	UT 2
Enrol. No.	UT 1193

Rajarambapu Institute of Technology, Rajaramnagar

(An autonomous Institute)

First year M. Tech. Civil, Structures Semester I

Course: Project Management

Subject Code: CST525

Day & Date: Sat., 18/11/2017

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 a) Describe project process groups in detail. **10**

OR

Q.1 b) Produce flow chart of process interaction. **10**

Q.2 a) Explain project charter. List contents of project charter. **07**

Q.2 b) Describe in brief all the inputs to develop project charter process. **8**

OR

Q.2 b) Two common inputs to the processes are: **8**

1. Enterprise Environmental Factors
2. Organizational Process Assets

Explain above two in detail, state examples.

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

Enrollment No.

QP CODE UT 1181

K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute)
Unit Test No IINov 2017

M Tech Civil (Structural Engineering) SEM – I

Program Elective - I

Advanced Foundation Engineering CES-1091

Day and Date – Sat. 18/11/2017 Maximum marks – 25
Time- 10.30 – 11.30 am

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

Q 1 a) Explain the criteria for designing foundations of multi-storied constructions 5

OR

a) Explain the effect of various types of foundations on multistoried structure 5

Q 2 Design a slab of raft footing for six columns using following data.

Outer 4 columns – 300 x 300 mm each size carrying 500 kN load individually
Inner 2 columns – 350 x 350 mm each size carrying 700 kN load individually
Max available size of area - 8 x 10 m
M 20 and Fe 415 steel
Bearing capacity of soil – 120 kN/m^2 20

Enroll. No.	

UT 1180

K. E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute)
UNIT TEST NO.2, 2017
F. Y. M. Tech. Civil Structures (Semester-I)
MAINTENANCE AND REHABILITATION OF STRUCTURES
(Course Code: ~~CST 5151~~) CES 1061

Day & Date: 18/ 11 /2017 , Sat.
Duration : 1Hrs 10.30 – 11.30 am Max. Marks : 25

Instructions :
All questions are compulsory

Q.1. a A 27 year old overhead tank with RCC framed staging located in Sangli (Maharashtra) was investigated for carrying out condition survey through visual inspection (Fig.1). The following observations were noted: CO3 08

1. Spalling, cracking and splitting of concrete in RCC elements like, columns, beams, slabs and vertical walls of the tank.
2. Spalling of concrete cover in bracing beams and columns of staging.
3. Reinforcement was exposed at number of places and corroded heavily.
4. Signs of initial leakage at the bottom slab of tank could be noticed.
5. Corrosion stains and cracks observed in slab of gallery around water container.
6. Growth of vegetation was also observed on the gallery slab.

Fig.1

Which in-situ and laboratory tests will you perform for carrying out the condition survey? Recommend the methods for repairing the distressed structural elements and explain the procedure to be adopted for carrying out the repairs (any one method).

b How will you classify maintenance jobs of a building? Give examples of each such maintenance jobs. CO3 05

OR

b You are appointed as Jr. Engineer for the maintenance of Government building apartments. List out five items of maintenance, you are likely to come across with short description. CO3 05

Q.2 a What are the desirable properties of repair materials? Explain how the shrinkage CO4 07

compensating expansive cement performs as repair material.

OR

a	How are repair materials classified? Explain the application procedure for bonding old and new concrete using epoxy resin. Suggest any one name of the product available in the market to be used as repair material.	CO4	07
b	What is compatibility of repair material? Discuss how its requirement will change with loading.	CO4	05

UT 1170

K. E. Society's

Rajarrambapu Institute of Technology, Rajaramnagar

(Autonomous Institute)

M.Tech. (Civil-Structural Engineering) (Semester – I) Examination, 2017

STRUCTRAL DYNAMICS

Day and Date: Fri, 17/11/2017 Max. Marks: 25

Duration: 1.00 Hrs. 2-30 – 3-30 pm

Instructions: a) Solve all questions from each section.

b) Figures to the right indicate full marks.

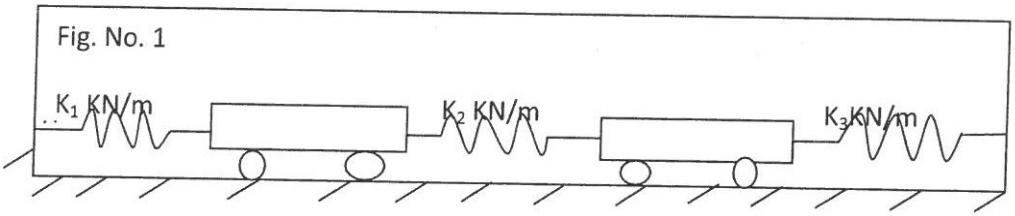
c) Use of non- programmable calculators is permitted.

d) Assume suitable data if necessary and state it clearly.

Q. 1. Using Duhamel's Integral determine the response of a SDOF system at t=0.25sec subjected to a triangular pulse of intensity 0.0 kN at t=0 sec and 50kN at t = 0.25 sec. and duration of 0.50 sec. The natural frequency of the system is o.3 Hz. 12

Q. 2. Determine the frequency and mode shape of the system as shown in figure no 1 by first principle or by any numerical method. Take W_1= 200 kN, W_2= 150 kN, K_1= 10KN/m, K_2= 20 kN/m and K_3= 10 kN/m. 13

Fig. No. 1



-----Good Luck. --------

Enroll No	

K.E.Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, affiliated to SUK)

Unit Test- 02

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

Advanced Structural Analysis Course Code: CES 1011

Q.P.Code
UT 1160

Day & Date: Friday, 17-11-2017

Time : 10.30 am to 11.30 am 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) Enumerate the difference between the geometric and material nonlinearity in the structural analysis 3

b) A beam- column simply supported at the ends is subjected to an axial compressive force P at both the ends and a lateral beam load is uniformly distributed over the entire length of intensity w per unit length. Compute maximum deflection and also determine maximum deflection due to axial force alone. Assume the beam-column is prismatic. 10

Q.2 Derive expressions for deflection, foundation pressure, slope, bending moment and shear force for long beam rest on elastic foundation subjected to concentrated clockwise moment 'Mo' at its center. 12

OR

Q.2 A rail supported on sleepers and ballast is subjected to three concentrated wheel loads each of magnitude 120 kN, spaced at intervals of 1676mm.If the foundation modulus is 16N/mm^2,the modulus of elasticity of material of the rail is 210 kN/mm^2 and the second moment of area of the rail section is 368 x 10^5 mm^4. Compute the maximum deflection of the rail and bending moments developed under each load. 12

K. E. Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute affiliated to SUK)

UT 1156

Unit Test 2, 2017

F. Y. M. Tech Structural Engineering, Semester I

Course: Advanced Design of Steel Structures, Course Code: ~~CST 506~~ CES 1031

Date & Day: Thu., 16/11/2017 Maximum Marks: 25

Time: 2.30 – 3.30 pm

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		Determine the permissible axial load for a rectangular column section 208mm×154mm with thickness of material 2mm and effective length 4m. Take f_y=250MPa.	10
2	a	Design a Z-shaped beam for a span of 4.5m and carrying a uniformly distributed load of 1.2kN/m. Design the section for flexure only.	08
		OR	
	a	Design two span continuous beam ABC of uniform plastic moment of resistance subjected to factored load of 100kN/m over entire length. Span AB= Span BC=5m.	08
	b	A propped cantilever ABC, fixed at A, simply supported at B and free at C. Length AB= l and overhang BC= $l/4$. Span AB is loaded with udl ω per unit length and concentrated load $\omega l/4$. Compute the ultimate load.	07

Enroll No.

K. E. Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Q.P. Code
UT 1152

Unit Test, November 2017

First Year M. Tech. (Civil Structures) Semester – I

Course Name: Advanced Engineering Mathematics **Course Code:** SHP 511

Day & Date: Thu, 16.11.2017 Time: 10.30 am to 11.30 am Max. Marks – 30

Instructions: *i) All questions are compulsory.*
ii) Figures to the right indicate full marks.
iii) Use of non-programmable calculator is allowed.

1. Attempt the following.

	Marks	Co
(a) Solve the one-dimensional heat equation $\frac{\partial u}{\partial t} = c^2 \frac{\partial^2 u}{\partial y^2}, (0 < x < L), t > 0)$ by method of separation of variables.	**10**	CO_1
(b) Determine the temperature in a thin metal rod of length L, with both ends insulated and with initial temperature in the rod $\sin(\pi x / L)$.	**5**	CO_1
OR		
(b) Determine the displacement of a string stretched between two fixed points at a distance 2c apart when the string is initially at rest in equilibrium position and points of the string are given initial velocities v where $v = \begin{cases} \frac{x}{c}, & \text{when } 0 < x < c \\ \frac{2c-x}{c}, & \text{when } c < x < 2c \end{cases}$ x being distance measured from one end.	**5**	CO_1

2. Attempt the following.

(a) Solve the Laplace equation in rectangle with $u(0, y) = 0, u(a, y) = 0, u(x, b) = 0$ and $u(x, 0) = f(x)$ (on X-axis).	**5**	CO_1
(b) Discuss the Graeffe's root squaring method in detail.	**10**	CO_2
OR		
(b) Determine all roots of the equation by Graeffe's root squaring method $x^3 - 4x^2 + 5x - 2 = 0$ by squaring thrice.	**10**	CO_2

Enrollment No	

Q.P. Code	UT 1161

K.E.Society's

Rajarambapu Institute of Technology, Rajaramnagar.

(An Autonomous Institute)

Unit Test 2- November - 2017

First Year M. Tech. Civil Construction Management SEMESTER – I

Construction Project Management (CCM1012)

Day and Date: Fri, 17/11/2017

Time: 10.30 am – 11.30 am Max Marks- 25

Instructions:

1) All questions are compulsory.
2) Assume suitable data where ever necessary.

Q.1

(a) Activity duration and precedence relationships between the activities of a project are given below :-

ACTIVITY	A	B	C	D	E	F	G	H	I	J
DURATION	08	7	6	5	4	5	8	4	5	6

PRECEDENCE RELATIONSHIPS

$F_AS_C=4$	$S_AS_B=0$	$S_BS_D=2$	$F_GS_J=0$
$F_DS_E=3$	$S_ES_F=0$	$F_CS_G=2$	$F_IS_J=1$
$F_CS_I=0$	$F_FF_H=4$	$S_HS_G=0$	

Draw the network and indicate activity timings. Also calculate the project duration. **(10) CO2**

(b) Comment on the performance of the project by referring following information. **(5) CO3**

Sr. No.	Budgeted cost of work schedule (BCWS)	Budgeted cost of work performance. (BCWP)	Actual cost of work performance (ACWP)
1	1200	1200	1200
2	1200	900	1200
3	1200	1200	1000
4	2400	1200	1200
5	1200	2400	3500

OR

(b) Earn Value Management has a unique ability to combine measurements of 1. Technical Performance. 2. Schedule Performance 3. Cost Performance Comment on the above statement. **(5) CO3**

Q. 2 Attempt any two.

(a) Prepare cost model of small construction project using bottom up estimating tool. **(5) CO3**

(b) What do you mean by project cost control? **(5) CO3**

(c) Identify the quality requirements or standards for residential building project. **(5) CO3**

UT 2	
Enrol. No.	UT1171

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: Fri, 17/11/2017

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 Solve any **TWO**

a) Describe with proper figure cyclic operation of Drill and Blast method of tunnelling. **6**

b) Bring out various methods used to dig tunnel in soft strata and explain one mechanized method. **6**

c) Finishing equipments perform various tasks. Describe the application of finishing equipments on a highway project. **6**

Q.2 a) Reason "Why trenchless Technology is required" **6**

b) List trenchless methods used for new instalations and explain one in detail. **7**

OR

b) List trenchless methods used for rehabilitation and explain one in detail. **7**

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

R.I.T. Rajaramnagar Exam. Centre

K.E.Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, affiliated to SUK)

Unit Test-02

First Year M. Tech. Civil Construction Management

SEMESTER- I

Operations Research in Construction (CCME11)

Enroll No	

Q.P.Code
UT 1182

Day & Date : ..... Sat, 18/11/2017

Time : ..... 10:30 - 11:30 am

Max Marks- 25

Instructions: 1) Use of non-programmable calculator is allowed.
2) Figures to the right indicate marks
3) Assume suitable data whenever necessary.

Q.1 a) Discuss in detail variants of Assignment problems. 05

b) A particular department of a company has five employees with five jobs to be performed. The time (in hours) that each man takes to perform each job is shown in the effectiveness matrix. 12

		Employees				
		A	B	C	D	E
Jobs	Excavation	10	5	13	15	16
	PCC	3	9	18	13	6
	Footing	10	7	2	2	2
	Rubble Masonry	7	11	9	7	12
	Earth Filling	7	9	10	4	12

How should the jobs be allocated, one per employee, so as to minimize the total man-hours?

OR

b) Leading cement manufacturer is producing cement through his three plants. Same is transported from plants to warehouses located at various locations. The cost of transporting one ton of cement from plants to various warehouses is given in the table below. Find the best route with lowest transportation cost. 12

Plant	Warehouses				Availability
	W_1	W_2	W_3	W_4	
P_1	190	300	500	100	70 Tons
P_2	700	300	400	600	90 Tons
P_3	400	100	600	200	180 Tons
Requirement	50 Tons	80 Tons	70 Tons	140 Tons	

Q.2 a) A manager is faced with problem of choosing one of the three products for manufacturing. The demand for each product may turn out to be good, moderate or poor. The probability for each state of nature is estimated as follows: 08
The estimated profit or loss under these states is.

State of Nature	Probability	Course of Action		
		OPC 43 Grade	OPC 53 Grade	PPC 43 Grade
Good	0.4	27000	20000	10000
Moderate	0.4	60000	70000	20000
Poor	0.2	30000	25000	-15000

Advice the manager about the choice of the product (Use EMV Criterion)

OR

P.T.O

OR

b) The following matrix gives the payoff of different strategies(alternatives) S_1, S_2, S_3 against conditions(events) N_1, N_2,N_3 and N_4: 08

	N_1	N_2	N_3	N_4
S_1	Rs. 4000	-1000	6000	18000
S_2	20000	5000	400	0
S_3	20000	15000	-2000	1000

Indicate the decision taken under the following approach:
Pessimistic, Optimistic, Regret and Equal probability.

Enroll. No.	

K.E.Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute)

UT 11944

M. Tech. Civil Engineering SEMESTER-I

2017-18

DISASTER MANAGEMENT

Course Code: **CCME21**

Day & Date: Sat, 18/11/2017

Time : 2.30 - 3.30 pm Max. Marks 25

Instructions :

i. All questions are compulsory

ii. Figures to the right indicate full marks

iii. Assume suitable data if necessary and mention it.

Que.1 a. Explain flood disaster management plan for Sangli. 7

OR

a. Iran is affected by earthquake with magnitude of 7.3 write a preparedness plan with due consideration to building structure 7

b. India is diversified country, list out various man-made disasters in India and describe the impact of chemical and industrial hazard on living and non-living things. 8

Que.2 a. Explain the role of public awareness in Fukushima (Japan) nuclear disaster management. 6

OR

6

a. Describe the role of Civil engineer in post disaster management

b. Chennai is badly affected by cyclone Vardah, write national and international strategy for disaster management. 4

OR

b. Write the role of Information Technology in artificial disaster management. 4