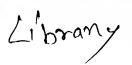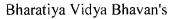Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)

Munshi Nagar, Andheri (West), Mumbai – 400058.

RE-EXAM

JUNE- 2017

Max. Marks: 100
Duration: 3 hr
Class: TY-Btech
Name of the course: Theory of RC and Prestressed Concrete.

Q.P. Code: BTC331
Course Code : BTC331
Sem-VI
Program: Civil Engineering

Instructions:
1) Question No. 1 is compulsory
2) Attempt any FOUR from the remaining questions.
3) Use of IS 456:2000 is permitted.
4) Assume data wherever necessary and draw reinforcement details wherever necessary.
5) Figures to right indicate full marks.

Question No			Maximum Marks	Course Outcome Number	Module Number
1)	a)	Explain the necessity of high strength steel and concrete for manufacturing of prestressed concrete	05	1	6
	b)	Explain under reinforced, over reinforced and balanced section.	05	2	1
	c)	Name different methods of post tensioning. Explain any one method in detail.	05	2	4
	d)	Derive expression for the position of neutral axis and moment of resistance of balanced rectangular section.	05	1	1
2)	a)	A doubly reinforced concrete beam is 300mm wide and 500mm deep(effective).The area of compression and tensile steel is 1800mm^2 each. The centre of compression steel is 50mm from compression edge.If the beam is subjected to bending moment of 80kN-m,determine stresses in concrete .tension steel and compression steel.Take m 20	15	1	2
	b)	What are the assumptions in working stress method?	05	1	1
3)		Design simply supported slab of a room having internal dimensions 4mx4m.The corners are to be held down. Take L.L as 3 kN/m^2 and floor finish as 1kN/m^2. Use M30 and Fe-415.Draw reinforcement details showing bottom plan. Design torsion reinforcement also.Give appropriate checks.	20	1	3