EM179

(An autonomous Institute)

First year M. Tech. Civil, Construction and Management Semester II Construction Equipments Subject Code: CEC-502

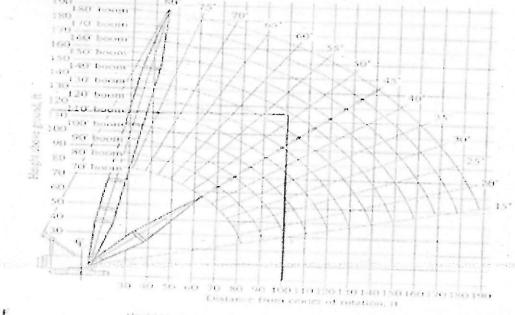
Day & Date: Mon 61512013

Time: 10.00 -1.00 pm.

Max Marks: 100

| Instr | uctions: | 112dl h3, 100 | 13-41 |
|--------|--------------------|---|-------|
| | i. | All questions are compulsory. | |
| | ii. | Figures to the right indicate marks. | |
| | iii. | | |
| | iv. | Use separate answer sheet for each section | |
| | | Use of non-programmable calculators allowed | |
| | v. | Assume suitable data wherever necessary | 4 |
| Q.1 | | and explain the factors to be considered for selection of new equipment. \mathbf{OR} | 9 |
| b) | What ar | re the elements of ownership cost? Explain. | |
| U) | State the | e causes of equipment idle time and ways to minimize it. | 9 |
| | Explain | OR With examples adventages at 11 | |
| | | with examples advantages and disadvantages of using machines. | |
| Q.2 | Reason | why earthwork planning is necessary? | |
| a) | | OR | 9 |
| b) | "Dozers | are construction horses" Explain in detail. | |
| 0) | | some construction workers resist the use of safety equipment such as hard hats protection harnesses? Why does the practice of resisting the use of safety nt persist? What should be done about it? | 9 |
| 0.2 | | | |
| Q.3 a) | Explain | pumps used in dewatering. Write suitability of each of the types. | 4 |
| | DAPIAIII \ | with suitable diagrams how Tunnel Boring Machine (TBM) can prove to be loose and collapsible soils. | 6 |
| | Enliet vor | OR | |
| | Linist var | ious pile driving hammers and explain any one in detail. | |
| c) | | brief roller compacted concrete. State fleet required for RCC operation. | 6 |
| Q.4 a) | | naterial transporting equipments and state types of each. OR | 4 |
| | What are examples. | the various types of Conveyers used for industrial material handling? Sate | |
| b) | | ous methods of concrete placing, explain advantages and disadvantages. OR | 6 |
| | Explain in | brief slip form paying system | |
| c) | Enlist two | primary types of HMA plants. Draw a labelled diagram of any one. | 6 |
| | | | |

Q.5 a) Using the figure below, select the length of boom required to hoist load of 100000 lb from a truck at ground level and to place it on platform 80 ft above. The minimum available vertical distance from the bottom of the load to the bottom of the crane is 35 ft. the maximum horizontal distance from the centre of rotation of the crane to the hoist line of the crane while lifting is 100 ft.



OR

A jaw crusher and a roll crusher are used in an attempt to produce 125 tph as specified below. The maximum size of input stone is 16 in. Select the crushers to produce this aggregate.

| Size screen c | ppening (in.) | |
|---------------|---------------|---------|
| Passing | Retained On | Percent |
| 2 | | 100 |
| 2 | 1 | 40-50 |
| 11 | 1/2 | 20-30 |
| 1/2 | 0 | 25-35 |

Use table given below.

esentative canadifies of 5 ake typo jaw crushers, in tons per hour (meh ditons per hour) of stone."

| Size | Maxi- | Maxi- | | | C | Closed s | etting of | discha | rgo ope | ning [in | (mm)] | QSAY. | ASSESS: |
|------------------------------------|------------|-----------------|--------|---|--------|--------------|-------------|--------|---------|------------|-------|-------|---------|
| Crusher [in. (mm)] [†] | mum rpm | mum hp. (kW) | (25.4) | 1 ¹ / ₂ (38.1) | (50.8) | 2¦ (63.5) | 3 (76.2) | 4 | 5 (137) | 6 (152) | 7 | 8 | 0 |
| 10 × 6 | 300 | 15 | 11 | 16 | 20 | | · · · · · | | | (192) | (178) | (203) | (229) |
| (254×405) | | (11.2) | (10) | (14) | (18) | | | | | | | | |
| 10 × 20 | 300 | 20 | 14 | 20 | 25 | 34 | | | | | | | |
| (254×508) | | (14,9) | (13) | (18) | | | | | | | | | |
| 15 × 24 | 275 | 30 | (10) | 27 | (23) | (31) | | | | | | | |
| (381×610) | | (22.4) | | | 34 | 42 | 50 | | | | | | |
| 15 × 30 | 275 | 40 | | (24) | (31) | (38) | (45) | | | | | | |
| (381×762) | | (8.89) | | | 43 | 53 | 52 | | | | | | |
| 18 × 3G | 250 | 60 | | (30) | (39) | (48) | (56) | | | | | | |
| (458 × 916) | 200 | (44.8) | | 46 | 61 | 77 | 93 | 125 | | | | | |
| 24 × 36 | 250 | 75 | | $\{42\}$ | (55) | (69) | (84) | (113) | | | | | |
| (610×916) | -200 | (56.0) | | | .77 | 95 | 114 | 150 | | | | | |
| 30 × 42 | 200 | 100.0 | | | (69) | (86) | (103) | (136) | | | | | |
| (762 × 1,068) | 200 | (74.6) | | | | 125 | 150 | 200 | 250 | 300 | | | |
| 36 × 42 | 175 | | | | | (113) | (136) | (181) | (225) | (272) | | | |
| $(916 \times 1,068)$ | 173 | 115 | | | | 140 | 160 | 200 | 250 | 300 | | | |
| 36 × 48 | 160 | (85.5) 125 | | | | (127) | (145) | (181) | (55.6) | (272) | | | |
| (916 × 1,220) | 100 | | | | | 150 | 175 | 225 | 275 | 325 | 375 | | |
| 42 × 48 | 150 | (93.2) | | | | (136) | (158) | (202) | (249) | (294) | (939) | | |
| (1,068 × 1,220) | r.o. | 150 | | | | 165 | 100 | 250 | 300 | 350 | 400 | 450 | |
| 48 × 60 | 120 | (111.9) | | | | (149) | (172) | (226) | (272) | (318) | (354) | (408) | |
| (1,220 × 1,542) | 120 | 180 | 2 | | | | 220 | 280 | 340 | 400 | 450 | 500 | 550 |
| 55 × 72 | 95 | (134,7) | | | | | (800) | (254) | (309) | (364) | (408) | (454) | (500) |
| (1,422 × 1,832) | 33 | 250 | | | | | | 315 | 380 | 450 | 515 | 580 | 640 |
| (Title - Tiook) | | (186.3) | | | | | | (286) | (345) | (408) | (468) | (527) | (580) |

*Based on the closed position of the hottom swing jaw and stone weighing 100 lb/of when crushed.

The first number indicates the width of the feed opening, whereas the second number indicates the width of the jaw plates.

Q.6 a) Which are the two basic types of compaction equipments? Explain one in detail. What information is required before selecting crushing equipment? List fleet requirement for the asphalt paving operation. b) 6 c)

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First Year M.Tech. Civil (Structures) Semester-II Finite Element Analysis Subject Code: CES 502

| Day/Da | te: Mor | iday | 6151 | 2013 |
|--------|---------|------|------|------|
| Time ! | K.AA | 1 00 | 200 | _ |

Max.Marks-100

Time: 16,00 -1.00 p.m.

Instructions- i) All questions are compulsory

- ii) Figures to the right indicate full marks
- iii) Assume suitable data wherever necessary
- iv) Use separate answer book for each section
- v) Use of non-programmable calculator is allowed
- Q.1.(a) State assumptions made for discretization of structure in FEM with example. 6 Derive element stiffness matrix for beam element by direct approach method 12
- Q.2. For the spring assemblage shown in figure.1. Obtain 18
 - i) Global stiffness matrix ii) Nodal displacement of node 2, 3 and 4
 - ii) Reaction at fixed node

200 M/M 2 200 N/m 3 100 N/m

Fig. 1.

OR

Analyse the beam loaded and supported as shown in fig.2, by using finite element Q.2. method. Take $E= 2 \times 10^5 \text{ N/mm}^2$, and $I= 5 \times 10^6 \text{ mm}^4$

24KN/m 12KN/m 5m 5m

Fig.2

State importance of shape function in FEM Q.3.(a)

How relationship between Natural and Cartesian coordinate system is established? Explain with the help of example

12

18

Q.4. What are axisymmetric problem? Explain in detail procedure to formulate 16 element stiffness matrix for any one axisymmetric element.

| Q.5 | Discuss ACM element and write down detailed procedure to obtain [K] for ACM element | 16 |
|-----|---|----|
| | OR | |
| Q.5 | What are different types of shell element? Explain the element stiffness formulation procedure for shell triangular element | 16 |
| Q.6 | Find Natural frequencies for continuous bar vibrating freely in axial direction by using two elements | 16 |

Rajarambapu Institute of Technology, Rajaramnagar (An Autonomous Institute)

EM 187

First Year M. Tech. Civil (Structures)

End Semester Examination for Semester II Year 2012 -13

Enroll No

Advance Design of Concrete Structures, Subject Code: CES504

Day & Date: Wed. 08/05/2013

Time: 10.000 am. - 1.00 p.m.

Max Marks-100

Instructions: i) All questions are compulsory.

- ii) Figures to the right indicate full marks.
- iii) Assume suitable data wherever necessary.
- iv) Answers for both sections should be written in common answer book.
- v) Use of IS:456-2000, IS:1343-1980, IS:3370(Part IV)-1967, IS:1893-2002 is allowed.
- iv) Use of non-programmable calculator is allowed.
- 1. Determine the design moments and reinforcement for column strip along long span direction for a flat slab consisting of rectangular panels of size 7.5m x 6.0m using Direct Design Method. Assume a live load of 5.0kN/m² and a finish load of 1.0kN/m². The size of supporting columns is 500mm diameter. Use M20 concrete and Fe415 steel. Check for shear stresses. Design of reinforcement for shear is **not expected**. (16)
- 2. Two columns, C_1 of size 400mm x 400mm and C_2 of size 500mm x 500mm support axial loads P_1 =900kN and P_2 =1600kN respectively under service conditions. The column C_1 is an exterior column whose exterior face is flush with the property line. The centre to centre distance between these columns is 4.5m. The allowable soil pressure at the base of the footing is 240kN/m². Calculate the area dimensions of the rectangular combined footing for above two columns. Also design the section for critical bending moment near the column C_2 and compute the reinforcement requirements in the longitudinal and transverse directions at column C_2 . Use M20 concrete and Fe415 steel.

OR

- 2. Design a vertical wall of an elevated circular water tank for a storage capacity of 360,000 liters with fixed base. Also design top dome and top ring beam. Use concrete of grade M20 and steel of grade Fe415.
- 3. An elevated water tank has a diameter 10m and a height 6m. The thickness of circular wall is 200mm and thickness of bottom slab is 400mm. It is supported on a concrete staging consisting of 8 columns located on the circumference of a circle of 9m diameter. The height of the staging is 16m and horizontal braces of size 450mm x 450mm are provided at 4m spacing. The circular columns are 500mm in diameter. Calculate the design forces in the column due to earthquake, when tank is full. Assume raft foundation at the base. Consider earthquake zone III. (16)

---- Page 1----

(Q.3 is continued on page 2)

- 3. An elevated water tank has a diameter 10m and a height 6m. The thickness of circular wall is 200mm and thickness of bottom slab is 400mm. It is supported on a concrete staging consisting of 8 columns located on the circumference of a circle of 9m diameter. The height of the staging is 16m and horizontal braces of size 450mm x 450mm are provided at 4m spacing. The circular columns are 500mm in diameter. Calculate the design forces in the column due to wind when tank is full. The basic wind speed is 39 m/sec. Assume $k_1 = k_2 = k_3 = 1.0$. Assume raft foundation at the base.
- **4.(a)** A simply supported prestressed beam of 10m span has a cross section of 500mm x 800mm. It is subjected to a parabolic cable with zero eccentricity at the ends and 200mm at the midspan with a prestressing force of 1200kN. The beam is subjected to a concentrated load of 150kN at centre and self weight of 9.6kN/m over entire span. Find the extreme fibre stresses at midspan by load balancing concept. (08)
- (b) A pretensioned prestressed concrete beam of 9m span has a cross section of $400 \text{mm} \times 800 \text{mm}$. It is prestressed with 2400 kN at transfer. The cable has cross sectional area of 2000mm^2 of steel and a parabolic profile with maximum eccentricity of 120 mm at midspan and zero at the ends. Determine the loss of prestress. Take $E_s = 2.1 \times 10^5 \text{N/mm}^2$. Use M30 concrete. Assume minimum ultimate tensile strength of prestressing steel as 1500N/mm^2 . Use IS:1343-1980. (08)
- 5.(a) Write on: linear transformation and concordancy of cables. (04)
- (b) A prestressed concrete beam of uniform cross-section has a span of 12 m, supports UDL of 15 KN/m over the entire span excluding the weight of beam. Determine i) The suitable dimensions of the beam, ii) the area of the tendon and iii) the position of the tendon. Take permissible stresses as 16 N/mm² for concrete & 1050 N/mm² for tendon. Assume loss of prestress at 15%.
- 6.(a) Write a short note on circular prestressing.

(b) A two span continuous beam ABC is simply supported at A and C, and continuous over support B has a uniform cross section. Span AB= Span BC= 10m. The beam is prestressed by a continuous cable having a parabolic profile for each span. The eccentricity of the cable at supports A and C is zero, at support B is 80mm below the centroid and at centre of each span is 100mm below the centroid. Locate the pressure line. The tendon carries a prestressing force of 150kN.

(04)

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First Year M. Tech. Civil Engineering (Structures) SEMESTER - II

CES 506 Earthquake Resisting Structures

| Day a | nd Date: Fei | day,10/05/2013 | | |
|-------|------------------------------|---|--|-------------|
| | | to 01.00 pm | Max. Marks- | 100 |
| | Instructions- | i) All questions are compulsory. | | |
| | | ii) Figures to the right indicate full marks. | | |
| | | iii) Assume suitable data wherever necessary. | | |
| | in the second second | iv) IS 1893, SP16 permitted | A LOCAL TO THE STATE OF THE STA | |
| 1. | A) Write short OR | note on dynamic properties of soil? | | 06 |
| | A) What are of one method in | lifferent methods used for measurement of magnitu detail. | de of earthquake? Ex | plain 06 |
| | B) Write short OR | note on "response of structure to earthquake motion | | 06 |
| | B) Explain co | nstruction of design response spectrum. | | 06 |
| | C) Discuss he MDOF system | ow the response spectrum analysis of SDOF sym. Also discuss various modal combination rules | stem can be extende | ed to 06 |
| 2. | A) Write dow | on short note on movement of tectonic plates? | | 08 |
| | | OR | | |
| | A) Write dow | n short note on continental drift? | | 08 |
| | B) Write dow | n detail procedure for construction of design res | ponse spectrum. | 08 |
| 3. | The details of | a three storey RCC school building is as given below | V | |
| | | e spacing between columns in both directions | : 4m | |
| | | e number of bays in both directions | : 2 | |
| | | e height of each floor | : 3.5m | |
| | | e thickness of slab | : 150mm | |
| | | ickness of brickwork along periphery | : 230mm | |
| | (f) Gr | ades of steel and concrete | : Fe 415 and | M_{20} |

The building is located in seismic zone V. The type of soil encountered is medium stiff and it is proposed to design the building with a special moment resistant frame. The intensity of dead load is 10 KN/m2 and the floors are to cater to an imposed load of 3 KN/m2. Determine the design seismic loads on the structure by static analysis or dynamic method.

4. A) Explain "earthquake Resistant Design Philosophy".

08

- B) Explain precautions to be taken at all levels for improving resistance to earthquake forces.
- 5. A) How ductility of a RC column can be enhanced? Explain behavior of beam column junction during earthquake. 04
 - B) A beam member in a portal frame has a span of 5m and carries an udl of 25KN/m over entire span, including self weight of beam. The hogging bending moments at both ends are -90KN-m and 110KN-m and sagging bending moments are 50KN-m and 30KN-m respectively. The size of beam is 300 X 600mm. The grades of concrete and steel are M20 and Fe 415 respectively. Design beam for ductility as per IS 13920.
- 6. A) Write note on "Principles of Planning"? Explain concept "weak beam-strong column" in the design philosophy?
 - B) What are different techniques for improving resistant to earthquake force for load bearing structures?

GOOD LUCK

Rajarambapu Institute of Technology, Rajaramnagar Set-(An Autonomous Institute) First Year M. Tech. Civil (Const & Mgmt) SEMESTER-II Enroll. No. -End Semester Examination (ESE) Modern Construction Materials Subject Code: CEC 506 Day & Date: Friday, 10/05/2013 Time: 10.00 am to 01.00 pm Max. Marks : 100 Instructions: Figures to the right indicate full marks. i. Assume suitable data if necessary and mention it. What is High Performance Concrete and enlist its applications. High Que.1 a) Performance Concrete can be a High Strength Concrete but the converse is not true, comment. What are the basic properties of fiber reinforced concrete which can be 09 advantageously made use of in the design of structural elements? Differentiate between mild steel rods and HYSD bars? What are the different 08 Que.2 market forms of rolled steel sections? What are the plastic coatings? Give the classification of plastic coatings. Explain b) their applications in Construction Industry. Describe the structural properties of aluminium. Explain various uses of 10 aluminium products in building construction. Que.3 What is the difference between waterproofing and damp-proofing? Describe the 06 basic components of a waterproofing system with neat sketches. What are the reasons of commonly encountered leakage problems in buildings? 10 b) Write the possible remedies? OR What are the different types of waterproofing systems? Describe the procedure for application for bitumen based system. Que.4 Write notes on(Any two) 08 i. **Smart Concrete** ii. Composite materials iii. Flooring and Facade Materials Describe briefly the basic requirements for a smart structure. 08 What are the smart materials? Explain their various applications in civil 08 Que.5 a) engineering field. OR What is a smart material and how is it classified based on the basic properties 08 modified? What are the intelligent materials? Explain the difference between smart and b) 08 intelligent materials? Describe the types of facades materials and its applications in construction 08 Que.6

What is a composite? Explain fibre reinforced plastics in construction industry.

08

industry?

b)

Rajarambapu Institute of Technology, Rajaramnagar (An Autonomous Institute)

| Γ | |
|----|-----|
| EM | 206 |
| | |

Enroll No

First Year M. Tech Civil Structures SEMESTER – II
Structural Design of Concrete Bridges Subject code

| Structural Design of Concrete Bridges Subject | t code –CES 508 |
|--|----------------------|
| Day and Date Monday, 13/05/2013 | |
| Time - 10.00 am to 01.00 pm | Max Marks – 100 |
| Instructions: - i) All questions are compulsory | |
| ii) Figures to the right indicate full marks | |
| iii) Assume suitable data wherever necessary | |
| iv) Answers should be written | in common answerbook |
| v) Use of non-programmable calculator, IS cod | |
| Q.1 Solve any three | |
| a) Define Economic span, Afflux, Linear water way | 6 |
| b) Explain briefly Courbon's theory | 6 |
| c) Write a note on IRC loading | 6 . |
| d) State brief procedure of designing T – beam | 6 |
| Q.2 Design the box culvert from given information | 18 |
| Road width = 7.5 m | |
| Inside clear opening 4.5x4.5 m | |
| IRC class AA tracked vehicle | |
| Density of soil = 18 KN/m ³ | |
| Maximum moment for top and bottom slab =70 KNm Direct force =35 KN | |
| Maximum moment at mid of wall= 32 KNm | |
| Ultimate axial thrust =2.5 KN | |
| Draw suitable sketch. | |
| OR | |
| | |
| Q. 2. Design the deck slab from the following data draw neat sket Clear span = 5 m | tch. |
| IRC class AA tracked vehicle load | |
| Road width =7 m | |
| Density of wearing coat = $20KN/m^3$ | |
| Wearing coat thickness 80 mm | |
| M - 20 & Fe = 415 | |
| Adopt suitable values of remaining as necessary | 18 |
| Q.3. Write note on | |
| a) Construction technique on super structures by cantilever m | ethod 8 |
| b) Balanced cantilever bridge | 8 |
| | |

| Q. 4. Verify the adequency of dimensions for a pier from the following data. Material M-20, Fe-415 Density of soil = 18KN/m³ Road width = 7.5m footpath on either side 1m Span of bridge =15m Total top width = 1.8m Hight of pier upto springing level = 9m Centre to centre of bearing on either side = 1m Side batter = 1in 12 HFL = 1.5m below the bearing level The bridge deck consist of three longitudinal girder of 1.4m depth with a deck slab of 250 mm depth OR | 16 |
|--|----|
| Material M-20, Fe-415 Density of soil =18 KN/m ³ Road width = 7.5 m footpath on either side 1m Span of bridge = 16 m | 16 |
| Total top width =2 m Hight of pier upto springing level = 10 m Centre to centre of bearing on either side = 1.5m Side batter = 1 in 12 HFL = 1.5m below the bearing level The bridge deck consist of four longitudinal girder of 1.2m depth with a deck slab of 200 mm depth | |
| Q.5. a) Design an elastometric unreinforced neoprine pad bearing to suit following data. Vertical load (sustained) = 260KN Vertical Load (Dynamic) = 70KN Horizontal force =80KN Modulus of rigidity of elastomer = 1N/mm ² Friction coefficient =0.30 | 12 |
| b) Basis for selection of bearings | 04 |
| Q.6. Write notes on a) Types of abutment b) Expansion joint in bridges c) Functions of bearings d) Constrution of reinfored earth retaining structures | 16 |

Enrol. No.

(An autonomous Institute)

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

Advanced Construction Techniques Subject Code: CEC-508

Day & Date: Monday, 13 05 2013

| Time: | 10.00 | Max Marks | : 100 |
|---------|----------------|---|------------|
| Instruc | tions: | | |
| | i. | All questions are compulsory. | |
| | ii. | Figures to the right indicate Full marks. | |
| | iii. | | |
| | iv. | Use of non-programmable calculators allowed | |
| | v. | Assume suitable data wherever necessary | |
| Q 1 | Answ | er the Following Question. | |
| | a. | What is meant by Trenchless Technology? Under what condition Trenchless | 05 |
| | | Technology is suggested? Explain in your words. | |
| | | Explain with a neat sketch Pipe Jacking Technique. | 04 |
| | c. | Explain with neat sketch Box Jacking Technique. List out its advantages and disadvantages. | 06 |
| Q 2 | Answ | er the Following Question. | |
| | a. | Write a detailed note on Innovative Road Construction Technique. Explain its Importance in the development of a country | 05 |
| | b. | Explain with a neat sketch Immersed Tube Tunneling. | 04 |
| | c. | What is meant by Smart Tunneling? Explain its construction and application with a case study. | 06 |
| Q 3 | Answe | er the Following Question. | |
| | a. | What is meant by Continuous Concreting Operation? Explain step wise procedure for tall buildings. | 09 |
| | b. | Explain with neat sketch Suspended formwork. | 08 |
| | c. | Explain with neat sketch Vacuum Dewatering of Concrete Flooring. | 08 |
| 0.4 | 11 7.*, | | 79,240,000 |
| Q.4 | | a detailed note on: | 15 |
| | | d jacking grout through slab foundation. | |
| | | ro pilling for strengthening of floor. grade water proofing. | |
| | | ck stabilization technique | |
| | u) Clai | on Stabilization technique | |

OR

- a) Various techniques for erection of tall structure.
- b) Large Span Structure.
- c) Launching techniques for heavy decks.
- d) In-situ pre-stressing in high rise structures.
- Q.5 a) What are various precautions are to be necessary during construction of offshore structu 07 b) Explain construction sequence in cable stayed bridge. 08

Q.6 a) Explain stepwise procedure for erection of lattice tower and rigging of transmission line structure.

07

Explain with neat sketch launching and pushing of box decks.

b) Explain stepwise advanced technique and sequence in demolition and dismantling of 08 high rise building.

OR

OR

Explain with neat sketch Mud jacking grout through slab foundation.

EM217

Rajarambapu Institute of Technology | Department of Civil Engineering
End Semester Examination | 100 Marks | Date: | Time: 3 hrs
M. Tech. (Structures) | CES 510: Theory of Plates and Shells | Set

| Instru | ections | Date: Wednesday 15/00 Time: 10.00 am to 01.00 | 5/2013 pm |
|--------|---------|--|------------------------|
| 1. | All q | uestions are compulsory | |
| 2. | Mark | s are reserved for neat diagrams at correct places | |
| Q.1 | | Draw stress resultants on the element of circular plate and write general equations of equilibrium, equations of equilibrium for loading and material symmetry. Further state governing Ordinary Differential Equation (ODE) | 18 |
| Q.2 | * 1 | Derive and state displacement field for circular plate as per classical plate theory, stains and constitutive relationship. | 18 |
| | | OR | |
| Q.2 | | For a fixed edge solid circular plate of radius \boldsymbol{a} subjected to UDL of $\boldsymbol{q_0}$ Determine displacement and stresses in circular plate and draw variations. | 18 |
| Q.3 | a) | State and explain with neat diagrams classifications of shells | 08 <i>6</i> 7 08 07 |
| | b) | State and explain with neat diagrams membrane and bending forces acting on shells (Draw separate figures). Also expected to write expressions for stress resultants. | 08 07 |
| Q.4 | | State and explain with neat diagrams equations of equilibrium for cylindrical shells using general theory with membrane or bending forces. | 16 |
| Q.5 | | For a circular cylindrical shell simply supported at both the ends, find N_x , N_ϕ , $N_{x\phi}$ due to its own weight. Also draw variations in the forces. | 18 |
| | | OR | |
| Q.5 | | A pipe carrying a fluid of weight γ with built in edges, find N_x , N_ϕ , $N_{x\phi}$ | 18 |
| Q.6 | a) | State N_x at crown and at springing for circular cylindrical shells without edge beams | 08 |
| | b) | 1 | 80 |

Rajarambapu Institute of Technology, Rajaramnagar. First Year of M.Tech (C&M) End Semester Examination (ESE) Sem -II Year 2012 -13

Course & Course Code: Human Resource Management in Program : M.Tech(C&M) Construction CEC 520 Date of Exam: Wednesday, Time: 10.00 aro to Max. Marks 100 15/05/2013 Instructions: 1. All Questions are compulsory. 2. Figures to the right indicate full marks. 3. Use of Calculator is allowed Q1. Explain the any four of the following in brief: 20 a) Motivation. b) Human Resource Planning. c) Employee Grievances. d) Fringe Benefits. e)Labour Turnover. f)Job Evaluation. g) Placement and Induction. Q2. Answer any two of the following. 20 a. "Managing people is the heart & essence of being a manger" Discuss the need & importance of HRM in view of this statement. b. What are the Traditional methods of Performance appraisal? c. Discuss the importance of employee safety in an Industry. What are the causes and precautionary steps to be adopted to prevent Industrial accidents. Q3. Write short notes on any two of the following: 14 a. Herzberg's theory of motivation b. Intergroup conflicts and management c. Employee benefits

d. Special human resource problems in construction sector.

Q4. You are the HR Manager of DLF constructions private limited. Design a recruitment process and a suitable training program for the constructions engineers required in your organization.

16

Q5. Discuss "Effective communication is the crux of effective performance". Explain the barriers in communication for people management.

OR

What are the future challenges for human resource management construction? W hat can Managers do to face these challenges?

Q6. Read the following case and answer the questions given below.

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Adam, fresh from school was a newly recruited HR practitioner. During his one month into the job, he was asked to be in-charge of the orientation programme for the entire organisation. Being new, he followed closely to the processes. Recently, Roy joined the organisation and Adam was required to orientate him. On Roy's first day of work, Adam brought him around the organisation for introduction to the rest of the staffs. Unfortunately, Roy's assigned mentor was not around hence, Adam was unable to make an official introduction for Roy to meet up with his mentor. In the afternoon, during the HR briefing, Adam mentioned to Roy that there is a buddy system in place but it is only on an opt-in basis. Roy requested to opt for a buddy. Adam was rather surprised by Roy's request as according to Adam's manager-Jean, no one in the organisation has requested for a buddy. Hence, Adam checked with Jean on the criteria in getting a buddy for Roy and according to her, Adam found out that it needed to be someone preferably from Roy's department. Having clarified on the criteria, Adam was supposed to get a buddy for Roy, unfortunately, this issue was clearly forgotten by Adam due to his busy schedule as he was involved in other HR matters as well and he did not follow up with Roy's request promptly.

One week later, Adam met Roy in a lunch gathering and Adam greeted Roy and asked him casually how is he doing and if he has adapted well to his job. Roy, asked Adam blatantly and angrily where is his buddy that he had requested. At that moment, Adam recalled on the

existence of this request and unwittingly told Roy that he thought Roy was joking with him on the request for a buddy as he did not want to admit to Roy that he had clearly forgotten about the whole issue. Roy was very angered by Adam's response and told him off that he was very serious in getting a buddy and that its Adam's responsibility to do so. Adam, clearly embarrassed and guilty about his mistake, apologised immediately and promised to get him a buddy. On the very day, a buddy- Sam, was found for Roy. Roy was very unhappy with Adam and confronted Adam and his buddy when he was able to have an official meet up session with his mentor. Adam explained to Roy that the organisation has no current practice in place for meet up sessions to be arranged between mentors and mentees and its a practice for mentees to take self-initiative to do so in arranging for meetings with their mentors and also that his mentor is currently out of town and will only be back the next day. Adam, himself being a new staff also was at that moment in time speaking on personal experience and also based on what Jean had told him. Sam, who was

present agreed and helped to explain to Roy on the practice. Roy kept quiet and Adam unknowingly thought that Roy has understood the organisation practice. Hence, Adam did not continue to check with Roy on this aspect. The following day, Roy had a feedback session with his manager and Adam was called upon to sit in as a part of the orientation programme. Roy brought up the issue on Adam's failure to get him a buddy promptly and that he was not introduced to his mentor at all. He complained about the poor management of the HR mentor and buddy system and that it was not effective at all and that he expressed that he is very unhappy with Adam as he felt that he was not doing his job at all. Adam tried to explain to Roy and his manager about what happened and also reassured Roy that he will take his suggestions of improving on the system and was apologetic about the issue. He told Roy's manager that he will bring Roy to see his mentor after the session as his mentor is back in the office after being on leave for the past week. Roy was still very unhappy with Adam and continued telling Adam off in front of his manager.

Questions:

- 1. On an HR practitioner point of view, what should Adam do to resolve the issue?
- 2. Roy is very unhappy with Adam and holds it against him even though all has been done and followed up. What should Adam as HR do to resolve this and should Jean, as Adam's manager do something?
- 3. What role does Roy's manager play in this issue and should he be implicated?