



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BANGALORE - 560109
DEPARTMENT OF CIVIL ENGINEERING
SESSION: 2023-2024 (EVEN SEMESTER)
I SESSIONAL TEST QUESTION PAPER
SET-B

USN

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Degree : B.E
Branch : Civil Engineering
Course Title : Design of Pre stressed concrete Elements
Duration : 90 Minutes

Semester : VIII
Course Code : 18CV81
Date : 12/04/2024
Max Marks : 30

Note: Answer ONE full question from each part.

Q No.	Question	Marks	K-Level	CO mapping
PART-A				
1(a)	Explain the necessity of high strength concrete and high strength steel is used in Pre stress concrete.	5	K2 Understanding	CO1
(b)	Explain the advantages of PSC over RCC.	5	K2 Understanding	CO1
(c)	Explain the various types of losses in Pre-Tensioning system.	5	K2 Understanding	CO2
OR				
2(a)	Explain with sketch the Hoyer's Long line system of pre-tensioning.	5	K2 Understanding	CO1
(b)	Explain the difference between Pre-Tensioning and Post Tensioning system.	5	K2 Understanding	CO1
(c)	Explain the various types of losses in Post-Tensioning system.	5	K2 Understanding	CO2
PART-B				
3(a)	A prestressed concrete beam made of T section has a flange of (1000mmX150mm) and web of (200X800mm). Beam supports super imposed load of 180kN/m over a simply supported over a span of 8m. If the prestressing force in the tendon is 6200kN at mid span and is located at a distance of 500mm from soffit. Determine the resultant stress at midspan for the following case. i) Prestress+Self-weight ii) Prestress+Self-weight+Live load Assume Density of concrete is 24kN/m ³	10	K3 Applying	CO1
(b)	A simply supported pre stressed concrete beam spanning over 10m is of rectangular section 200mm wide and 300mm deep is prestressed with wires area=320mm ² , locate at a constant eccentricity of 50mm and carrying a initial stress of 1000N/mm ² . The beam is pretensioned. Determine the loss of stress in wires using the following data. $E_s=210kN/mm^2$, $E_c=35kN/mm^2$, Relaxation of steel stress=5% of initial stress, shrinkage of concrete= 300×10^{-6} , Creep coefficient=1.6.	5	K3 Applying	CO2

OR

4(a)	A prestressed concrete beam of section 200mm wide by 300mm deep is used over a effective span of 6m to support an imposed load of 4kN/m. The density of concrete is 24kN/m ³ . Determine the magnitude of concentric prestressing force necessary for zero fibre stress at the soffit when the beam is fully loaded.	10	K3 Applying	CO1
(b)	A pre stressed concrete beam spanning over 10.5 m is of rectangular section 300X600 is prestressed with wires area=800mm ² , locat at a constant eccentricity of 100mm and carrying a initial stress of 1050N/mm ² . The beam is pretensioned. Determine the loss of stress in wires using the following data. $E_s=210\text{kN/mm}^2$, $E_c=35\text{kN/mm}^2$, Relaxation of steel stress=2.5% of initial stress, shrinkage of concrete= 300×10^{-6} , Creep coefficient=1.6.	5	K3 Applying	CO2

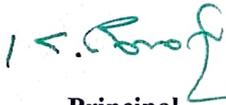
(S)


Course Incharge


HOD CV

Professor & Head
Dept. of Civil Engineering
K.S. Group of Institutions
K.S. School of Engineering & Management
Bangalore-560 062.


IQAC- Coordinator


Principal

Dr. K. RAMA NARASIMHA
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KSSEM
 K.S. SCHOOL OF ENGINEERING AND MANAGEMENT

BLUE BOOK

Name of the Student: Nida Manzoor Jeli

Class / Sem : 8th Branch: civil

USN :

1	K	G	2	0	C	V	0	0	5
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SUBJECT : Design of Pre-stressed concrete elements Subject Code : 18CV81

MAXIMUM MARKS :

Test	I	II	III	Average Marks Obtained
Date	12-4-24	6-5-24	13-5-24	$\frac{30}{30} + 10 = \frac{40}{40}$
Marks Obtained	30	30	30	
Signature of the Student	Nida	Nida	Nida	Nida
Initials of Room Supervisor	pe	pe	pe	
Initials of Faculty	pe	pe	pe	pe

NAME OF FACULTY : Dr. Nana M

Wakella

SIGNATURE : pe

SIGNATURE OF H.O.D.

K S SCHOOL OF ENGINEERING AND MANAGEMENT

First Internal test

Q. No	Marks	CO	Q. No	Marks	CO	CO	Total
1(a)	10	1	3(a)			1	20
1(b)	5	2	3(b)				
1(c)			3(c)			2	10
OR		OR					
2(a)			4(a)	10	1	Grand Total	30
2(b)			4(b)	5	2		
2(c)			4(c)				

Second Internal test

Q. No	Marks	CO	Q. No	Marks	CO	CO	Total
1(a)	10	2	3(a)			2	10
1(b)	5	2	3(b)				
1(c)			3(c)			3	20
OR		OR					
2(a)			4(a)	10	3	Grand Total	30
2(b)			4(b)	5	2		
2(c)			4(c)				

Third Internal test

Q. No	Marks	CO	Q. No	Marks	CO	CO	Total
1(a)	10	4	3(a)			4	20
1(b)	5	5	3(b)				
1(c)			3(c)			5	10
OR		OR					
2(a)			4(a)	10	4	Grand Total	30
2(b)			4(b)	5	5		
2(c)			4(c)				


 Signature of the Staff