	UT 1
Enrol. No.	UT 1089

Rajarambapu Institute of Technology, Rajaramnagar

(An autonomous Institute)

First year M. Tech. Civil, Construction and Management Semester I

Course: Construction Equipments and Methods

Subject Code: CCM1022

Day & Date: Tue., 03/10/2017

Time: 2.30 - 3.30 pm **Max Marks: 25**

Instructions:

i. All questions are compulsory.
ii. Figures to the right indicate marks.
iii. Use of non-programmable calculators allowed
iv. Assume suitable data wherever necessary

Q.1 On highway project strata in the 300 ft long stretch has been found to be unsuitable for the sub-base construction. The unsuitable strata needs to be removed up to depth of 2'6" (75 cm) and dumped in a quarry 2 miles away from the site, also good soil is to be brought from the quarry near to dumping quarry. Develop method statement you will adopt to complete the project in time and cost. Justify the same. **10**

Q.2

a) There are six operations combinly done in three steps as "excavate & Load", "Haul & Dump" and spread & Compact. Bring out equipments required to perform above operations on an highway construction project. Satate reason for the selection of particular equipment. **7**

b) Ripping can overcome the problem of pollution created due to drill and blast method. Why is then this method is not used or overtakes drilling and blasting method. State and explain factors, limitations and advantages. **8**

OR

c) A contractor has both a 3 cy and 5 cy shovel in the equipment fleet. Select the minimum size shovel that will excavate 250000 bank cubic yards (bcy) of clay earth having a percent swell of 30% in a minimum of 100 working days of 8 hours each. The average height of excavation will be 12 feet, and the average angle of swing will be 150 degrees. The 3 ct shovel has maximum digging height of 20 feet and the 5 cy shovel have maximum digging height of 30 feet. Optimum digging height is 40% of maximum digging height. The efficiency factor is 50 min-hours. Appropriate size haul units can be used with either shovel. How many days will it require to complete the work? **15**

Data Given:

i. Fill factor = 105%
ii. Cycle time = 3 cy = 17 Sec. and 5 cy = 24 Sec.

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Percentage of optimum depth	Angle of swing (degrees)						
	45	60	75	90	120	150	180
40	0.93	0.89	0.85	0.80	0.72	0.65	0.59
60	1.10	1.03	0.96	0.91	0.81	0.73	0.66
80	1.22	1.12	1.04	0.98	0.86	0.77	0.69
100	1.26	1.16	1.07	1.00	0.88	0.79	0.71
120	1.20	1.11	1.03	0.97	0.86	0.77	0.70
140	1.12	1.04	0.97	0.91	0.81	0.73	0.66
160	1.03	0.96	0.90	0.85	0.75	0.67	0.62

----------End----------

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QP code.
UT 1078

Unit Test-01

FY M. Tech. Civil Construction Management SEMESTER – I

Course: Construction Project Management, Course Code: CCM1012

Day & Date: **Tuesday, 03/10/2017** Time: 10.30 - 11.30 am Max Marks: **25**

Instructions:
1. *All questions are compulsory.*
2. *Answer any **one full** question where ever **OR** option is made available.*
3. Figures to the right indicate full marks.

Q1	**Attempt any two**			
1	Describe the concept of Project Management		**CO1**	6
2	Identify the skills & competencies required for the project managers		**CO1**	6
3	How organizational structure influences the projects		**CO1**	6
Q2	**Attempt any two**			
1	Prepare a project charter for a small construction project		**CO1**	7
2	Suggest a work break down structure for residential building		**CO2**	7
3	Comment on role of floats in a project management with reference to any three floats		**CO2**	6

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Unit Test-01

First Year M. Tech. Civil Construction Management

SEMESTER- I

Operations Research in Construction (CCME11)

Enroll No	

Q.P.Code
UT 1107

Day & Date : ....Thu., 28/09/2017

Time : .....2:30 - 3:30 pm

Max Marks- 25

Instructions: 1) All questions are compulsory
2) Figures to the right indicate marks
3) Assume suitable data whenever necessary.

Q.1 a) Solve the following LPP by simplex method 12

Maximize $Z = 2x_1+x_2$

Subject to $4x_1+3x_2 \leq 12$

$4x_1+x_2 \leq 8$

$4x_1-x_2 \leq 8$

With $x_1, x_2, \geq 0$

b) Describe applications of Operations research in construction industry. 05

OR

c) Describe the methodology of Operations Research. 05

Q.2 (a) Discuss the various phases in solving an OR problem. 08

OR

(b) Discuss in detail classification of OR models 08

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Enrollment No.

QP CODE UT 1118

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Unit Test No 1 Sep 2017
M Tech Civil (Structural Engg) SEM – I

Program Elective - I

Advanced Foundation Engineering CES-1091

Day and Date – Thu., 28/09/2017 Maximum marks – 25
Time- 2.30 – 3.30 pm

Instructions – All questions are compulsory
Figures to right indicates full marks

Q 1 a) Explain IS recommendations for various types of foundations 5

OR

a) Explain suitability of various types of foundations on multistoried structure 5

Q 2 Design a combined footing for two columns A and B spaced 5 mcentre to centre. Column A is 350 x 350 mm in size and transmit 700 KN. Column B is 450 x 450 mm in size and transmit a load of 1000 KN. The maximum length of footing is restricted to 7 m. The safe bearing capacity of soil is 110 KN/m^2 .Use M20 and Fe 415. Find SF, BM, reinforcement and depth of footing. Draw sketch. 20

Enroll. No.	

UT 1106

K.E.Society's

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UNIT TEST NO.1, 2017

F.Y.M.Tech. Civil Structures (Semester-I)

MAINTENANCE AND REHABILITATION OF STRUCTURES

(Course Code: ~~CST 5151~~ CES 1061)

Day & Date: 28/09/2017, Thu

Duration : 1Hrs 2.30 – 3.30 pm Max. Marks : 25

Instructions :

i. All questions are compulsory

Q.1. a How do we classify distress? State the causes for distress in concrete structures. Discuss the mechanism of Alkali Aggregate Reaction giving symptoms of its occurrence and preventive measures. CO1 09

b Identify the type of cracks seen on the wall surface of the building shown in Fig.1. Explain the cause of occurrence of these cracks and state the measures required to be taken to prevent such cracks. CO2 06

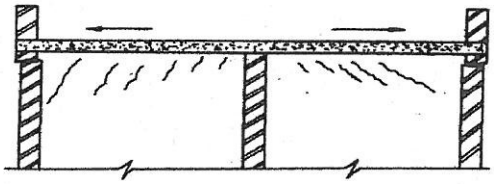

Fig. 1

OR

b Fig.2 shows two samples of carbonated concrete. Identify which concrete sample has more depth of carbonation. How do we test the concrete for carbonation test? CO1 06

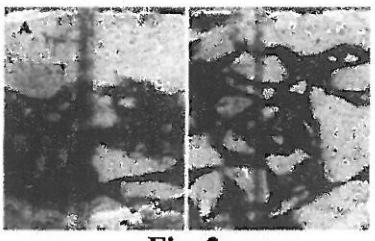

Fig. 2

Q.2 a State the characteristics of active and dormant cracks? How will you decide that the crack is a structural or non structural crack? CO2 04

b Discuss the sources and causes of dampness in buildings. What are the visible signs of action of dampness in a building and what precautions are necessary to avoid it? CO2 06

	UT 1
Enrol. No.	UT 1117

Rajarambapu Institute of Technology, Rajaramnagar

(An autonomous Institute)

First year M. Tech. Civil, Structures Semester I

Course: Introduction to Project Management

Subject Code: CES 1131

Day & Date: Fri, 29/09/2017

Time: 10.30 – 11.30 am **Max Marks: 25**

Instructions:

i. All questions are compulsory.
ii. Figures to the right indicate marks.
iii. Use of non-programmable calculators allowed
iv. Assume suitable data wherever necessary

Q.1 a) The VP of marketing approaches you with a fabulous idea, "fabulous" because he is the boss and he has thought it up. He wants to set up kiosks in the grocery stores as mini offices. "These offices will offer customers the ability to sign up for new wireless phone services, make their wireless phone bill payments, and purchase equipments and accessories. He believes that exposure in grocery stores will increase awareness of the company's offerings. After all, everyone has to eat, right? He told you that the board of directors has already cleared the project, and he will dedicate as many resources to this as he can. He wants the new kiosks in place in 12 stores by the end of next year. The best news is he has assigned you to head up this project. ***Read the case carefully and justify with statements; whether this is a project or process.*** **08**

Q.1 b) Who can be a project manager (PM)? State skill set required to be a PM. **07**

OR

Q.1 b) Explain with example scope creep and progressive elaboration. **07**

Q.2 a) Justify, why triple constraint is important in project management. **07**

OR

Q.2 a) Describe characteristics of project life cycle. **07**

Q.2 b) Answer any four

1. You have never managed a project before and are asked to plan a new project. It would be best in this situation to rely on _____ during planning to improve your chance of success? **Why?** **02**

   a) your management skills
   b) your previous training
   c) historical records
   d) responsibility charts

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2. How much time does the typical project manager spend communicating both formally and informally? 02

   A. 40-60%
   B. 50-70%
   C. 60-80%
   D. 75-90%

3. As applied to projects, temporary means that 02

   A. Projects are short in duration
   B. Every project has a definite beginning and end
   C. The undertaking will end at an undetermined in the future
   D. Projects can be cancelled at any time

4. A complex project will fit best in what type of organization? 02

   A. Functional
   B. Cross-functional
   C. Matrix
   D. Balanced

5. Which is not a good project example? 02

   A. Designing a new transportation vehicle
   B. Running a political campaign
   C. Building a facility
   D. Raising purchase order

----------**End**----------

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UT 1127

Unit Test 1, 2017

F. Y. M. Tech Civil Structure, Semester I

Course: Advanced Design of Steel Structures, Course Code: CES1031

Date & Day: Friday, 29-09-2017 Maximum Marks: 25

Time: 2.30 to 3.30

Instructions: *1. All questions are compulsory.*
2. Use of non-programmable calculator is allowed.
3. Use of IS:800-2007, IS:801-1975,IS: 875(Part 3)1987, IS:811-1987, IS: 11384-1985,IS Hand book/ Steel table is allowed

1 a Draw influence line diagram for the force in the diagonal member meeting at center for a through type truss bridge of span 24 m equally divided into 6 panels of 4 m each. The height of the truss is 4 m. The dead load and live load are 14kN/m and 50kN/m respectively. Calculate design forces in the member. **09**

2 a Design a simply supported composite beam to support the slab of a building $9m \times 35m$ with beams spaced at 3.5m center to center. The thickness of the concrete slab is $125mm$. Consider floor finish load of $1kN/m^2$ and live load of $4kN/m^2$.Use M20 grade concrete and steel with f_y= $250N/mm^2$. Assume that the propped method of construction is used. Design shear connectors. Check the beam for deflection. **16**

Enroll No	

K.E.Society's

Rajarambapu Institute of Technology, Rajaramnagar

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Unit Test- 01

F. Y. M. Tech. Civil-Structural Engineering, Sem. - I

Advanced Structural Analysis Course Code: CES 1011

Q.P.Code
UT 1088

Day & Date: Tuesday, 03/10/2017

Time : 2.30 pm To 3.30pm Max Marks- 25

Instructions: *1) Attempt all questions.*
2) Figures to the right indicates full marks
3) Assume suitable data, if required
4) Use of nonprogrammable calculator is allowed

Q.1a) State Muller Breslau principle. 2

b) Construct influence line diagram for bending moment and radial shear at quarter span from left hand support of the two hinged parabolic arch of span 24m and central rise 5m. 10

OR

Q.1b) Using Muller Breslau principle, develop the influence line for shear force at section D 3m from support A of the two span continuous beam ABC. The beam is fixed at C and simply supported over A and B, such that AB= 5m and BC = 6m. Obtain and plot the ordinates of ILD at quarter point of each span of the beam. 10

Q.2 A rigid bent ABC is of uniform cross section and is in a horizontal plane. It is fixed at A and is simply supported on a spherical bearing at C. It carries a vertical concentrated load 30kN at B. Analyze the bent and determine the reaction at the supports of the beam. Take AB= 4m and BC= 2m.Take EI=2GJ. 13