Sanjay Ghodawat University, Kolhapur
Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2018-19
EXM/P/09/01

Year and Program:2018-19 | **School of Technology** | **Department of F.Y.M.Tech**

Course Code:CSE502 | **Course Title: Theory of Plates and Shells** | **Semester – II**

Day and Date Monday 20th May, 2019 | **End Semester Examination (ESE)** | **Time:** 2.30 to 5.30 pm **Max Marks: 100**

Instructions:
1) All questions are compulsory.
2) Assume suitable data wherever necessary.
3)Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Solve any one**			
a)	Explain Classical plate theory and its assumptions.	10	L_2	CO1
	OR			
b)	Starting from basic principle derive 4th order differential equation of equilibrium for rectangular plates.	10	L_4	CO1
Q.2	**Solve any one.**			
a)	Derive the equation for deflection of simply supported rectangular plate under sinusoidal load.	10	L_4	CO2
	OR			
b)	Illustrate the following. 1. Navier Method. 2. Levy's method.	10	L_2	CO2
Q.3	Derive an equation of equilibrium for a circular plate fixed at edges loaded with entire span UDL.	10	L_4	CO3
Q.4	Clearly differentiate between membrane analysis and bending analysis of shell.	10	L_3	CO4
Q.5	**Solve the following**			
a)	1.Finster walder theory. 2. D-K-J Theory.	15	L_3	CO5

ESE

	b)	A R.C.C dome of radius 4m and semicentral angle of 40^0 has thickness of 100mm. it is also subjected to a live load of $75kN/m^2$. Find membrane stresses in shell. If the ring beam is provided at the support, what will be the forces on ring beam.	15	L_3	CO5
Q.6		**Solve any Two**			
	a)	A cylindrical shell of circular directrix has a radius of 4m and a semicircle angle of 40^0. The thickness of shell is 100mm and span of 12m. Using beam method of analysis, find stresses developed due to D.L. and L.L. of $75kN/m^2$. Density of concrete is $25kN/m^3$.	15	L_3	CO6
	b)	Explain beam theory of cylindrical shell.	15	L_3	CO6
	c)	Explain Concrete Shells for Floors, Waffle-Slab and Shells floor.	15	L_2	CO6

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