CBCS SCHEME

(11)	USN	FFE	15CV7	2
5/3	A STATE OF THE PARTY OF THE PAR	No. of the last of	Seventh Semester B.E. Degree Examination, June/July 2019	
Z Z			Design of RCC and Steel Structures	
101	Tin	ne: 3	Max. Marks: 80	
	MGAI	ORD		
		Λ	Note: 1. Answer any TWO full questions, choosing one full question from each module.	
ctic			2. Use of IS456, IS800, IS3370, SP(6)-steel tables is permitted.	
ılpra			3. Any missing data may be assumed suitably.	
s ma			Module - 1	
ed a	1	a.	Name the different types of retaining walls. (04 Mark	s)
reat	1	b.	Design a combined footing for two interior columns carrying axial loads 1000kN ar	ıd
ses.		υ.	1200kN. Column A is 400mm × 400mm in size and column B is 450mm in diameter. The	еу
vill Will			are reinforced with 20mm bars and are spaced 4m centre to centre as for a bearing capacit	ty
lank 50, 1			of the soil is 120 kN/m ² . Use M20 mix and Fe 415 grade steel. Sketch it. (36 Mark	s)
d gu 8 = 8				
ainii 42+			OR	
eg,	2	a.	Name the different classification of liquid retaining structures. (04 Mark	
the		b.	Roof of a 8m wide hall is supported on a portal frame spaced at 4m intervals. The height	1 ²
s on wri			the portal frame is 4m. The continuous slab is 120mm thick. Live load of roof is 1.5 kN/m SBC of soil is 150 kN/m ² . The columns are connected with a plinth beam and the base of the same of the sam	he
line			column may be assumed fixed. Design the slab, column, beam members for the columns	of
oss			the portal frame. Use M20 and Fe415 grade steel. Sketch the details. (36 Mark	(s)
al ci or e			A A	
nogr nogr			Module - 2	
v dia tor a	3	a.	Name any 4 various types of roof trusses. (04 Mark	
drav alua		b.	Design a welded plate girder for an effective span of 20m to support a Udl of 80 kN/m	in
rily o ev			addition to a pair of point loads of 870 kN each of 5m from end of beam (10m apart	(a)
ulso eal t			center). Design the plate girder. (36 Mark	13)
appe			OR	
answers, compulsorily draw diagonal cross lines on the remaining blank pages. tification, appeal to evaluator and /or equations written eg, $42+8=50$, will be treated as malpractice.	4	a.	What are the advantages of plate girder over trusses? (04 Mark	
answers, compulsorily draw diagonal cross lines on the remaining blank pages. $\frac{1}{2}$		b.	Design a simply supported crane girder for the following data. The girder is electrical	lly
an Iti		6	operated. Take yield stress of steel as 250MPa.	

op i) Span of the crane girder = 20m Span of the gantry girder = 7m Capacity of the crane = 250kN

ii) iii)

Self weight of crane excluding crab = 200kN iv)

Weight of crab = 60kNv)

Wheel base distance = 3.4m vi)

Minimum hook approach = 1.1m vii)

viii) Self weight of rail = 0.3 kN/m

ix) Height of rail = 75mm.

(36 Marks)

Important Note: 1. On completing your a 2. Any revealing of iden