## B.E.(with Credits)-Regular-Semester 2012-Civil Engineering Sem. VII BE-Elective II : Advanced R.C.C. Design

P. Pages : 2 Time : Four Hours			* 4 6 5 3 *	<b>GUG/W/16/6521</b> Max. Marks : 80	
	Notes	1. 2. 3. 4. 5. 6.	All questions carry equal marks. Answer <b>all</b> questions. Due credit will be given to neatness and adequate dimensions. Assume suitable data wherever necessary. Illustrate your answers wherever necessary with the help of neat sk Use of non programmable calculator is allowed.	etches.	
1.		A three between $H_2 = 8$ The col	storeyed multistorey building frame has four equal bay's of 4m each a floor 4 m. The mind load acting at roof level and various floor level a $.5$ kN, H <sub>3</sub> = 9kN and H <sub>4</sub> = 0kN. umn have the same cross section. Estimate the moments in the column	and the height 20 are $H_1 = 6 \text{ KN}$ , nn and beams.	
			OR		
2.	a)	Explain	the principal of seismic design of R.C.C. building design?	8	
	b)	Explain	steps for safe design and construction of multistorey reinforced con-	crete building. 12	
3.		The lay a load o due to h Design	out of the of a building the outer column are 300 mm by 300 mm in f 900 kN each. In addition to this each column carries a moment of a forizontal wind on the length of the building. the raft foundation If S.B.C. is 110 kN/m <sup>2</sup> use M20 and Fe 500 HYS	size and carry 20 130 KN – m 5D material.	
			3 m		
			OR		
4.		A R.C. 280 mm suitable	column 300 mm by 300 mm carrying a load of 750 kN is supported by 280 mm in section. The centre 10 centre distance between pile is pile and pile cop. Use M20 and Fe 415 HYSD materials.	ed on two piles 20 3 1.5 m. Design	

- Design a R.C.C. slab deck bridge for the following requirement.
  - a) Width of carriage way = 7.5 m.
  - b) Width of support = 400 mm
  - c) Clear span = 5.5 m

5.

- d) Width of Kerb = 600 mm
- e) Loading = JRC class A or JRC class AA

Tracked load whichever gives worst effect.

## OR

6. Design the side wall and hopper bottom of 2.5 m by 3m bunker to store 290 kN of coals. 20 Density of material is  $8.95 \text{ kN/m}^3$ . Angle of repose 30. Adopt M25 and Fe 500 HYSD material.

Sketch the Reinforcement details of bunkers.

An intre type water tank of 1.2 millions litres capacity. Design top ring beam, cylindrical 20 tank wall and bottom ring beam.
Adopt M20 grade concrete and Fe 415 grade HYSD steel. The designed of the tank should confirmed to the stress specified in IS 3370 and IS 456.

## OR

8. The stogging for a water tank of 12m diameter and 6 m height comprises of 12 R.C. columns arranged centrally on a circle of 12 m diameter. The height of the stoging is 12 m with bring at 3 m intervals. The columns are 450 mm square while the broces are 400 mm square. If the dead weight of the concrete tank is 2250 kN and the weight of water is three times the self weight of tank.

Design the reinforcements in the columns and braces assuming a wind intensity of

 $1.5 \text{ kN/m}^2$ . The column may be assumed to be fixed at the base. Use M25 concrete & Fe 415 HYSD steel.

\*\*\*\*\*\*