

# COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)

SHIVAJI NAGAR, PUNE - 411 005

## END Semester Examination

### BP-09001- (BP-09001) Fundamentals of Building Structures

Course : B.Tech

Branch : Planning

Semester : Sem I

Year : 2014-15

Max. Marks : 60

Duration : 3 Hours Time : 10am – 1pm

Date : 23/11/2014

MIS No.

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#### Instructions :

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your MIS Number on Question Paper.

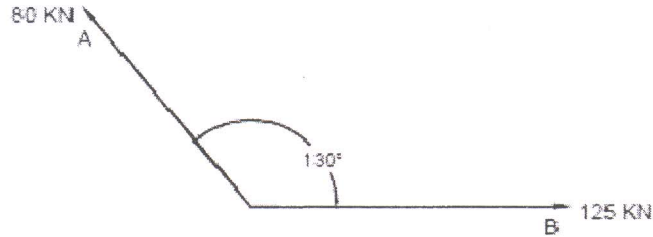
1) Answer **any five** out of the following: (10 Marks )

1. Define tension and compression. (2)
2. Explain any four types of beams based on support, with diagrams. (2)
3. On what principle is the modular co-ordination concept adopted? (2)
4. Define Hooke's Law. (2)
5. List out the various types of design loads considered for structural design of buildings, with their line of action diagrammatically. (2)
6. What does a structural engineer try to achieve while designing any R.C.C component of a building? (2)

2) Answer **all** questions out of the following: (20 Marks)

1. Explain the various types of foundations in which the depth is equal to or less than its width. (4)
2. How are shear force, bending moment and load related? (4)
3. Explain the construction system that uses high strength concrete and high strength tensile steel. (4)

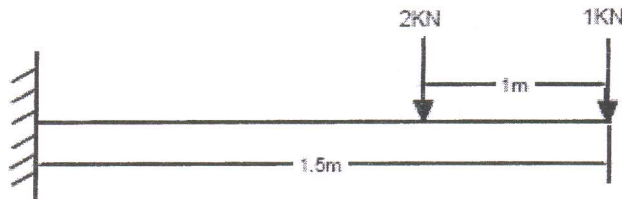
4. Calculate resultant force and direction of force. (4)



5. What all matters led to the thought of vertical construction of buildings? Explain. (4)

3) Answer **any five** out of the following: (30 Marks)

1. Calculate shear force and bending moment. Also draw shear force diagram and bending moment diagram. (6)



2. Explain all the components of composite floor framing system, with diagrams. (6)
3. How are one-way slabs different from two-way slabs? Explain with diagrams. (6)
4. Explain in detail the structural system that adopts the 'tube concept'. (6)
5. How are under-reinforced beams different from over reinforced beams? Explain with diagrams. (6)
6. A Site Supervisor has the task of preparing in-situ concrete for a structure. Write short notes on each of the ingredients or components that the supervisor will mix to prepare normal concrete. (6)

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