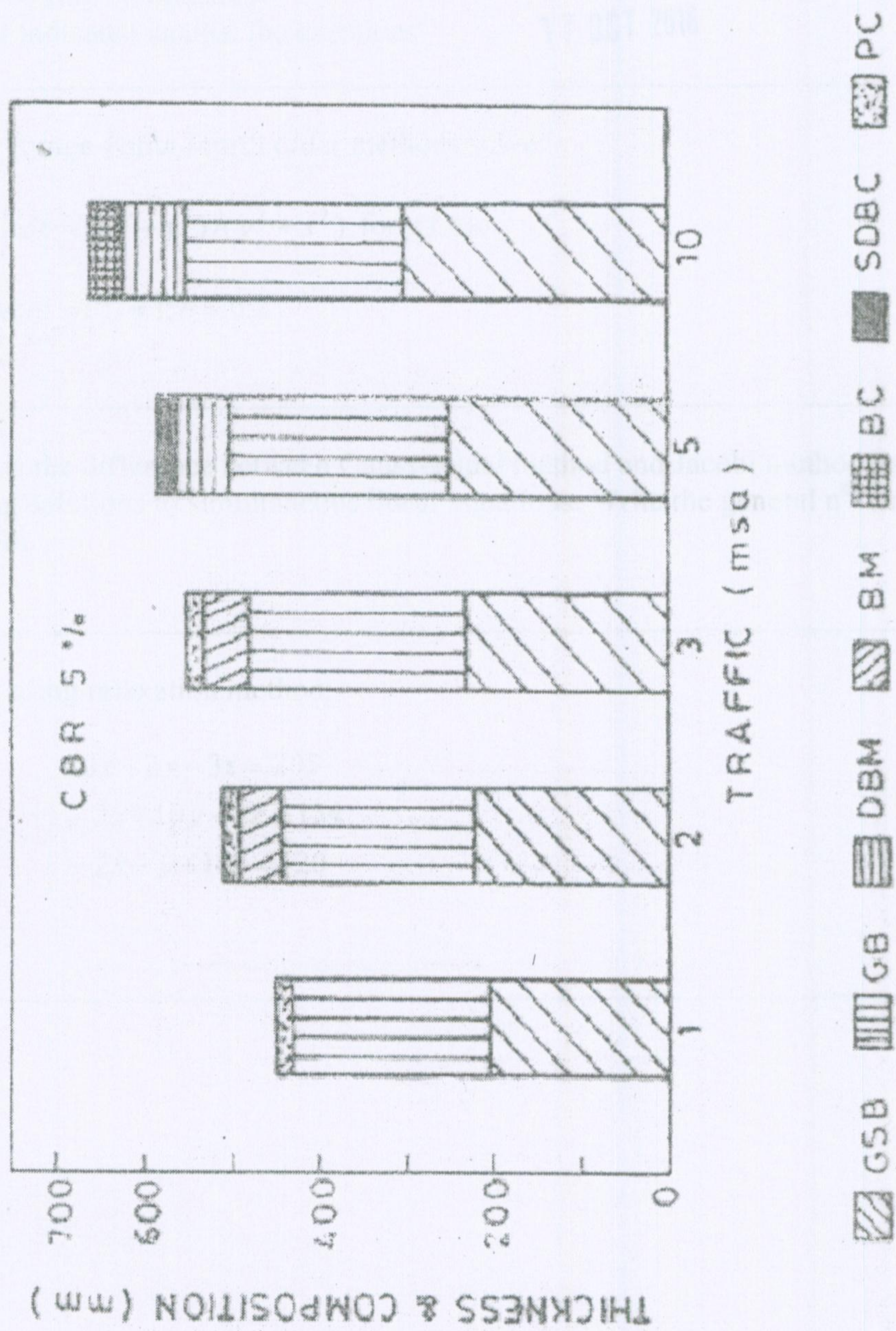
17 OCT 2016

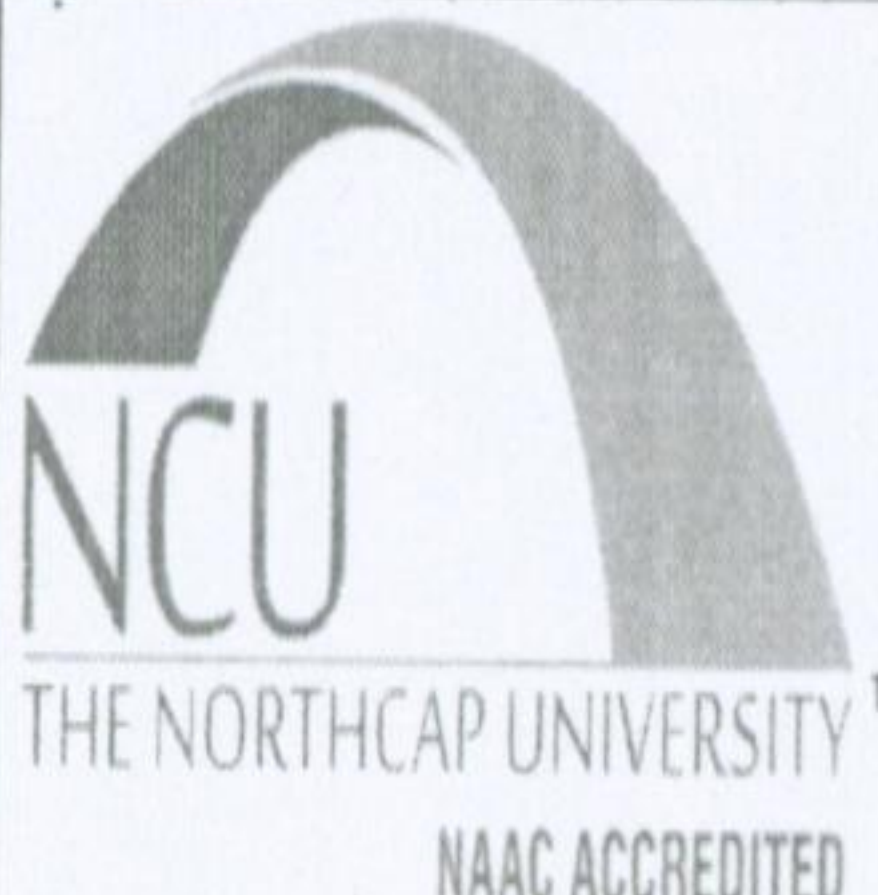
COs
CO1. Students will be able to analyze different types of pavements and various types of materials used in different layers.
CO2. Students will be able to design flexible pavement.
CO3. Students will be able to design rigid pavement.
CO4. Students will be able to design overlay.
CO5. Students will be able to learn techniques of maintenance of pavements.

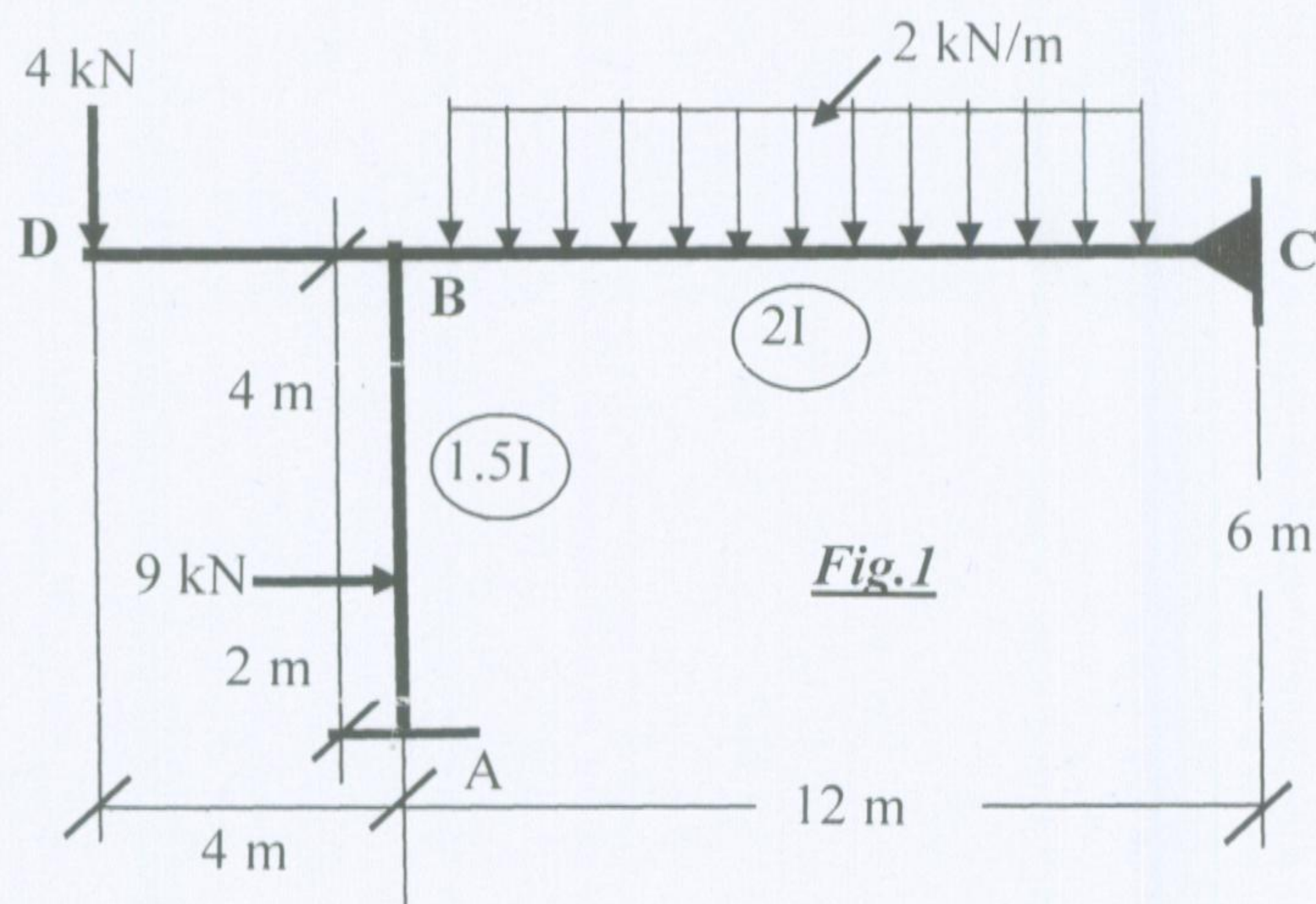
Q1.a) Write a brief note on all the revisions in the guidelines of Flexible Pavement designing brought out by Indian Road Congress. (5 Marks)	CO2																								
Q1.b) Explain both the failure criteria of Flexible Pavement with the help of a sketch showing critical locations in pavement. (5 Marks)	CO2																								
Q2.a) What is the significance of Vehicle Damage Factor and Lane Distribution Factor?(5 Marks)	CO2																								
Q2.b) Design the pavement for construction of a new bypass with the following data, graphs and plates as per IRC 37. DATA (a) Two – lane single carriageway with LDF = 0.7 (b) Initial traffic prior to the starting of construction = 400 CV/day (sum of both directions) (c) Design Life = 15 years (d) Duration of construction = 2 years (e) Traffic growth rate = 7.5% (f) Vehicle Damage Factor (based on axle load survey) = 2.5 (g) Load penetration values of CBR tests conducted a soil specimen are given below. 100 divisions of the load dial represents 190 Kg load in calibration chart of proven ring. [Assume no correction of concavity] (15 Marks) <table border="1" style="margin: 10px auto; width: 60%;"> <thead> <tr> <th>Penetration of plunger, mm</th> <th>Load dial readings, divisions</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0</td></tr> <tr><td>0.5</td><td>8</td></tr> <tr><td>1.0</td><td>15</td></tr> <tr><td>1.5</td><td>23</td></tr> <tr><td>2.0</td><td>29</td></tr> <tr><td>2.5</td><td>34</td></tr> <tr><td>3.0</td><td>37</td></tr> <tr><td>4.0</td><td>43</td></tr> <tr><td>5.0</td><td>48</td></tr> <tr><td>7.5</td><td>57</td></tr> <tr><td>10.0</td><td>63</td></tr> </tbody> </table>	Penetration of plunger, mm	Load dial readings, divisions	0.0	0	0.5	8	1.0	15	1.5	23	2.0	29	2.5	34	3.0	37	4.0	43	5.0	48	7.5	57	10.0	63	CO2
Penetration of plunger, mm	Load dial readings, divisions																								
0.0	0																								
0.5	8																								
1.0	15																								
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2.5	34																								
3.0	37																								
4.0	43																								
5.0	48																								
7.5	57																								
10.0	63																								

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Date:	Date:

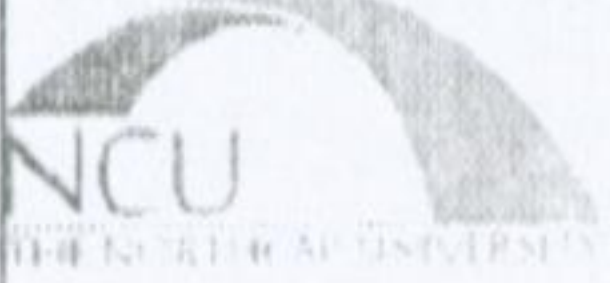




	Minor-II		Review Date: 23/08/2016
	School of Engineering and Technology		Semester:
	Programme: B.Tech Civil Engineering		Session: (July-Nov.2016)
	Course Name: Structural Analysis - II		Maximum Marks: 40
	Course Code: CEL309		Duration :1hr
		17 OCT 2016	Sheet 1 of 1
Cos 1. This course is advanced structural analysis from SA-I 2. Student learn Indeterminate Structural Analysis whereas earlier students learnt determinate structural analysis 3. This course is used in practice as structural engineering profession			
Q1a) Explain and derive expressions with proper diagrams for (i) stiffness factor, (ii) carry over factor and (iii) distribution factor			CO2 (10)
Q1.b) A portal frame is shown as loaded in Fig.1. Draw B.M and S.F diagrams.			CO2 (10)
Q2.a) Derive slope- deflection equations with settlement of support.			CO3 (10)
Q2.b) Two span continuous beam ABCD is subjected to u.d.l (uniformly distributed load) 3 kN/m throughout in the span AB, a concentrated load of 20 kN acting at the middle of BC and two concentrated loads of 15 kN each acting 2m distance from support C and D. The length of span AB = 10m and MOI is 2I, BC = 12m and MOI is 3I and CD = 8 m and MOI is 4I. The support A is fixed and B and C is simply supported. Using slope- deflection equation find support moments. Draw S.F. and B.M diagrams.			CO3 (10)



Issued by:	Approved by:
Date:	Date:

	Question paper for Minor2	Review Date:
	School of Engineering	Semester: Odd(V)
	Programme: B-Tech(Reappear)	Session: (July-Dec)
	Course Name: Software Engineering	Maximum Marks:20
	Course Code :CSL314	Duration :1 hrs
17 OCT 2016		Sheet 1 of 1
Note: 1. All questions are compulsory. 2. Marks are indicated against the questions.		

Q-1 Consider a database system needed for an office automation project. The requirements documents shows 4 modules needed. These modules along with their size are: data entry: 0.6 KDSI, data update: 0.6 KDSI, query: 0.8 KDSI and report generation: 1.0 KDSI. Calculate the person months and programmers required for the project. The project is judged to be organic and values are ($a = 3.2$, $b = 1.05$, $c = 2.5$, $d = 0.38$).

(4)

(2x3=6)

Q-2 Differentiate between

1. Functional Testing vs Structural Testing
2. Stubs vs Drivers
3. Quality Assurance and Quality Control

Q-3 Consider the program for calculating the factorial of a number. It consists of main () program and module fact (). Show all the boundary value and equivalent class test cases for the same

(5)

Q-5 Consider the program given below

```
void main()
```

```
{
inti,j,k;
readln (i,j,k);
if( (i<j) || ( i> k) )
{
writeln("then part");
if (j < k)
writeln ("j less then k");
else writeln ( " j not less then k");
}
else writeln( "else Part"); }
```

(2)

(i) Draw the flow graph.

(2)

(ii) Determine the cyclomatic complexity.

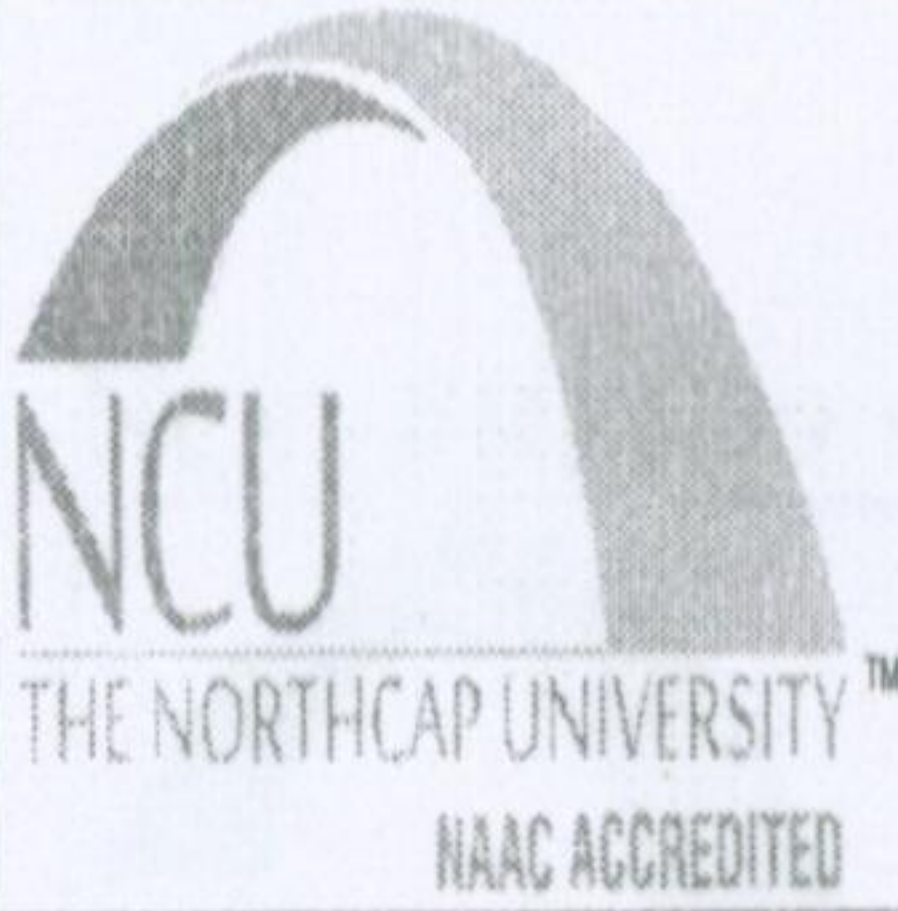
(iii) Arrive at all the independent paths.

(1)

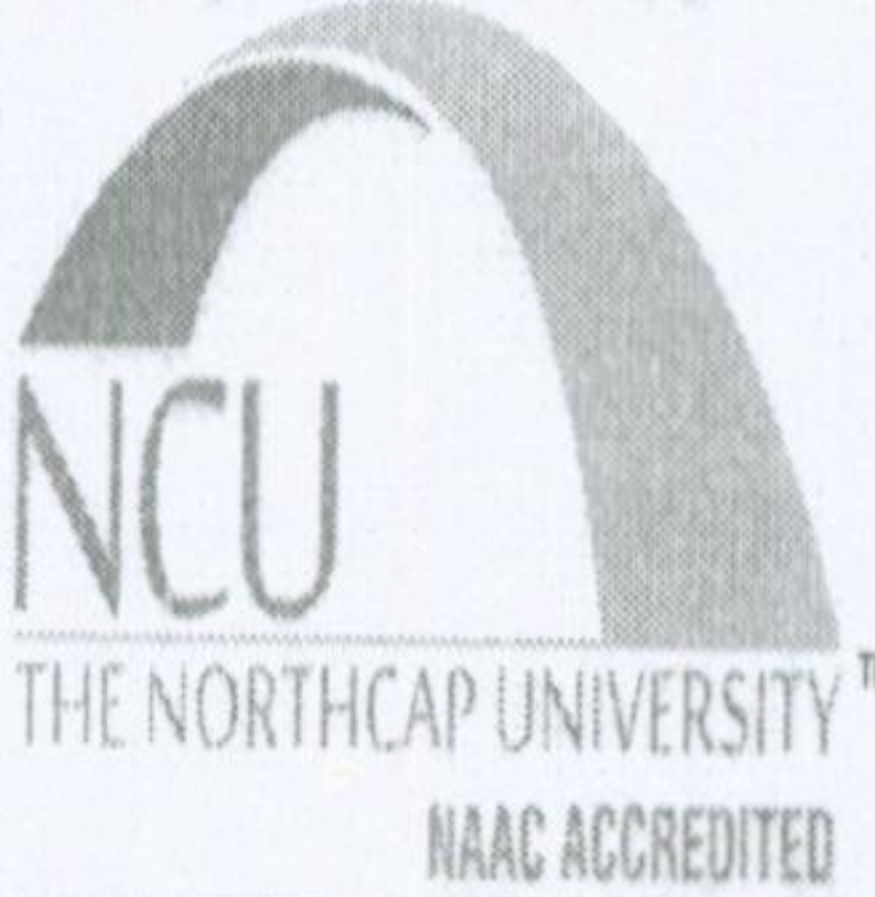
Issued by:	Approved by:
Date:	Date:

To be distributed with ECL303 - DCS
Question paper
17 OCT 2016

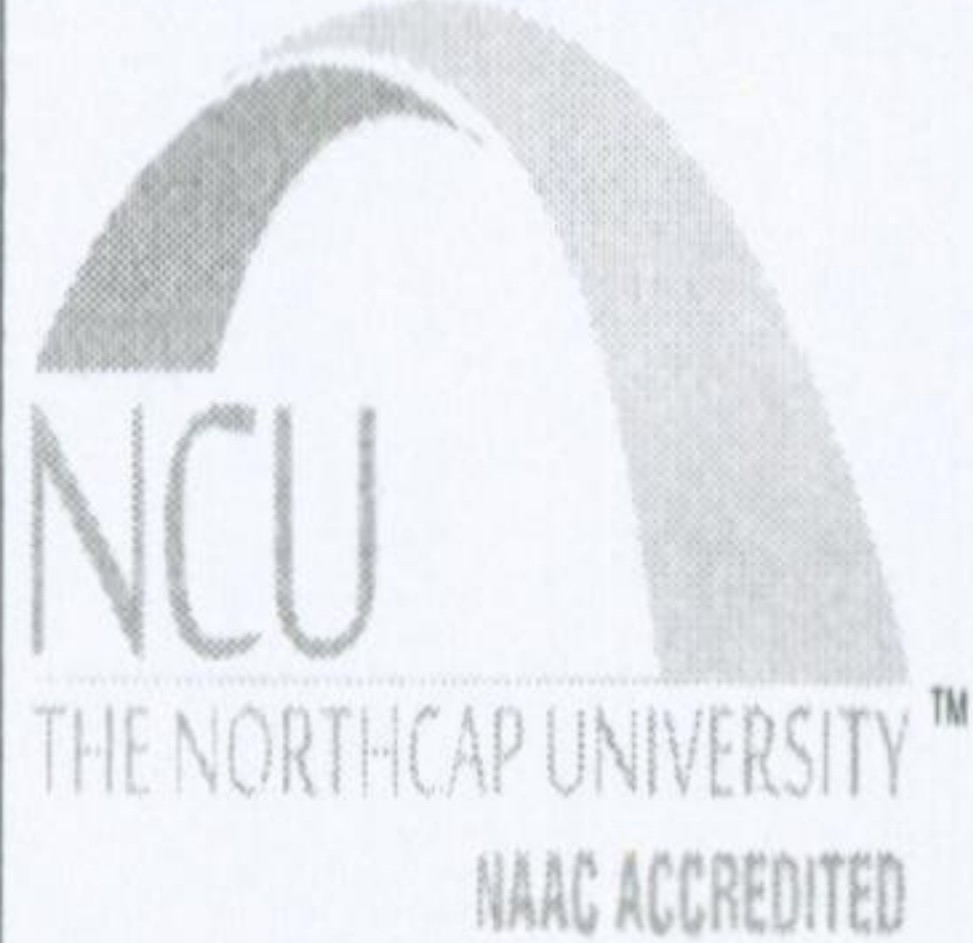
Complementary Error Function Table													
x	erfc(x)	x	erfc(x)	x	erfc(x)	x	erfc(x)	x	erfc(x)	x	erfc(x)	x	erfc(x)
0	1.000000	0.5	0.479500	1	0.157299	1.5	0.033895	2	0.004678	2.5	0.000407	3	0.00002209
0.01	0.988717	0.51	0.470756	1.01	0.153190	1.51	0.032723	2.01	0.004475	2.51	0.000386	3.01	0.00002074
0.02	0.977435	0.52	0.462101	1.02	0.149162	1.52	0.031587	2.02	0.004281	2.52	0.000365	3.02	0.00001947
0.03	0.966159	0.53	0.453536	1.03	0.145216	1.53	0.030484	2.03	0.004094	2.53	0.000346	3.03	0.00001827
0.04	0.954889	0.54	0.445061	1.04	0.141350	1.54	0.029414	2.04	0.003914	2.54	0.000328	3.04	0.00001714
0.05	0.943628	0.55	0.436677	1.05	0.137564	1.55	0.028377	2.05	0.003742	2.55	0.000311	3.05	0.00001608
0.06	0.932378	0.56	0.428384	1.06	0.133856	1.56	0.027372	2.06	0.003577	2.56	0.000294	3.06	0.00001508
0.07	0.921142	0.57	0.420184	1.07	0.130227	1.57	0.026397	2.07	0.003418	2.57	0.000278	3.07	0.00001414
0.08	0.909922	0.58	0.412077	1.08	0.126674	1.58	0.025453	2.08	0.003266	2.58	0.000264	3.08	0.00001326
0.09	0.898719	0.59	0.404064	1.09	0.123197	1.59	0.024538	2.09	0.003120	2.59	0.000249	3.09	0.00001243
0.1	0.887537	0.6	0.396144	1.1	0.119795	1.6	0.023652	2.1	0.002979	2.6	0.000236	3.1	0.00001165
0.11	0.876377	0.61	0.388319	1.11	0.116467	1.61	0.022793	2.11	0.002845	2.61	0.000223	3.11	0.00001092
0.12	0.865242	0.62	0.380589	1.12	0.113212	1.62	0.021962	2.12	0.002716	2.62	0.000211	3.12	0.00001023
0.13	0.854133	0.63	0.372954	1.13	0.110029	1.63	0.021157	2.13	0.002593	2.63	0.000200	3.13	0.00000958
0.14	0.843053	0.64	0.365414	1.14	0.106918	1.64	0.020378	2.14	0.002475	2.64	0.000189	3.14	0.00000897
0.15	0.832004	0.65	0.357971	1.15	0.103876	1.65	0.019624	2.15	0.002361	2.65	0.000178	3.15	0.00000840
0.16	0.820988	0.66	0.350623	1.16	0.100904	1.66	0.018895	2.16	0.002253	2.66	0.000169	3.16	0.00000786
0.17	0.810008	0.67	0.343372	1.17	0.098000	1.67	0.018190	2.17	0.002149	2.67	0.000159	3.17	0.00000736
0.18	0.799064	0.68	0.336218	1.18	0.095163	1.68	0.017507	2.18	0.002049	2.68	0.000151	3.18	0.00000689
0.19	0.788160	0.69	0.329160	1.19	0.092392	1.69	0.016847	2.19	0.001954	2.69	0.000142	3.19	0.00000644
0.2	0.777297	0.7	0.322199	1.2	0.089686	1.7	0.016210	2.2	0.001863	2.7	0.000134	3.2	0.00000603
0.21	0.766478	0.71	0.315335	1.21	0.087045	1.71	0.015593	2.21	0.001776	2.71	0.000127	3.21	0.00000564
0.22	0.755704	0.72	0.308567	1.22	0.084466	1.72	0.014997	2.22	0.001692	2.72	0.000120	3.22	0.00000527
0.23	0.744977	0.73	0.301896	1.23	0.081950	1.73	0.014422	2.23	0.001612	2.73	0.000113	3.23	0.00000493
0.24	0.734300	0.74	0.295322	1.24	0.079495	1.74	0.013865	2.24	0.001536	2.74	0.000107	3.24	0.00000460
0.25	0.723674	0.75	0.288845	1.25	0.077100	1.75	0.013328	2.25	0.001463	2.75	0.000101	3.25	0.00000430
0.26	0.713100	0.76	0.282463	1.26	0.074764	1.76	0.012810	2.26	0.001393	2.76	0.000095	3.26	0.00000402
0.27	0.702582	0.77	0.276179	1.27	0.072486	1.77	0.012309	2.27	0.001326	2.77	0.000090	3.27	0.00000376
0.28	0.692120	0.78	0.269990	1.28	0.070266	1.78	0.011826	2.28	0.001262	2.78	0.000084	3.28	0.00000351
0.29	0.681717	0.79	0.263897	1.29	0.068101	1.79	0.011359	2.29	0.001201	2.79	0.000080	3.29	0.00000328
0.3	0.671373	0.8	0.257899	1.3	0.065992	1.8	0.010909	2.3	0.001143	2.8	0.000075	3.3	0.00000306
0.31	0.661092	0.81	0.251997	1.31	0.063937	1.81	0.010475	2.31	0.001088	2.81	0.000071	3.31	0.00000285
0.32	0.650874	0.82	0.246189	1.32	0.061935	1.82	0.010057	2.32	0.001034	2.82	0.000067	3.32	0.00000266
0.33	0.640721	0.83	0.240476	1.33	0.059985	1.83	0.009653	2.33	0.000984	2.83	0.000063	3.33	0.00000249
0.34	0.630635	0.84	0.234857	1.34	0.058086	1.84	0.009264	2.34	0.000935	2.84	0.000059	3.34	0.00000232
0.35	0.620618	0.85	0.229332	1.35	0.056238	1.85	0.008889	2.35	0.000889	2.85	0.000056	3.35	0.00000216
0.36	0.610670	0.86	0.223900	1.36	0.054439	1.86	0.008528	2.36	0.000845	2.86	0.000052	3.36	0.00000202
0.37	0.600794	0.87	0.218560	1.37	0.052688	1.87	0.008179	2.37	0.000803	2.87	0.000049	3.37	0.00000188
0.38	0.590991	0.88	0.213313	1.38	0.050984	1.88	0.007844	2.38	0.000763	2.88	0.000046	3.38	0.00000175
0.39	0.581261	0.89	0.208157	1.39	0.049327	1.89	0.007521	2.39	0.000725	2.89	0.000044	3.39	0.00000163
0.4	0.571608	0.9	0.203092	1.4	0.047715	1.9	0.007210	2.4	0.000689	2.9	0.000041	3.4	0.00000152
0.41	0.562031	0.91	0.198117	1.41	0.046148	1.91	0.006910	2.41	0.000654	2.91	0.000039	3.41	0.00000142
0.42	0.552532	0.92	0.193232	1.42	0.044624	1.92	0.006622	2.42	0.000621	2.92	0.000036	3.42	0.00000132
0.43	0.543113	0.93	0.188437	1.43	0.043143	1.93	0.006344	2.43	0.000589	2.93	0.000034	3.43	0.00000123
0.44	0.533775	0.94	0.183729	1.44	0.041703	1.94	0.006077	2.44	0.000559	2.94	0.000032	3.44	0.00000115
0.45	0.524518	0.95	0.179109	1.45	0.040305	1.95	0.005821	2.45	0.000531	2.95	0.000030	3.45	0.00000107
0.46	0.515345	0.96	0.174576	1.46	0.038946	1.96	0.005574	2.46	0.000503	2.96	0.000028	3.46	0.00000099
0.47	0.506255	0.97	0.170130	1.47	0.037627	1.97	0.005336	2.47	0.000477	2.97	0.000027	3.47	0.00000092
0.48	0.497250	0.98	0.165769	1.48	0.036346	1.98	0.005108	2.48	0.000453	2.98	0.000025	3.48	0.00000086
0.49	0.488332	0.99	0.161492	1.49	0.035102	1.99	0.004889	2.49	0.000429	2.99	0.000024	3.49	0.00000080

	Minor-I		Review Date: 01/03/2014
	School of Engineering		Semester: CE-III-A Session: (July-December)
	Programme: B.Tech Civil Engineering Course Name: Building Materials and Construction Course Code: CEL 209		Maximum Marks: 30 Duration : 1hr
			Sheet 1 of 1
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions. 17 OCT 2016			
COs CO 1 To understand the basics of building materials and civil engineering aspects in building construction CO 2 To gain sufficient knowledge of building materials like Rocks, Bricks, Cement, Mortar, Concrete, Wood, etc. CO 3 To learn the utility of various building materials in various construction processes in civil engineering works CO 4 To learn general principals of building construction CO 5 To learn about various construction equipment CO 6 To learn about intelligent buildings techniques			
Q1. i) What do you understand by CONCRETE? (write in less than 100 words) ?(4 Marks) ii) What is bulking in sand? Is it significant phenomenon during proportioning of aggregates for concrete? (4 Marks) iii) Laitance is related to bleeding in concrete? (Yes/No) (1 Mark) iv) What is the approximate range for ratio (or percentage) of “tensile strength and compressive strength” of concrete? (1 Mark) v) <i>Comment on the nature and technical validity of the following statement.</i> “At one time it was thought that the use of larger size aggregates leads to higher strength of concrete. This was due to the fact that the larger the aggregate the lower is the total surface area and, therefore, the lower is the requirement of water for given workability. For this reason, a lower water/cement ratio can be used which will result in higher strength.” (2 Marks) vi) Draw the following: (a) Stress-strain curve for concrete showing secant modulus; (b) Stress strain curve for different mixes (1:1:2, 1:2.5:3.5, 1:3:5) of concrete (6 Marks)			CO 3 and CO 4
Q2. 2 Marks each i) In Timber, what are knots? ii) What is seasoning of timber? iii) State two ways of preventing dry rotting in timber. iv) Is Deodar wood highly prone to catching fire? v) What is the size of brick according to I.S.I? vi) Name the ingredients of brick?			CO 3

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 NCU THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: I
	Programme: M.Tech Civil Engineering (FT)		Session: (July-Dec)
	Course Name: Optimization Techniques in Structural and Construction Management		Maximum Marks: 30 marks Duration : 1hr
	Course Code: CEL 507		Sheet 1 of 1
Note: 1. All questions are compulsory. 18 OCT 2016 2. Marks are indicated against the questions. 3. Write the question number on your answer sheet according to question paper. 4. Use of Calculator is permitted.			
Q1. Solve the following LPP by Big-M Method Max $z = -x_1 + 3x_2$ s.t. $x_1 + 2x_2 \geq 2$ $3x_1 + x_2 \leq 3$ $x_1 \leq 4$ $x_1, x_2 \geq 0$ (13 Marks)			
Q2. Solve the following LPP by Simplex Method Max $z = 4x_1 + 3x_2 + 6x_3$ s.t. $2x_1 + 3x_2 + 2x_3 \leq 440$ $4x_1 + 3x_2 \leq 470$ $2x_1 + 5x_2 \leq 430$ $x_1, x_2, x_3 \geq 0$ (13 Marks)			
Q3. Why do we use Big-M Method and Two Phase Method over Simplex Method while solving some Linear Programming Problems? (4 Marks)			

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	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: V
	Programme: B.Tech Civil Engineering Course Name: Design of concrete structures Course Code: CEL 307		Session: (July-Dec)
			Maximum Marks: 30
			Duration :1hr
		Sheet 1 of 1	

18 OCT 2016

Note: 1. Answer **all** questions

2. Marks are indicated against the questions.
3. Assume suitably in case of missing data
4. Write the question number on your answer sheet according to question paper
5. Use of **IS 456** is permitted.

COs

1. Students gain knowledge about the basics of various design theories.
2. Students will able to design beams using working stress method.
3. Students will learn to design beams using limit state method.
4. They will understand fundamental concepts of various limit states and their design.
5. They will able to understand the concept of slab designing.
6. They will able to understand the behavior of columns subjected to eccentric loading and their design.

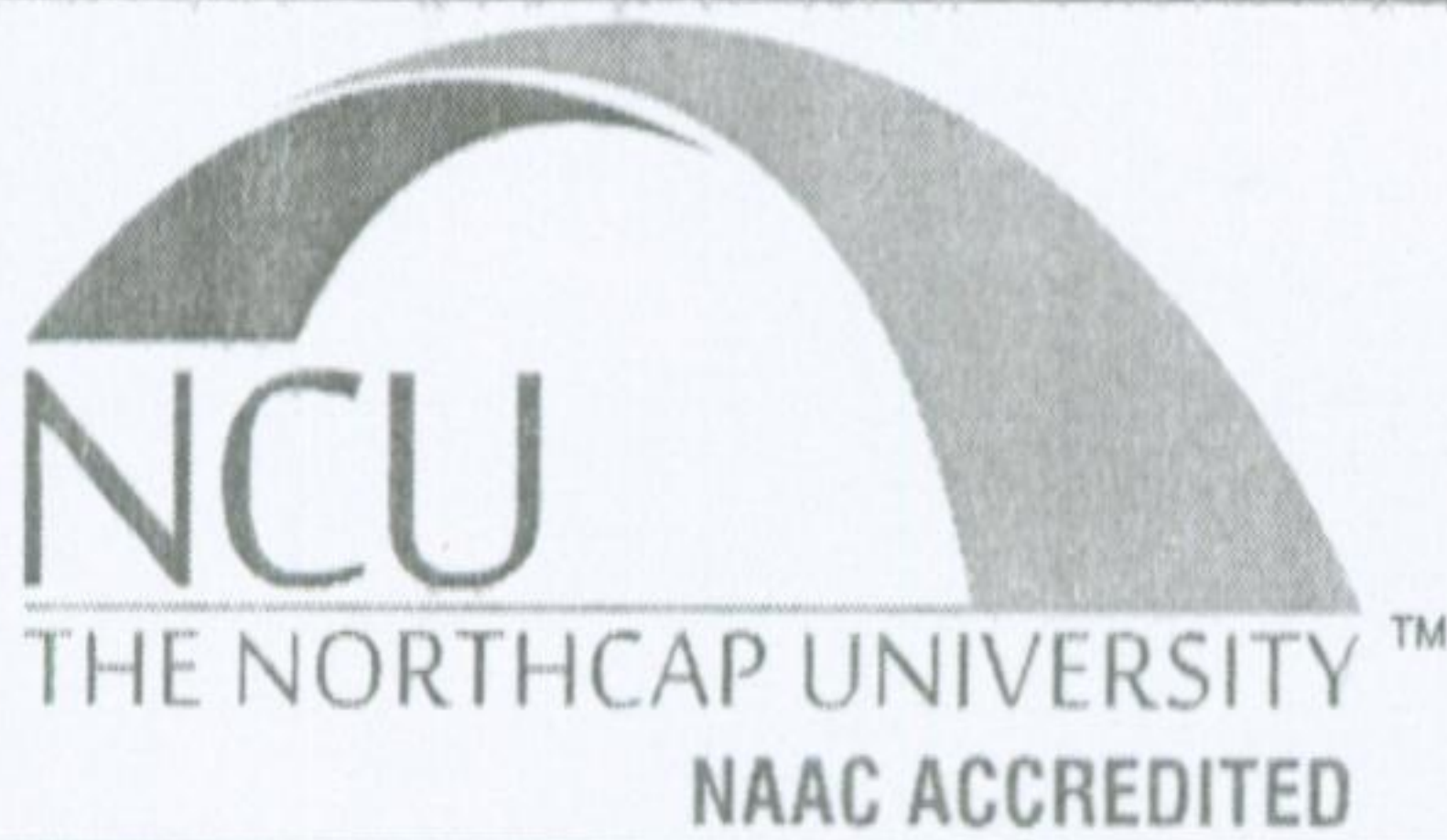
Q1 Design a one way slab, with a clear span of 4 m, simply supported on 230 mm thick masonry walls, and subjected to a live load of 4 kN/m ² and a surface finish of 1 kN/m ² . Assume Fe415 steel. Assume that the slab is subjected to moderate exposure conditions. (15 Marks)	CO5
Q2 A RCC beam 250 mm wide and 450mm deep is reinforced with 3 bars of 20 mm dia of Fe415 grade on tension side with effective cover of 50 m. Design the shear reinforcement consisting of vertical stirrup for factored shear of 90 kN. (15 Marks)	CO4

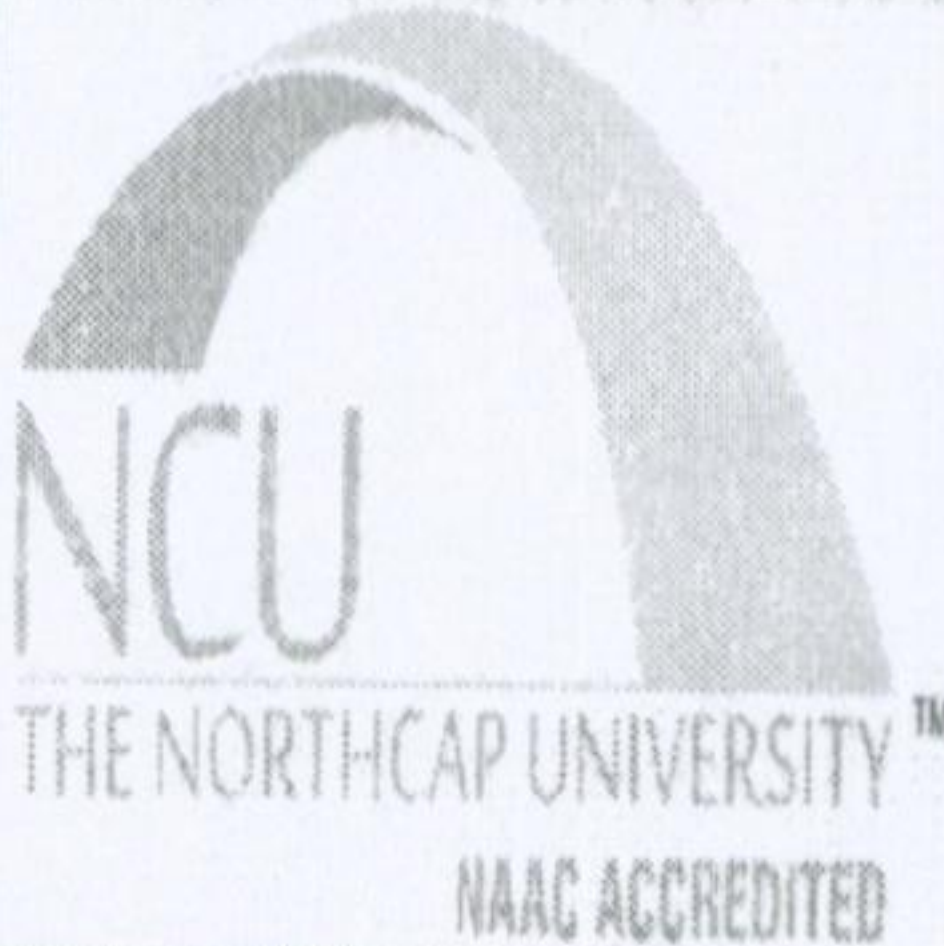
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	Minor-II	Review Date: 01/03/2014
	School of Engineering	Semester:
	Programme: B.Tech Civil Engineering	Session: (Jan-Jun)
	Course Name: Introduction to Civil Engineering	Maximum Marks: 30
	Course Code: CEL 101	Duration : 1hr
		Sheet 1 of 1
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions. 18 OCT 2016		
COs The Course is not intended to teach any particular Civil Engineering subject. Scope covers discussion on different fields of civil engineering and importance of developing infrastructure in the country. The main emphasis will be in gaining practical and theoretical experience and developing understanding on any Civil Engineering subject, as well as in oral and written presentations, in team work and in self-discipline.		
Q.1 Define and discuss the physical and chemical weathering process of soil formation. What do you mean by residual soils and transported soils? [10]		
Q. 2 What do you mean by surveying in the field of Civil Engineering? Define and differentiate Topographic survey, Hydrographic survey, Mining survey, route survey, and photogrammetric survey. [10]		
Q. 3 Discuss the importance of landfills. How Engineered landfills are different from conventional landfills? Discuss. Name 3 landfills in Delhi-NCR region and their location. [10]		

	Minor-I	Review Date: 01/03/2014
	School of Engineering	Semester: III
	Programme: B.Tech Civil Engineering	Session: (July-Dec)
	Course Name: STRUCTURAL ANALYSIS - I Course Code: CEL 201	Maximum Marks: 30 Duration :1hr
		Sheet 1 of 1

Note:

1. Marks are indicated against the questions.
2. Attempt all the questions, internal choice is given in question No. 2

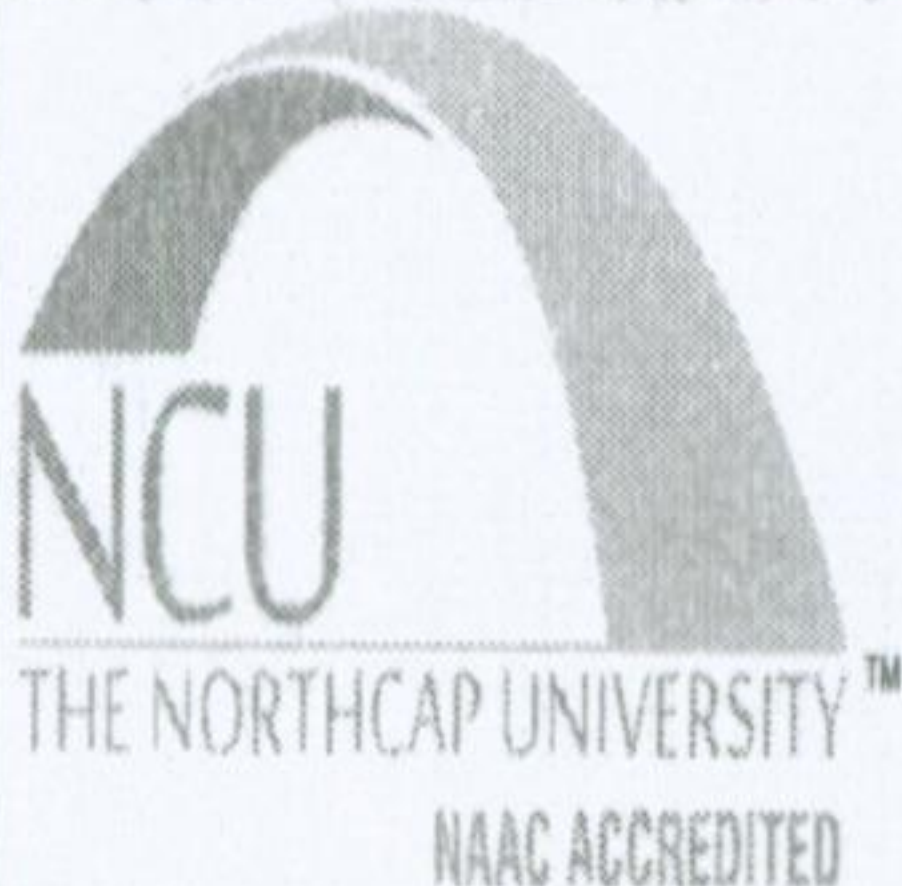
18 OCT 2016

COs

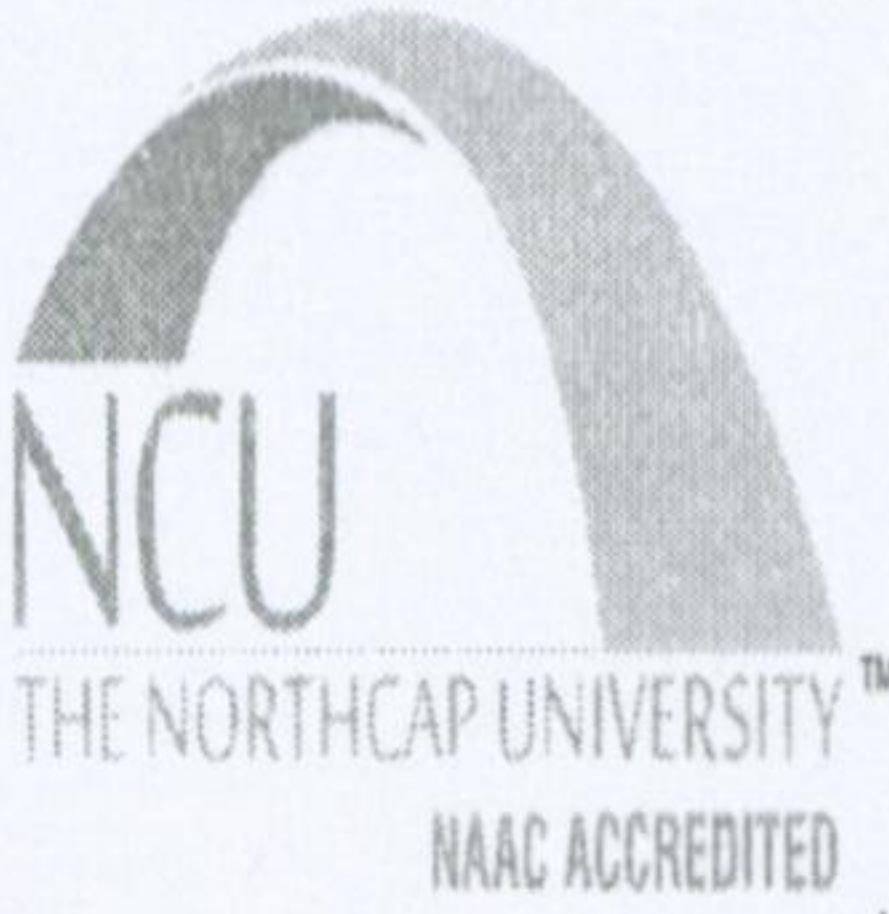
1. Understanding the analysis of framed structures by method of joints, section and graphical method.
2. Ability to analyze a circular and parabolic circular arch for various loading conditions.
3. Ability to understand the concept of strain energy for gradually applied, suddenly applied and impact loads.
4. To determine the deflection observed in beams under various loading conditions by different methods.
5. Introduction to unsymmetrical bending & deflections due to unsymmetrical bending.
6. To determine the concept of influence line and rolling loads

Q 1 A beam of constant cross-section 4 m long is simply supported at its ends. It is loaded at points one metre from each end with load of 2 kN. Using conjugate beam method find the ratio of the deflection in the centre of the beam to the deflection at the point under one of the loads. (15 Marks)	CO4
Q2 A U.D. L of 5 kN/m covers left hand half of the span of a three hinged parabolic arch span 40 m and central rise of 9 m. Determine the horizontal thrust. Also find the B. M., S. F. and normal thrust at the loaded quarter point. (15 Marks)	CO2

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 NCU THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: V
	Programme: B.Tech Civil Engineering		Session: (July-Dec)
	Course Name: Environmental Engineering		Maximum Marks: 40 Marks
Course Code: CEL 305		18 OCT 2016	Duration : 1hr
Sheet 1 of 1			
Note: 1. All questions are compulsory. 2. Marks are indicated against the questions. 3. Write the question number on your answer sheet according to question paper. 4. Assume suitably in case of missing data. 5. Use of Calculator is permitted.			
COs CO1. Students will have understanding of basic characteristics of water and their determination. CO2. They will be able to prepare basic process design of various units of municipal water treatment plant. CO3. Students will be having understanding of demand of raw water and various water distribution processes. CO4. They will be able to determine Sewage Characteristics. CO5. They can carry out waste water treatment system design and operation. CO6. Students will be having understanding of major pollutants of environment and their management.			
Q1.a) Write short notes on the provisions of 'Industrial Water Demand' and 'Fire Demand' in water supply.			(10 Marks) CO3
Q1.b) What a brief note on minor and major methods of disinfection?			(10 Marks) CO2
Q2.a) A coagulation-sedimentation plant clarifies 40 million litres of water every day. The quantity of filter alum required at the plant is 18 mg/l. If the raw water is having an alkalinity equivalent to 5 mg/l of CaCO ₃ , determine the quantity of filter alum and the quick lime (containing 85% of CaO due to impurities) required per year by the plant. Given the molecular weights as: [Al = 27, S = 32, O = 16, H = 1, Ca = 40, C = 12]			(8 Marks) CO2
Q2.b) A Rapid Sand Filter is proposed for a water supply treatment plant for a town having a population of 75000 and average water demand 150 lt/cap/day. Rate of filtration is 100 lt/m ² /min. Calculate the size and no. of filters required by designing the manifold lateral under-drainage system.			(12 Marks) CO2

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	Minor-I	Review Date: 01/03/2014
	School of Engineering	Semester: VII Session: (July-December)
	Programme: B.Tech Civil Engineering Course Name: Ground improvement techniques Course Code: CEL 407	Maximum Marks: 30 Duration : 1hr
	18 OCT 2016	Sheet 1 of 2

Note: 1. All questions are compulsory. *
 2. Marks are indicated against the questions.
 3. Log tables/Steam table/IS Codes/Charts/Calculator/Reference books permitted.*

COs
CO 1 Need for ground improvement and soil modification with various applications.
CO 2 Acquire the knowledge of surface compaction, and mechanisms for in-situ ground modification, and deciding between different ground improvement methods available.
CO 3 Various methods of soil densification (shallow and deep) using Grouting techniques
CO 4 Stabilization of soil using soil nails and Reinforcement and the mechanics behind it.
CO 5 Soil confinement and remediation using geo-synthetics.

Q1a)	For the Figure 1 given (next page), where $\phi' = 30^\circ$, $K_o = 0.45$, $h = 10$ m, $\gamma_t = 17$ kN/m ³ , Just draw Mohr's failure envelope showing major and minor principle stresses for normal soil condition and when grout pressure is developed. (5 Marks)	CO 3
Q1.b)	(i) Why are grouting techniques not successful in rectifying tilted structures on soft saturated clays? (2 Marks) (ii) Discuss permeation grouting technique w.r.t. (i) type of soil it is feasible; (ii) Speed; (iii) Uniformity of treatment. (3 Marks)	CO 3
Q2.a)	Draw the stress-strain curve comparing triaxial shear test results obtained for an unreinforced soil and reinforced soil? (5 Marks)	CO 4
Q2.b)	(i) Just write the three factors governing Reinforcement-soil interaction. (3 Marks) (ii) Name the four failure mechanism to be checked for external stability of a reinforced wall (3 Marks) (iii) Under which of the following two conditions will the lateral earth pressure on the face of reinforced soil wall be more? The backfill is sand and the soil-reinforcement shear resistance is due to frictional resistance. Give reasons for your answer. (4 Marks) (a) Frictional resistance of reinforcement in failure zone is low (b) Frictional resistance of reinforcement in failure zone is high	CO 4

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- (iv) In a failed soil slope of soft clay, the failure surface is circular and the centre of rotation is known. The driving moment is computed to be 2800 kN-m and the resisting moment is computed to be 2450 kN-m. It is proposed to reconstruct the slope using several layers of geogrids having allowable tensile force of 20 kN/m. The average centroid of the reinforcement is anticipated to be 8m away (vertically) from the centre of rotation. Compute the required number of layers of the reinforcement, if the desired Safety factor is 1.5 (5 Marks)

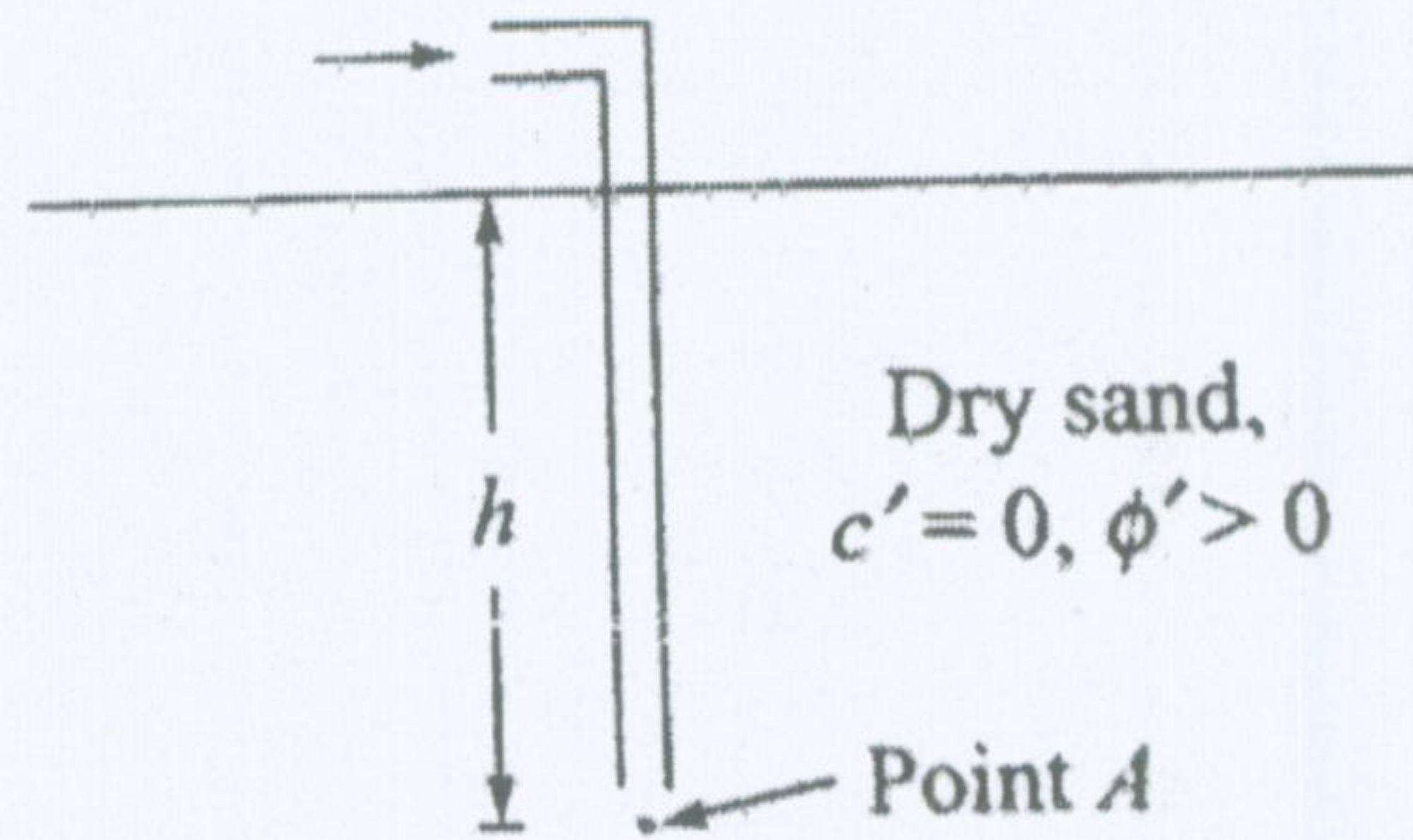
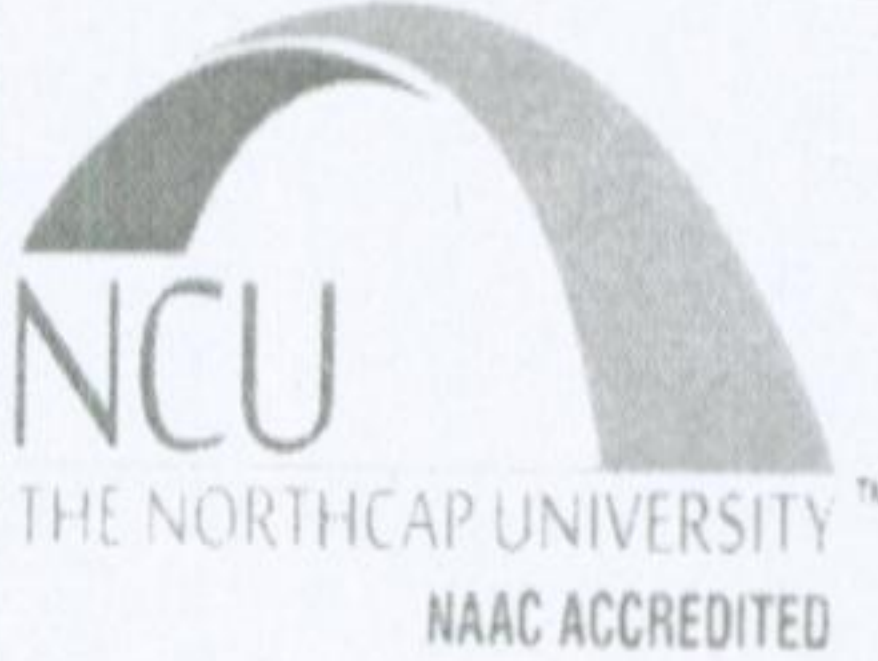
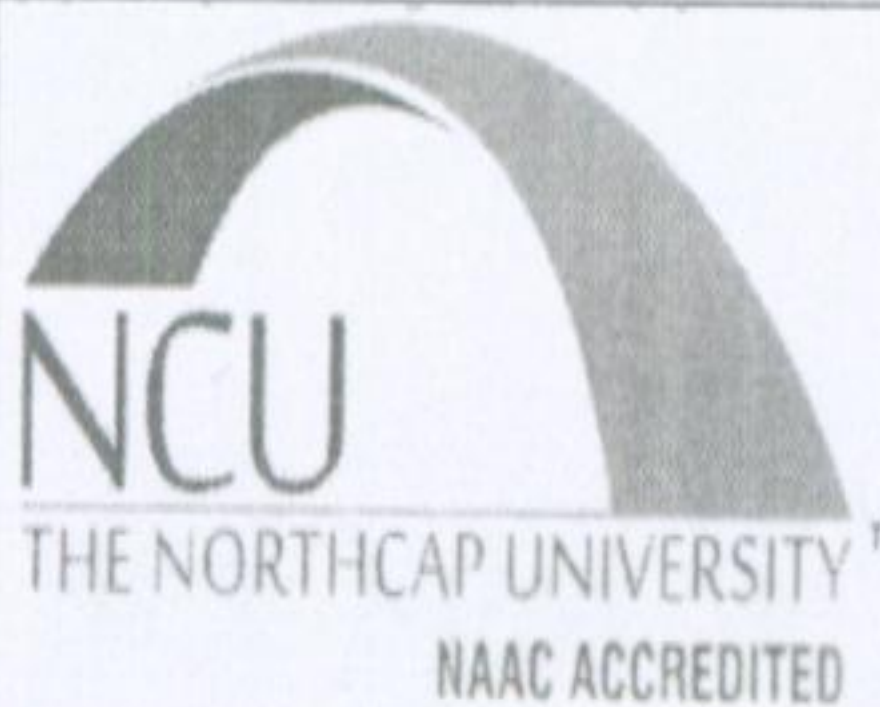


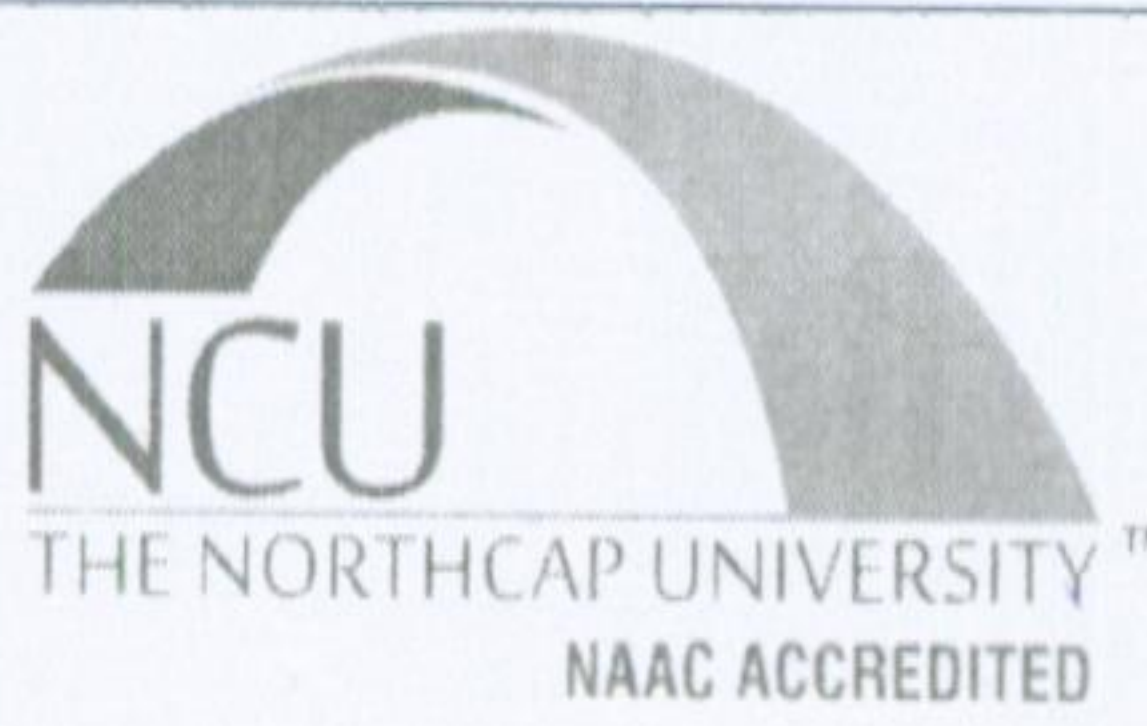
Figure 1 for Q.1 (a)

	Minor II		Review Date: 01/03/2014
	School of Engineering & Technology		Semester: VIII Session: (July-Dec)
	Programme: B.Tech Civil Engineering Course Name: Disaster Management Course Code: CEL 402		Maximum Marks: 30 Marks Duration : 1hr
	19 OCT 2016		Sheet 1 of 1
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions. 3. Log tables/Steam table/IS Codes/Charts/Calculator/Reference books permitted.			
Cos 1. Understand different types of natural and man-made disasters. 2. Develop an understanding of why and how the modern disaster management team is involved with pre-disaster and post-disaster activities. 3. Develop an awareness of the chronological phases of natural disaster response and relief operations. 4. Understand the early warning systems and their uses prior to and after disaster phase. 5. Understand the key concepts of a) disaster management related to development, and b) the relationship of different disaster management activities to the appropriate disaster phase. 6. Understand the relationship of disaster phases to each other and the linkage of activities from one phase to the next			
Question 1. What is a people centered early warning system? Explain three and four phase early warning system with the help of a neat sketch.			CO4
(Marks: 10)			
Question: 2 Explain in brief various types of floods.			CO 2
(Marks: 5)			
Question 2 (a). Define meteorological & agricultural droughts. Explain various drought management techniques suitable for Indian conditions.			CO5
(Marks: 10)			
Question 2 (b). Explain cyclone classifications adopted by IMD based on category and low pressure system.			CO3
(Marks: 5)			

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	Minor II		Review Date: 01/03/2014
	School of Engineering and Technology		Semester: III
	Programme: B.Tech Civil Engineering		Session: (July-Dec)
	Course Name: Engineering Geology (reappear)		Maximum Marks: 40 Marks
	Course Code: CEL 205 (New)		Duration :1hr
Sheet 1 of 1			
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions. 19 OCT 2016 3. Log tables/Steam table/IS Codes/Charts/Calculator/Reference books permitted.*			
COs CO1. Students will be able to understand the basics of Engineering Geology. CO2. Students will be able to understand different mineral and rock types and impact of weathering and erosion process on the strength of rocks. CO3. Students will be able to understand different site reinforcement and improvement methods and their application. CO4. Students will be able to understand the cross sectional data of geological maps, dip angle and strike measurements. CO5 Students will be able to understand the foundational requirements for dam, tunnels, bridges, highways etc.			
Q1a) What are Faults? Explain different thrust and strike slip fault.			CO2
(Marks: 10)			
Q1.b) What is Joint? Explain the process of formation of non- unconformity.			CO2
(Marks: 10)			
Q2.a) What is dip and strike? Explain its role in selecting suitable sites for tunnels.			CO4
(Marks: 10)			
Q2.b) What is sedimentary rock? Explain important sedimentary rock structures.			CO3
(Marks: 10)			

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	School of Engineering		Semester: I/III
	Programme: B.Tech. Civil Engineering Course Name: Mechanics of Solids (Re-appear) Course Code: CEL103 / CEL201		Session: (Jul-Dec)
			Maximum Marks: 30
			Duration : 1hr
			Sheet 1 of 1

Note: 1. Answer **all** questions

2. Marks are indicated against the questions

3. Assume suitably in case of missing data

4. Write the question number on your answer sheet according to question paper

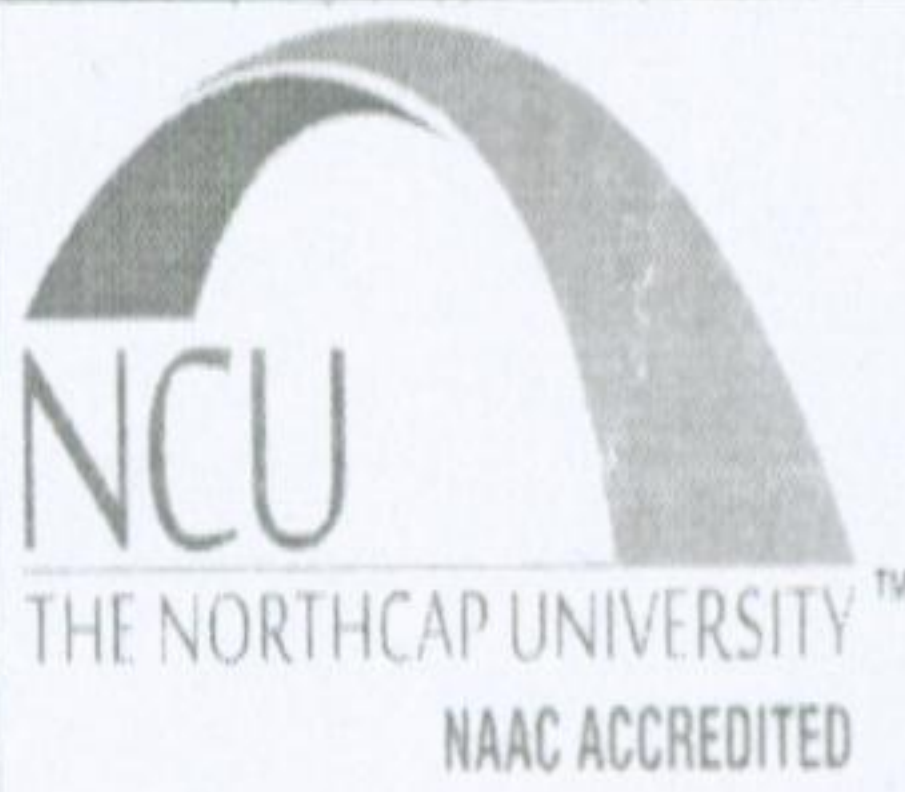
19 OCT 2016

COs

- To understand the concept of simple stresses and strains according to Hooke's law and elastic constants.
- To learn the Bending moment and Shear force diagrams which helps in structural designing.
- To understand the concept of Mohr circle to determine graphically the stress components acting on a differently oriented plane passing through the point & to understand the theory of simple bending and shear center in brief.
- To understand the theory of torsion to describe the behavior of shaft subjected to torque.
- To explain the short and long columns and concept of buckling of columns by Euler's and Rankine's formula.
- To learn the concepts of stresses acting on thin and thick pressure vessels.

Q1(a)	Define the following terms: i) Torsional stresses ii) Composite Beams iii) Polar Modulus	(1+1+1 = 3 Marks)	CO3
Q1(b)	Find out the expression for normal and shear stresses on an element whose plane is inclined at an angle θ with the plane containing principal normal stresses σ_1 and σ_2 . Assume σ_1 and σ_2 to be acting in x & y directions respectively. Also find out the resultant on the inclined plane and the obliquity. Depict the same using Mohr's circle representation.	(12 marks)	CO3
Q2(a)	Consider a hollow shaft of 40 mm outside diameter and 30 mm inside diameter subjected to a torque of 100 Nm. Determine the shearing stresses at the outside and inside of the shaft.	(6 Marks)	CO4
Q2(b)	Derive the expression for power transmitted by a solid shaft of radius R rotating at N revolutions per minute.	(5 Marks)	CO4
Q2(c)	Describe when the shafts are said to be in series or parallel. Support your answer stating the working conditions for each case.	(4 Marks)	CO4

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 NCU THE NORTHCAP UNIVERSITY™ NAAC ACCREDITED	Minor II	Review Date: 01/03/2014
	School of Engineering	Semester: VI
	Programme: M.Tech. Civil Engineering Course Name: Geoinformatics Engineering Course Code: CEL 507	Session: (Jan-Dec.) Maximum Marks: 40 Marks Duration :1hr
	19 OCT 2016	Sheet 1 of 1

Note: 1. All questions are compulsory. *
 2. Marks are indicated against the questions.
 3. Log tables/Steam table/IS Codes/Charts/Calculator/Reference books permitted.*

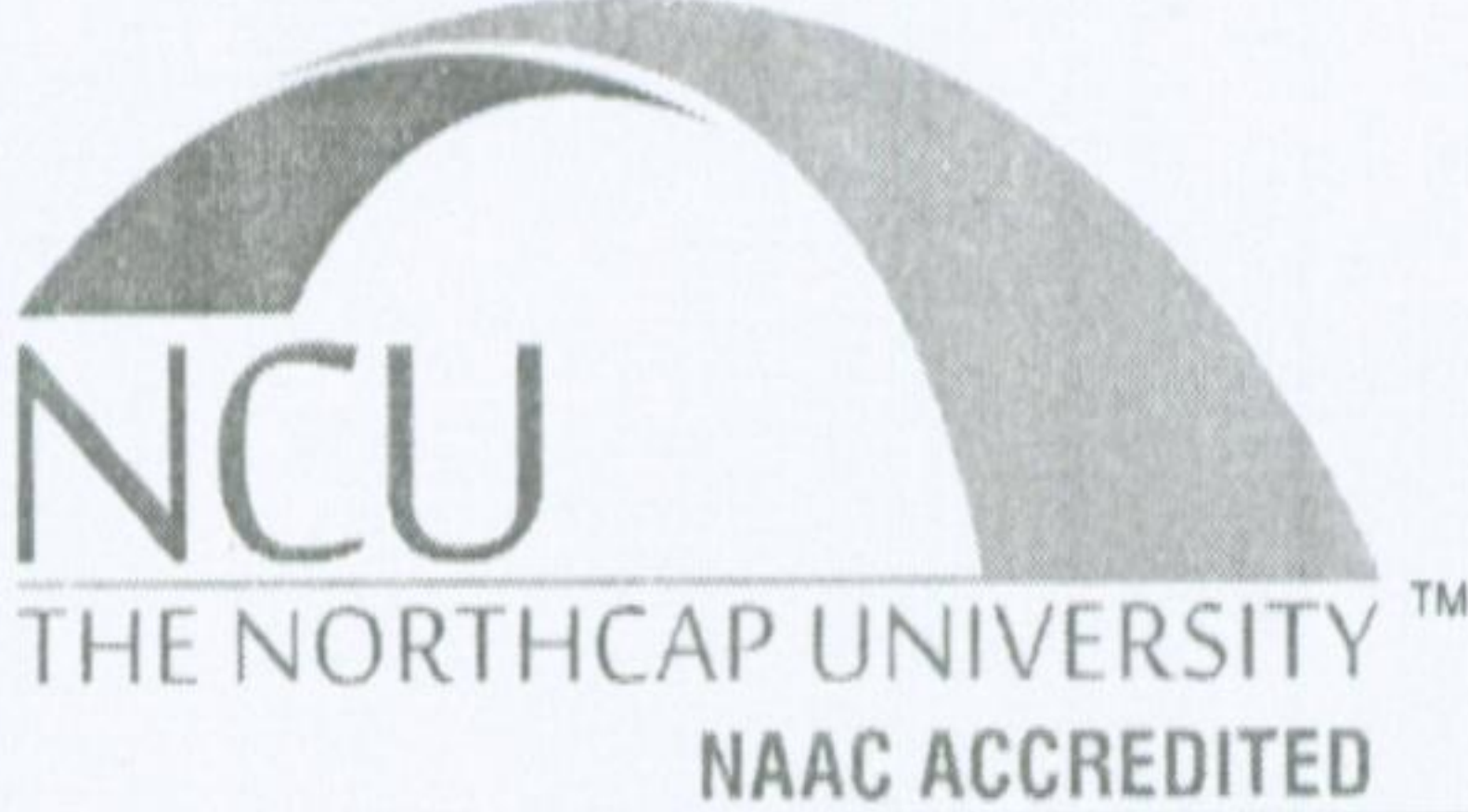
Q1a) What is GPS? Explain in brief the frame work of the GPS system. (Marks: 10)

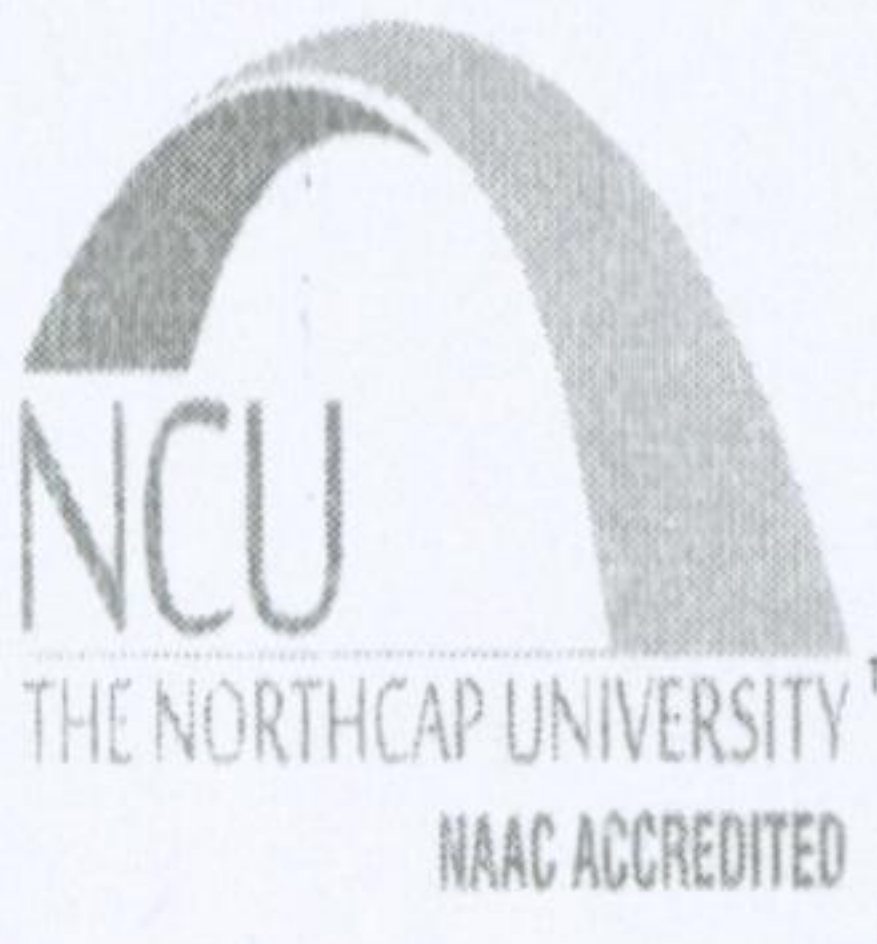
Q1 b) What is flight planning? Explain in brief its role in aerial photogrammetry. (Marks: 10)

Q2.a) Explain how height can be determined from parallax measurement, with the help of a neat sketch. (Marks: 10)

Q2 (b) Explain the important applications of remote sensing technique in Civil Engineering.. (Marks: 10)

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	Minor-II	Review Date: 01/03/2014
	School of Engineering	Semester: I
	Programme: M.Tech Civil Engineering	Session: (Jan-Jun)
	Course Name: Structural Safety and Reliability Course Code: CEL 509	Maximum Marks: 30 Duration :1hr
		Sheet 1 of 1
Note: 1. All questions are compulsory. * 2. Marks are indicated against the questions. 19 OCT 2016		
Q. 1 Discuss probability plot. Outline the method of construction of a probability paper. [10]		
Q. 2 What are the parameters of distribution for normal and lognormal distribution? Also write their interrelationship. [10]		
Q.3. The probability of failure of a structure due to earthquake is estimated as 10^{-4} per year. Assuming that the design life of the structure is 30 years and the probability of failure in each year remains constant and independent during its lifetime, then estimate the probability of no failure of structure? [10]		

	Minor-I	Review Date: 01/03/2014
	School of Engineering	Semester: VII Session: (July-December)
	Programme: B.Tech Civil Engineering Course Name: Construction Planning and Management Course Code: CEL 403	Maximum Marks: 30 Duration :1hr
	19 OCT 2016	Sheet 1 of 1

Note: 1. All questions are compulsory. *
2. Marks are indicated against the questions.

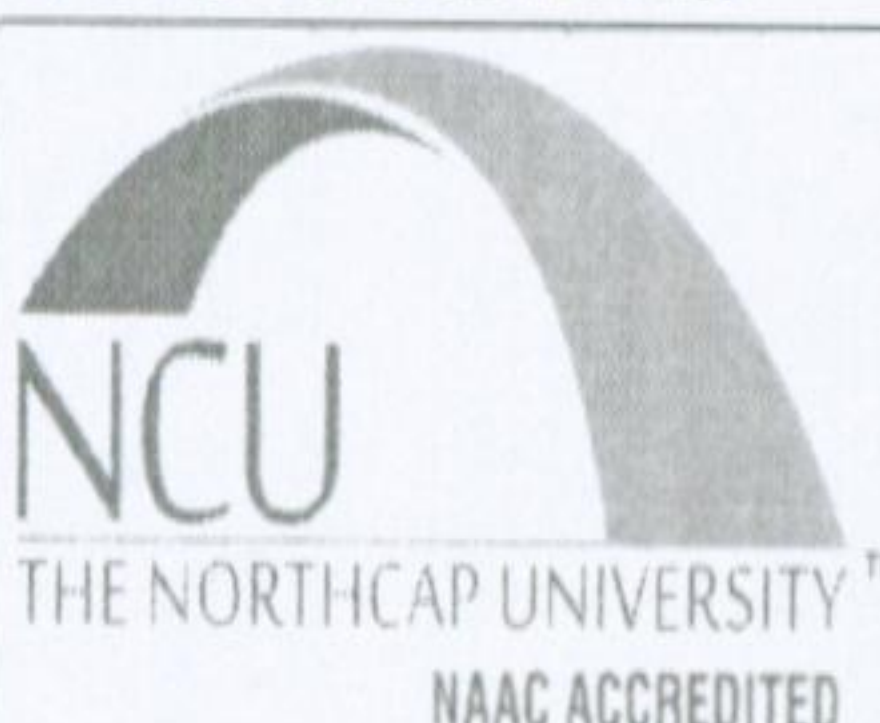
COs

CO 1 Understanding the role of civil engineers in the Construction management and project life
CO 2 Effectively plan for a construction projects incorporating the constraints
CO 3 Become effective contract manager and draft contractual conditions and tenders.
CO 4 Understand the role of an organization and effectively manage resources in an organization
CO 5 Understand the need for quality management and inspections
CO 6 Effectively carry out financial analysis for construction projects using different techniques

Q1. (i) What is the demerit of "Cost Plus Percentage of Cost Contract" as compared to "Cost Plus Fixed Fee Contract"? (2 Marks) (ii) What is Arbitration? What are the main advantages of arbitration? (4 Marks) (iii) What is earnest money? What are the provisions of earnest money for projects greater than Rs. 25 crore in Contract Clauses by MoS&PI (4 Marks) (iv) Compute Bid Capacity for a company; A = 5 Crore rupees, B= 9 crore rupees , N = 5 years A = maximum value of works executed in any one year during last five years B = Value at current price of existing commitments and ongoing works to be completed in next N years N = Number of years prescribed for completion of subject contract (5 Marks)	CO 3
Q2. (i) What is the principle of Balance between Authority and Responsibility? (3 Marks) (ii) Draw the structure of Line and Staff Organisation in government. (4 Marks) (iii) Discuss the role of assistant engineer in government organisation (4 Marks) (iv) Define Communication in your own words. What is the importance of communication in constructionorganisation (4 Marks)	CO 4

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	Minor II		Review Date: 01/03/2014
	School of Engineering and Technology		Semester: III
	Programme: B.Tech Civil Engineering		Session: (July-Dec)
	Course Name: Engineering Geology & Remote Sensing		Maximum Marks: 40 Marks
	Course Code: CEL 207		Duration :1hr
			Sheet 1 of 1

Note: 1. All questions are compulsory. *

2. Marks are indicated against the questions.

3. Log tables/Steam table/IS Codes/Charts/Calculator/Reference books permitted.*

19 OCT 2016

COs

CO1. Students will be able to understand the basics of Engineering Geology.

CO2. Students will be able to understand different mineral and rock types and impact of weathering and erosion process on the strength of rocks.

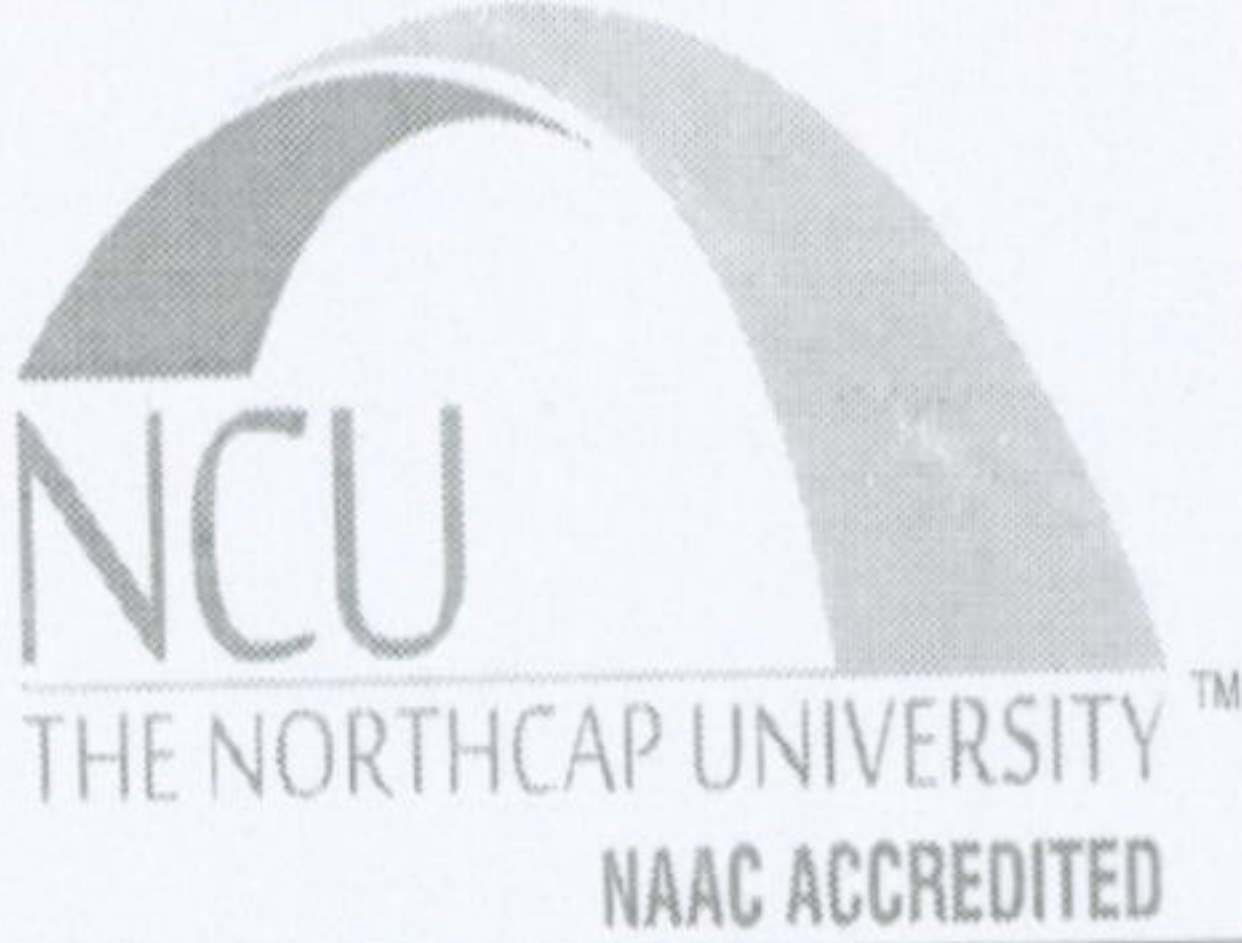
CO3. Students will be able to understand different site reinforcement and improvement methods and their application.

CO4. Students will be able to understand the cross sectional data of geological maps, dip angle and strike measurements.

CO5 Students will be able to understand the foundational requirements for dam, tunnels, bridges, highways etc.

Q1a) What are folds? Explain different parts of folds with the help of a neat sketch.	CO2
(Marks: 10)	
Q1.b) What is unconformity? Explain the process of formation of angular unconformity.	CO2
(Marks: 10)	
Q2.a) What is dip and strike? Explain its role in selecting suitable sites for Dam.	CO4
(Marks: 10)	
Q2.b) With the help of neat sketch illustrate the movements in normal fault, reverse fault, strike-slip fault, horst and graben structures.	CO3
(Marks: 10)	

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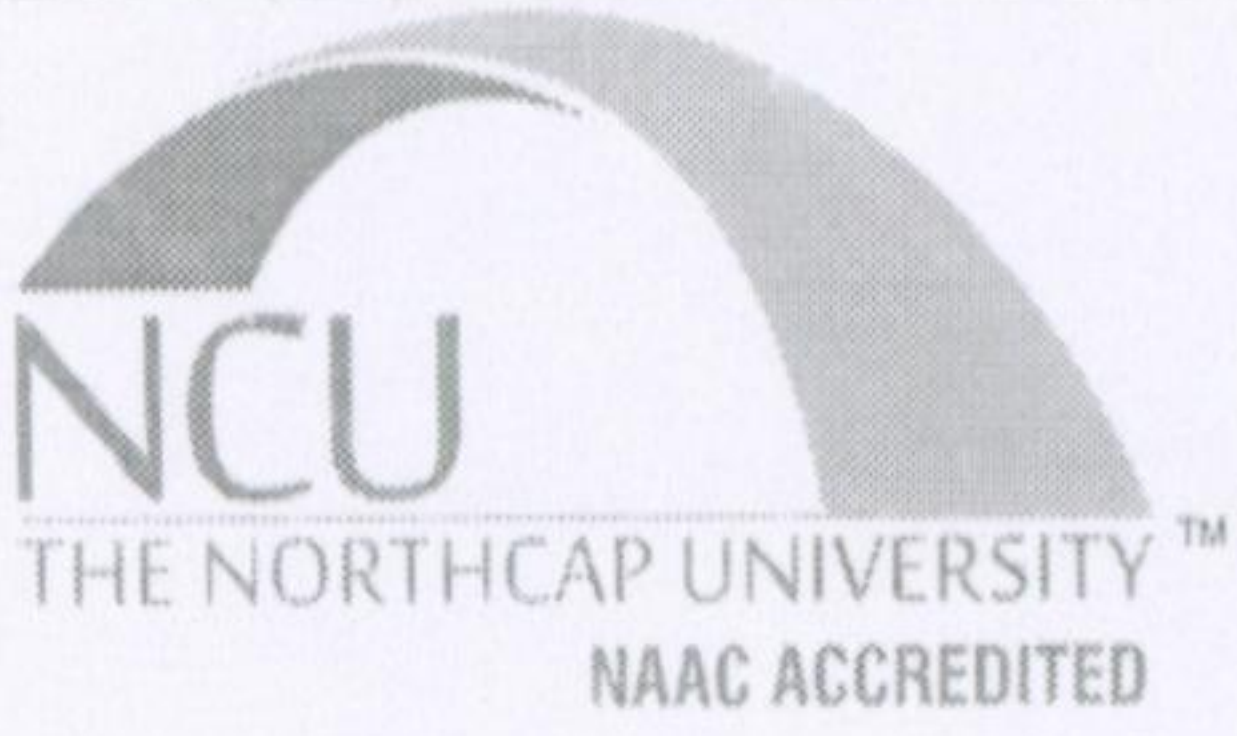
NCU-FRM-29			
	Minor-II		Review Date: 01/03/2014
	School of Engineering		Semester: V Session: (July-Dec)
	Programme: BTech Civil Engineering Course Name: Environmental Engineering Course Code: CEL 305 20 Oct 2016		Maximum Marks: 40 Marks Duration : 1hr
			Sheet 1 of 1
Note: 1. All questions are compulsory. 2. Marks are indicated against the questions. 3. Write the question number on your answer sheet according to question paper. 4. Assume suitably in case of missing data. 5. Use of Calculator is permitted.			
COs CO1. Students will have understanding of basic characteristics of water and their determination. CO2. They will be able to prepare basic process design of various units of municipal water treatment plant. CO3. Students will be having understanding of demand of raw water and various water distribution processes. CO4. They will be able to determine Sewage Characteristics. CO5. They can carry out waste water treatment system design and operation. CO6. Students will be having understanding of major pollutants of environment and their management.			
Q1.a) Write short notes on the provisions of 'Industrial Water Demand' and 'Fire Demand' in water supply. (10 Marks)			CO3
Q1.b) Describe briefly the coagulation and flocculation units of a water supply treatment plant. (10 Marks)			CO2
Q2.a) It is required to supply water to a population of 20,000 at a per capita demand of 150 litres per day. The disinfectant used for chlorination is bleaching powder which contains 30 per cent of available chlorine. Determine how much of bleaching powder is required annually at the waterworks, if 0.3 ppm of chlorine dose is required for disinfection. (8 Marks)			CO2
Q2.b) A Rapid Sand Filter is proposed for a water supply treatment plant for a town having a population of 75000 and average water demand 150 lt/cap/day. Rate of filtration is 100 lt/m ² /min. Calculate the size and no. of filters required by designing the manifold lateral under-drainage system. (12 Marks)			CO2

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	Minor 2 (Re-Appeal)	Review Date: 01/03/2014
	School of Engineering	Semester: I
	Programme: M.Tech. Civil Engineering (FT & PT)	Session: (Jul-Dec)
	Course Name: Advanced Foundation Engineering Course Code: CEL 503 20 Oct 2016	Maximum Marks: 30 Duration :1hr Sheet 1 of 2

Note: 1. Answer **all** questions

2. Marks are indicated against the questions

3. Assume suitably in case of missing data

4. Write the question number on your answer sheet according to question paper

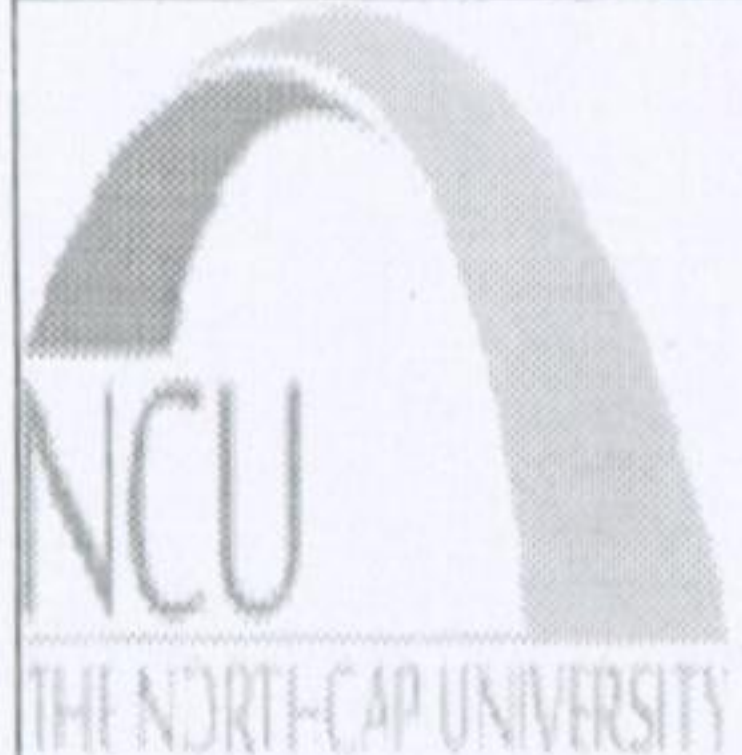
Q1(a)	An isolated footing is designed for rectangular column of dimension 400 X 350 mm carrying an ultimate axial load of 800 kN. The footing dimensions obtained using a bearing capacity of 110 kN/m ² are 2.40 X 2.02 X 0.35 m. Using an effective cover of 50 mm, verify whether the column is safe in punching shear failure. (Use M20 and Fe415 grade of concrete and steel respectively)	8 Marks															
Q1(b)	A continuous foundation of width 2 m is supported on a sandy deposit and is kept at an embedment depth of 2 m from the ground surface. The load on the foundation acts at an eccentricity of 0.3 m from the centroid of the geometry. Find the ultimate bearing load on the eccentrically loaded foundation using Reduction Factor Method if properties of the deposit are: $\gamma = 18.5 \text{ kN/m}^3$, $\phi = 28^\circ$. Use Meyerhof's bearing capacity and depth factors. For $\phi \geq 10^\circ$, $F_{cd} = 1 + 0.2 \left(\frac{D_f}{B} \right) \tan \left(45 + \frac{\phi}{2} \right)$ $F_{qd} = F_{\gamma d} = 1 + 0.1 \left(\frac{D_f}{B} \right) \tan \left(45 + \frac{\phi}{2} \right)$ <table border="1" data-bbox="1129 1368 1560 1685"> <thead> <tr> <th>D_f/B</th><th>a</th><th>k</th></tr> </thead> <tbody> <tr> <td>0</td><td>1.862</td><td>0.73</td></tr> <tr> <td>0.25</td><td>1.811</td><td>0.785</td></tr> <tr> <td>0.5</td><td>1.754</td><td>0.8</td></tr> <tr> <td>1.0</td><td>1.82</td><td>0.888</td></tr> </tbody> </table>	D_f/B	a	k	0	1.862	0.73	0.25	1.811	0.785	0.5	1.754	0.8	1.0	1.82	0.888	7 Marks
D_f/B	a	k															
0	1.862	0.73															
0.25	1.811	0.785															
0.5	1.754	0.8															
1.0	1.82	0.888															
Q2(a)	A mat foundation in a saturated clayey soil has dimensions of 18m X 18m and is subjected to a total load of 50 MN. If the clayey stratum has an undrained cohesion of 32 kPa and a saturated unit weight of 18.0 kN/m ³ , what would be the depth of excavation so that the mat is to behave as a floating foundation? What would be the depth of compensated foundation required if the factor of safety 2.5 is to be maintained against a bearing capacity failure.	7 Marks															
Q2(b)	Give a brief note on what happens to the bearing capacity of two closely spaced footing if their failure zones interfere with each other. Discuss all four possible cases for continuous footings resting on granular bed.	8 Marks															

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	Question paper for Minor Test II (Reappear)	Review Date:
	Centre for Language Learning	Semester: ODD/ I Session: July-Dec 2016
	Programme: B.Tech / BSc (Maths)/ BBA	Maximum Marks: 30 Duration :1 hr
	Course Name: Effective Communication I Course Code : CLL101	Sheet 1 of 1
Note: 1. All questions are compulsory. 2. Marks are indicated against the questions.		

- CO 1. Demonstrate the use of basic and advanced writing techniques using technical vocabulary and grammar in various forms of writing.
- CO 2. Exhibit excellence in writing effectively.
- CO 3. Communicate effectively by overcoming the different barriers to communication.
- CO 4. Apply generic conventions and formats to memoranda, notices and business correspondence.
- CO 5 Display confidence in seminar, conversational and interpersonal skills.

Q1. As HR Manager draft a memo that the company is organizing an in-house training programme for the frontline office on handling customer's complaint. **(50-70 words) (CO4) (8 Marks)**

Q2. Choose the correct option and rewrite the sentences. **(CO1) (8 Marks)**

- Some members of the teachers' union (want, wants) to go on strike.
- Jane's raincoat, with all the rips and tears, (provide, provides) little protection.
- Not only the students but also the teacher (was, were) anxious to finish the lesson
- Somebody in the book club always (forget, forgets) to bring the book.
- One of those socks (is, are) lighter than the other.
- The pen or the pencil (is, are) lost
- Everyone (like, likes) Mary's key lime pie
- Sally (run, runs) to the park every day

Q3. Draft a letter placing of order for 50 no. of Personal Computer Systems to the Sales Manager of PCS Industries. Invent necessary details. **(120-150 words) (CO2) (9 Marks)**

Q4. Using real animals in movies

At the premiere of "Rise of the Planet of the Apes" last month, a clutch of impassioned animal activists gathered on Hollywood Boulevard. But they weren't there to throw red paint on fur-coat-wearing celebrities. Instead, one demonstrator — dressed in a full-body monkey suit — had arrived with a sign complimenting the filmmakers: "Thanks for not using real apes!"

The creative team behind "Apes" used motion-capture technology to create digitalized primates, spending tens of millions of dollars on technology that records an actor's performance and later layers it with computer graphics to create a final image — in this case, one of a realistic-looking ape. Yet "Apes" is more exception than the rule — in fact, Hollywood has been hot on live animals lately: The nonprofit American Humane Assn., which monitors the treatment of animals in filmed entertainment, is keeping tabs on more than 2,000 productions this year, 100 more than in 2010. Already, a number of high-

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