

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SECOND SEMESTER M.TECH. DEGREE EXAMINATION, APRIL 2017

**CIVIL ENGINEERING**

(Computer Aided Structural Engineering)

**10CE6126: HIGH RISE STRUCTURES**

Max. Marks: 60

Duration: 3 Hrs

**Part A (Modules I - II)**

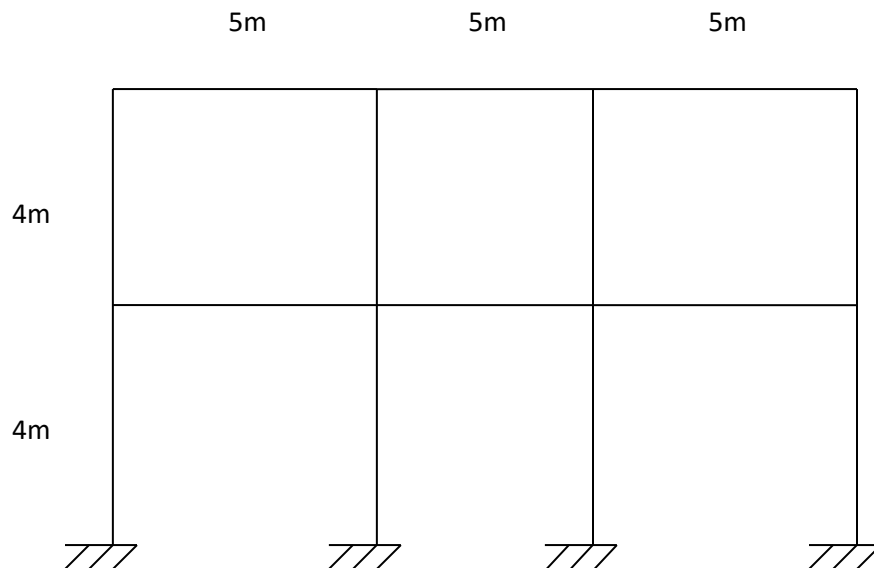
(Answer any two questions:  $2 \times 9 = 18$  Marks)

1. Explain the criteria to be considered for design for high rise structures? 9 Marks
2. Explain the methods for earthquake analysis of high rise structure? 9 Marks
3. Write a note on
  - a) Wind loading 5 Marks
  - b) Gravity loading. 4 Marks

**Part B (Modules III - IV)**

(Answer any two questions:  $2 \times 9 = 18$  Marks)

4. Total dead load on the rigid frame shown in figure 2 is 13kN/m. Total live load is 18kN/m. Analyse the frame for mid span positive moment on BC, using two cycle moment distribution



- method. 9 Marks
5. Explain briefly the various structural forms? 9 Marks

6. Write a note on behavior of braced frame structures? 9 Marks

**Part C (Modules V & VI)**

*(Answer any two questions: 2 x 12 = 24 Marks)*

7. Differentiate between Twisting and Non-Twisting Non-Proportionate Shear Wall structure? 12 Marks

8. a) Explain the behavior of Braced tube structures? 6 Marks

b) Explain the core structures? 6 Marks

9. Write a note on

a) Mat Foundation 6 Marks

b) Pile Foundation 6 Marks

[E]

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SECOND SEMESTER M.TECH. DEGREE EXAMINATION, APRIL 2018

CIVIL ENGINEERING

(Computer Aided Structural Engineering)

**10CE6126: HIGH RISE STRUCTURES**

Max. Marks : 60

Duration: 3 Hrs

**Part A (Modules I - II)**

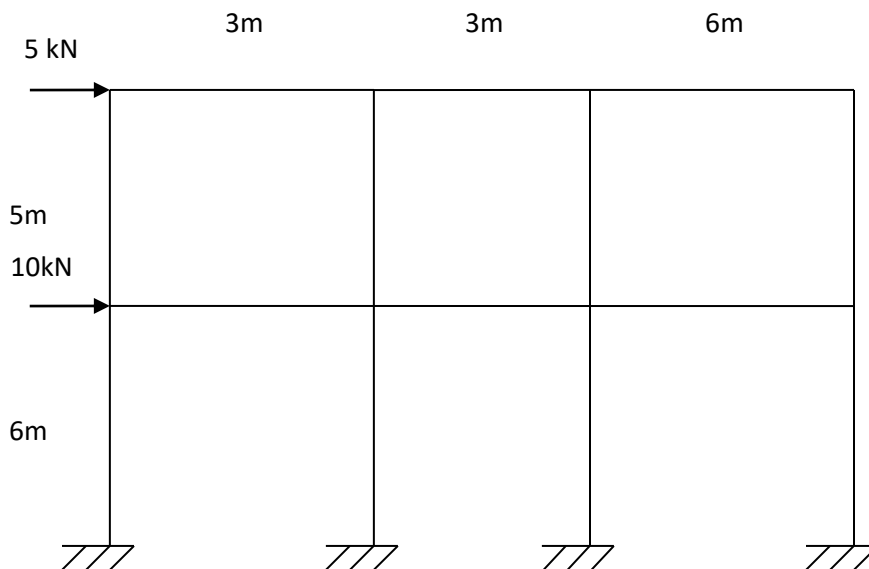
(Answer any two questions:  $2 \times 9 = 18$  Marks)

1. Write a note on
  - a) Wind loading 5 Marks
  - b) Sequential loading. 4 Mark
2. Explain the wind tunnel experimental method 9 Marks
3. Detail the factors affecting the growth of high rise buildings? 9 Marks

**Part B (Modules III - IV)**

(Answer any two questions :  $2 \times 9 = 18$  Marks)

4. Analyze the frame using Cantilever Method?



9 Marks

5. Explain the behavior of braced bents? 9 Marks
6. Explain the various drift components? 9 Marks

**Part C (Modules V & VI)**

*(Answer any two questions : 2 x 12 = 24 Marks)*

7. Differentiate between Shear Wall and Coupled Shear Wall? 12 Marks
8. Explain the Core structures with figures? 12 Marks
9. What are the different types of Tubular structures? 12 Marks

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SECOND SEMESTER M.TECH. DEGREE EXAMINATION, MAY 2019**

**CIVIL ENGINEERING**

**10CE6126: HIGH RISE STRUCTURES**

*Any missing data may be assumed suitably*

Max. Marks: 60

Duration: 3 Hrs

**Part A (Modules I - II)**

*(Answer any two questions: 2 × 9 = 18 Marks)*

- |  |         |
|--|---------|
| 1. i) Discuss the various criteria to be considered in tall building design.     | 5 Marks |
| ii) Discuss the evolution of design philosophies for tall structures.            | 4 Marks |
| 2. i) Explain the method of estimating wind and earthquake loads.                | 5 Marks |
| ii) Discuss any two live load reduction technique applied on tall buildings.     | 4 Marks |
| 3. i) Discuss on loadings in tall buildings with emphasis on sequential loading. | 5 Marks |
| ii) Briefly explain the historical background of tall buildings.                 | 4 Marks |

**Part B (Modules III - IV)**

*(Answer any two questions: 2 × 9 = 18 Marks)*

- |  |         |
|--|---------|
| 4. Discuss the following                                     |         |
| i) Rigid frame behaviour                                     | 4 Marks |
| ii) Behaviour of braced bents                                | 5 Marks |
| 5. Analyze the frame shown in figure 1 by cantilever method. | 9 Marks |

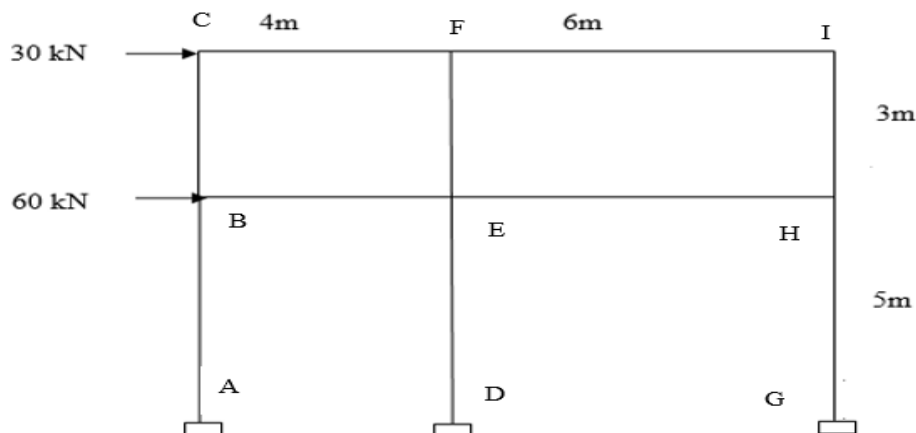


Figure 1

6. Determine the top storey drift of the K-braced frame shown in figure 2.

9 Marks

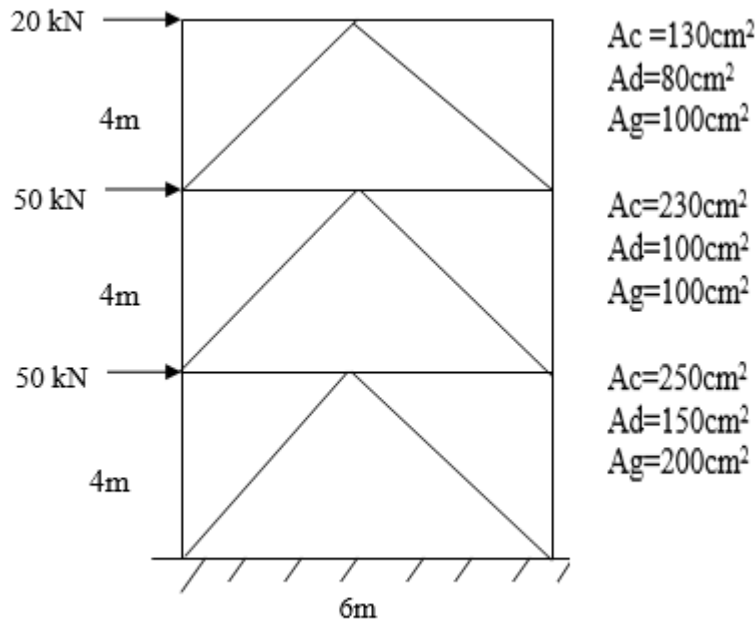


Figure 2

**Part C (Modules V & VI)**

(Answer any two questions:  $2 \times 12 = 24$  Marks)

7. Write notes on the following:

i) Bundled tube structure ii) Braced tube structure iii) Outrigger braced structure (3x4)Marks

8. Explain the different types of foundations used in high rise building. 12 Marks

9. Write short note on the following :

i) Modelling of proportionate and non-proportionate shear walls 6 Marks

ii) Shear lag in tubular structures 6 Marks

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

Pages : 2

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

M.Tech S2 (R,S) Exam July 2021

E

Reg. No.....

Name:.....

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER M.TECH DEGREE EXAMINATION

CIVIL ENGINEERING

10CE6126 : HIGH RISE STRUCTURES

Max. Marks : 60

Duration: 3 Hours

**PART A** (Modules I & II)

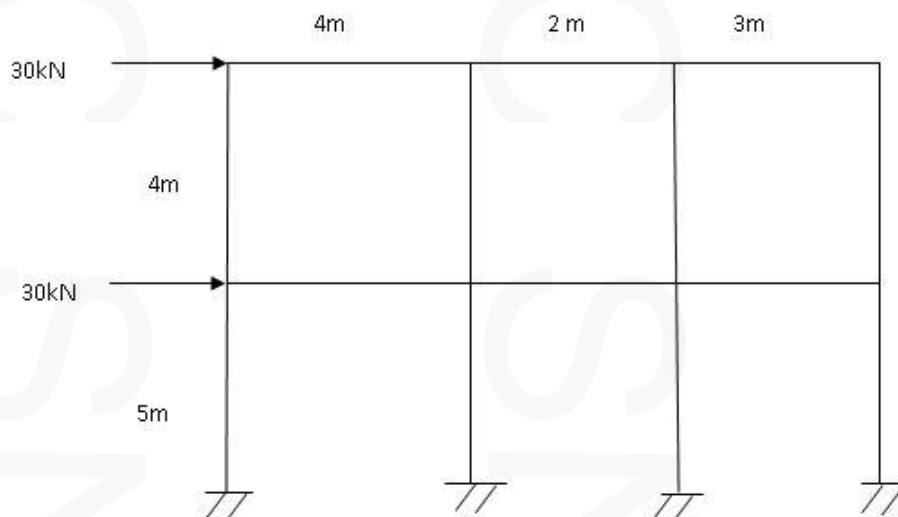
Answer any TWO full questions (2 x 9=18 Marks)

- 1 (a) Discuss the design philosophy used in high rise structures? (5 Marks)
- (b) What is the need for constructing tall buildings? (4 Marks)
- 2 (a) Briefly explain earthquake load analysis? (5 Marks)
- (b) Write short notes on sequential loading? (4 Marks)
- 3 (a) Detail wind tunnel experiment? (5 Marks)
- (b) What is impact loading? (4 Marks)

**PART B** (Modules III & IV)

Answer any TWO full questions (2 x 9=18 Marks)

- 4 (a) Analyse the frame by Portal method (9 Marks)



- 5 A 10 storey K- braced frame consists of two 5 storey regions. Assume all columns, girders and diagonal bracing have the same cross sectional area  $210 \text{ cm}^2$ . All storeys are of height 3m and bay width is 4m. Determine the Flexural component and shear component of drift at the top of the fifth floor, for a uniform wind load of 30kN per storey. **(9 Marks)**
- 6 (a) Differentiate between braced frames and rigid frames? **(4 Marks)**  
(b) What are the assumptions used in moment distribution method? **(2 Marks)**  
(c) How is the Flexural component of drift calculated? **(3 Marks)**

**PART C (Modules V & VI)**

Answer any TWO full questions (2 x 12=24 Marks)

- 7 (a) Differentiate between proportionate twisting and proportionate non twisting wall systems? **(6 Marks)**  
(b) Explain the behaviour of coupled shear wall structures? **(6 Marks)**
- 8 Write a note on the given structures: **(6 Marks)**  
(a) Outrigger structures **(6 Marks)**  
(b) Wall frame structures **(6 Marks)**
- 9 (a) What are the different foundations mainly used in tall buildings? **(10 Marks)**  
(b) What is a tubular structure? **(2 Marks)**

-----