C.U.SHAH UNIVERSITY Winter Examination-2018

Subject Name: Geology and Earthquake Engineering

	Subject	Code: 4TE06GEE1	Branch: B.Tech (Civil)		
	Semester Instructio		Time : 02:30 To 05:30 Mar	ks : 70	
	(1) U (2) I	Use of Programmable calculator & instructions written on main answer		d.	
		Draw neat diagrams and figures (if	necessary) at right places.		
	(4) Assume suitable data if needed.				
	(5)	S code IS 1893:2002 and IS 1392	0:2002 is allowed.		
Q-1		Attempt the following questions	s.	(14)	
X -	-	(Short Type of Questions=1 mark		(1)	
	a)	Give a name of fastest seismic wa		(1)	
	b)	Give name of the instrument used	l to measure earthquake.	(1)	
	c)	Write expression for a M _L scale.	•	(1)	
	d)		oundary of zone IV & V so building w	ill be (1)	
	`	designed in zone IV & V?		(1)	
	e)	Write the equation of dynamic eq		(1)	
	f)	or fall?	ile as compared to Steel Frame Building. Is	s true (1)	
	g)	Define Damping Ratio.		(1)	
	h)	Define Response Reduction Factor	Dr.	(1)	
	i)	Define Resonance.		(1)	
	j)	What is dip and strike?		(1)	
	k)	Define Fault.		(1)	
	l)	Give the Classification of Rocks.		(1)	
	m)	Define Crystal.		(1)	
	n)	Define Geology.		(1)	
Atte	empt any f	Cour questions from Q-2 to Q-8			
Q-2		Attempt all questions		(14)	
	a)	Explain various methods to impro	oving ductility of a structure.	(7)	
	b)	Explain Elastic Rebound Theory.		(7)	
Q-3	;	Attempt all questions		(14)	
-	a)		ypes of weathering. And explain each in		
	• `	with examples.			
	b)	Explain logarithmic Decrement.	11.7	(4)	
	c)	Differentiate between magnitude	and intensity.	(3)	



Q-4	a) b)	Attempt all questions Give four virtue of Good earthquake resistant design. Describe the physical properties of Granite and Conglomerate.	(14) (7) (7)
Q-5	a)	Attempt all questions For a RCC framed office building, find the design lateral forces and its distribution along the height, using static coefficient method. Consider following data: a) No. of storey's = 4 b) No. of bays in X & Y direction = 5 c) Storey height = 4 m d) Width of each bay = 6 m e) Size of beam = 300 mm × 500 mm f) Size of column = 400 mm × 400 mm g) Thickness of slab = 150 mm h) External wall thickness = 230 mm i) Internal wall thickness = 150 mm j) Parapet wall = 150 mm with 1 meter height k) Live load = 4 kN /m2 l) Location = Ahmedabad m) Type of soil = medium soil	(14)
Q-6	a) b)	 Attempt all questions A vibrating system consists of a mass of 4.54kg and a spring of stiffness 3506 N/m is viscously damped so that the ratio of two consecutive amplitudes is 1.0 to 0.85. determine:- (1) The natural frequency of undammed system. (2) The logarithmic decrement. (3) Damping ratio. (4) Damping coefficient. (5) Damping natural period. Explain with neat sketch 'Short column effect'. 	(14) (7) (7)
	U)		
Q-7	a) b)	Attempt all questions Explain Rigid Diaphragm and Flexible Diaphragm. Discuss behavior of brick masonry construction during Earthquake.	(14) (7) (7)
Q-8	a) b)	Attempt all questions Define Ductility. Explain Different type of Ductility. List the Physical properties of Mineral and describe each in detail.	(14) (7) (7)

