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**E Reg. No. :**

**Question Paper Code: 57P61**

Ph.D COURSE WORK EXAMINATION, NOV 2017

Elective

Civil Engineering

 15PSE501- ANALYSIS AND DESIGN OF TALL BUILDINGS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

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| 1. | (a) | (i) Explain briefly general planning considerations of tall building  | CO1- U |  (16) |
|  |  | (ii) List out the classifications of tall buildings. | CO1- R |  (2) |
|  |  | (iii) Write the short notes on loading in tall buildings. | CO1- R |  (2) |
|  |  | Or |  |  |
|  | (b) | (i) Explain tall building behavior during earth quake condition.  | CO1- U |  (16) |
|  |  | (ii) Distinguish between static and dynamic approach. | CO1- U |  (2) |
|  |  | (iii) Distinguish between working stress design and limit state  design. | CO1- U |  (2) |
|  |  |  |  |  |
| 2. | (a) | (i) Explain the utility of box systems and composite floor system in  the tall building.  | CO2- U |  (16) |
|  |  | (ii) Difference between shear wall and coupled shear wall. | CO2-R |  (2) |
|  |  | (iii) Differentiate the rigid frame and In filled frame. | CO2-R |  (2) |
|  |  | Or |  |  |
|  | (b) | (i) Compare the behavior of shear wall structures with that of  braced frame structures.  | CO2- U |  (16) |
|  |  | (ii) State the factors which affect the growth and height of  structures. | CO2- U |  (2) |
|  |  | (iii) Explain the category of interior structures. | CO2- U |  (2) |
|  |  |  |  |  |
| 3. | (a) | (i) Explain about Accurate analysis and reduction techniques.  | CO3-U |  (16) |
|  |  | (ii) Write the short notes on modeling analysis. | CO3-R |  (2) |
|  |  | (iii) Find the moment of inertia of twisted forms? | CO3-R |  (2) |
|  |  | Or |  |  |
|  | (b) | (i) Explain the lumping and its types with neat sketch. | CO3-U |  (16) |
|  |  | (ii) Distinguish symmetry and anti-symmetry structures. | CO3-U |  (2) |
|  |  | (iii) Define drift and twist. | CO3-R |  (2) |
|  |  |  |  |  |
| 4. | (a) | (i) Discuss the effects of creep, shrinkage and thermal effect on tall  building structures.  | CO4- U |  (16) |
|  |  | (ii) List out the effects of differential movements. | CO4-U |  (2) |
|  |  | (iii) Define creep. | CO4-R |  (2) |
|  |  | Or |  |  |
|  | (b) | (i) Discuss in details about fire resistance of tall building structures. | CO4- U |  (16) |
|  |  | (ii) Define elastic shortening. | CO4- R |  (2) |
|  |  | (iii) How to evaluate the thermal movement in the members? | CO4- U |  (2) |
|  |  |  |  |  |
| 5. | (a) | (i)Describe the methods for overall buckling analysis of frames by  approximate method.  | CO5- U |  (16) |
|  |  | (ii) Define stability. | CO5- R |  (2) |
|  |  | (iii) Define amplification factor. | CO5- R |  (2) |
|  |  | Or |  |  |
|  | (b) | (i) Explain the effects of foundation rotation on the stability of tall  buildings.  | CO5- U |  (16) |
|  |  | (ii) Give situations for torsional instability. | CO5- R |  (2) |
|  |  | (iii) Define buckling. | CO5- R |  (2) |
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