

SUBJECT CODE NO:- E-111
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(Civil) Examination Nov/Dec 2017
Elective-II: Advanced Structures
(REVISED)

[Time: Four Hours]

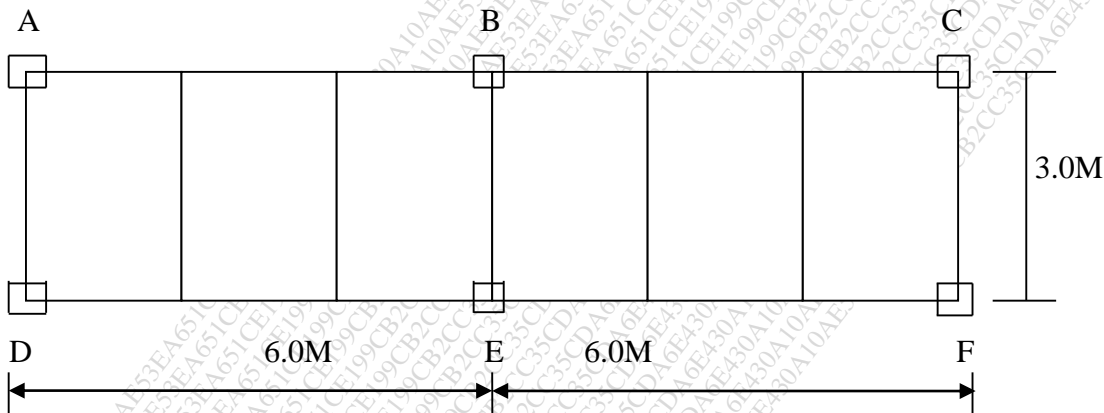
[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Answer any two from section A & section B
 - ii. Assume suitable data if necessary
 - iii. Figures to right indicate the maximum marks
 - iv. Use of non-programmable calculator is allowed
 - v. Use of IS: 456-2000, is permitted

Section A

Q.1 A building rests on six columns 400mm X 400mm arranged as shown in fig 01. Each central column 20 carried a load of 1000KN & the end column carry 600KN each. Design main beam ABC & secondary beam BE of the raft foundation. Consider total wind load moment of 1200 KN-M. SBC of soil 75 KN/M². Use M20 & Fe-415



Q.2 A 600mm square column is supported on four piles of 250 mm diameter each. The center of each pile 20 is located at 0.5 m from the central column. The column carries a service load of 1000KN & moment of 75KN-M. There is moment of 250KN-M due to wind acting in any direction at a time. Design the pile cap use M25 & Fe-500 grades.

Q.3 A cylindrical water tank is 8 M in diameter. Contains water up to height of 2.8 M excluding free 20 board.

Tank rests on a ring beam at bottom 8.0 M in diameter. Dead weight of various components of water tank excluding water load transferred to ring beam is 75KN/M. Design the ring beam. Use free board 0.2M. use M-20 & Fe-415. The ring beam is supported by eight beam symmetrically placed column. Show the reinforcement in details.

No. of columns	2 ϕ	β_s	β_m	β_T	ϕ
08	45	0.066	0.033	0.005	9.5°

Section B

- Q.4 a) Explain how do you analyze a deck slab bridge with reference to moving load on slab, dispersion of load along span. 10
- b) What are the folded plates? Discuss the merits & demerits of it. 10
- Q.5 a) Explain the various types of transmission towers & their utilities in load resistance 10
- b) Explain the terms 10
1. Solidity ration
 2. Guyed towers
 3. Lattice towers
- Q.6 a) A reinforced concrete deep girder is continuous over span of 9.0M apart from centre to centre. It is 4.5 M deep, 300 MM thick & the column are 900 MM width, if the girder supports a uniformly distributed load at 225 KN/M including its own design the beam, using M 20 concert & Fe-415 steel show reinforcement in detailed 12
- b) Compare the design of deep beam by British code& American code. 08