Total No. of Printed Pages:02

SUBJECT CODE NO:- H-216
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (Civil)
Elective-II
Advanced Structures
(REVISED)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Solve any two question from each section.
2) Use of IS 456, non-programmable calculator is allowed.
3) Assume suitable data if necessary & state it clearly.

Section A

Q.1 Fig.1 shows a layout of column's of building. The outer column are 600×900mm in size & carry a load of 700 KN each. The inner column are 450×450 mm in size & carries a load of 800KN each. In addition to this it is subjected to moment at 1000KN-m due to wind load acting along the length of building & SBC of soil is 100 KN/m^2. Use M_{20} & Fe_{415}. Design the following 20

1) Slab
2) Secondary beam BE
3) Calculate the loading on the main beam ABC

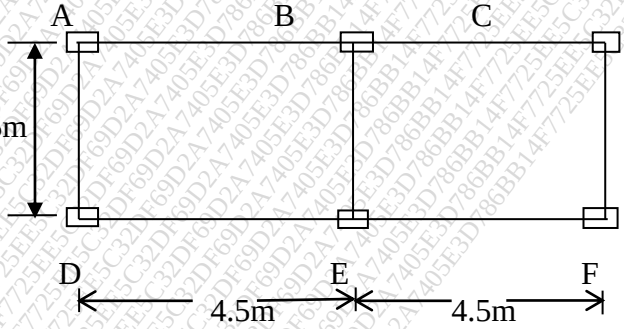

Fig.1

Q.2 a) Explain design procedure of pile in detail with all types of stresses. 08

b) A.R.C. column 400×400 mm carrying a load of 700 KN is supported on three piles. 400×400 mm in section. The Centre to Centre distance between piles is 1.5m. Design suitable pile cap. use M_{20} & Fe_{415}. Show reinforcement details. 12

Q.3 A cylindrical water tank is 6.5m in diameter. contains water upto a height of 3m excluding free boared. Tank rests on a ring beam at a bottom 6.5m diameter. Dead weight of all components of water excluding water load transferred to ring beam is 40 KN/m. design the ring beam. Use free board 0.2m. Use M_{20} & Fe_{415}. The ring beam is supported by 8 symmetrically placed columns. 20

No.of columns	2ϕ	β_s	β_m	β_T	θ
8	45	0.066	0.033	0.005	9.5°

Section B

Q.4	a)	Explain the different load calculations in the transmission tower for a panel.	08
	b)	Explain following terms with reference to bridges 1) IRC loading 2) Ground contract area 3) Dispersion of load long span 4) Distribution of wheel load on slab	12
Q.5	a)	What are the different types of folded plates, there components & action & assumption made in analysis of folded plates?	12
	b)	Derive the relation for edge shear in folded plates.	08
Q.6	a)	Compare the design of deep beam by IS code & British code.	08
	b)	A reinforced concrete deep girder is continuous over span of 9 m. apart from Centre to Centre. It is 4m deep & 300mm thick. The column are 900mm in width. If the girder support's a uniformly distributed load of 200KN/m including its own weight. Design the beam. Use M_{20} & Fe_{415} steel. Show reinforcement details.	12