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 | | | | | | | | | | |

Degree	:	**B.E**	**Semester** :	**VIII**
Branch	:	**Civil Engineering**	**Course Code** :	**18CV81**
Course Title	:	**Design of Pre stressed concrete Elements**	**Date** :	**12/04/2024**
Duration	:	**90 Minutes**	**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. Es=210kN/mm^2,Ec=35kN/mm^2 , Relaxation of steel stress=5% of initialstress, 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=210kN/mm^2, E_c=35kN/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**

Course Incharge **HOD CV** **IQAC- Coordinator** **Principal**

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K.S SCHOOL OF ENGINEERING AND MANAGEMENT

Dept. of Civil Engineering KSSEM

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

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	30/30 +10 = 40/40
Marks Obtained	30	30	30	
Signature of the Student	Nida	Nida	Nida	Nida
Initials of Room Supervisor				
Initials of Faculty				

NAME OF FACULTY : Dr. Nanda M

SIGNATURE :

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		
2(b)			4(b)	5	2		
2(c)			4(c)			**Grand Total**	30

Second Internal test

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

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		
2(b)			4(b)	5	5		
2(c)			4(c)			**Grand Total**	30

Signature of the Staff