

UNIT WISE QUESTION BANK

UNIT-I

S. NO	Questions	BTL	CO	PO
PART-A(STORTANSWERQUESTIONS)				
1	A two hinged parabolic arch of span 20m and rise 4m carries Uniformly distributed load of 2KN/m on the left 8m length. Calculate A)The direction & magnitude of reactions at the hinge b)The bending moment, normal thrust and radial shear at 4m from left support	L1	CO 1	1
2	Two hinged parabola arch of span 30m and rise 6m carries two point loads each 60KN, acting at 7.5m and 15m from left support. The moment of inertia varies as the secant at slope. Determine the horizontal thrust and max positive and negative moment in the arch rib	L1	CO 1	1
3	At hinged parabolic arch of span20m and rise5m carries concentrated loads of 20KN and 30KN at distances of 3m and 7m from left end and an uniformly distributed loadof25KN /month eright half of the span. Determine the horizontal thrust.Alsocalculate the radial shear,normal thrust and bending moment at adistance of5 m from left end.	L1	CO 1	1
4	A two hinged parabolic arch has a span of 60m and central rise of 8 m. It is subjected to a point load of 40 KN at a distance of 10m from left support and an uniformly distributed load of 10KN/m over right half span. Calculate the location and magnitude of maximum bending moment. Also calculate the radial shear, normal thrust and bending moment under 40KN load	L1	CO 1	1
5	Determine the horizontal thrust developed in a semi circular arch of radius R subjected to a concentrated load W at the crown.	L1	CO 1	1

S.Ekasila Assistant Professor

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PART-A(LONG ANSWER QUESTIONS)				
1	Find the horizontal thrust for two hinged parabolic arch has as pan of 24m and central rise of 4m. It is subjected to a point load of 15KN at a distance of 6m from left support. The moment of inertia at any section is $I_c \sec \theta$ and also find bending moment under the load.	L2	CO1	2
2	A two hinged parabolic arch of span 36m and central rise 8m carries an uniformly distributed load of 40KN/m over left half of span. Determine the position and magnitude of maximum bending moment and also find the normal thrust and radial shear at 9m from the left support. Assume that the moment of inertia at a section varies as a secant of the inclination at the section.	L1	CO1	1
3	A hinged arch is circular, 25m in span with a central rise of 5m. It is loaded with a concentrated load. Find the horizontal thrust, reaction at each end hinge, and bending moment under the load.	L2	CO1	2
4	A two hinged circular arch of span 16m and rise of 4m is subjected to two point loads of 100KN and 80 KN at the left and right quarter span points respectively. Find the reactions at the supports, normal thrust and shear at a section 6m from left support.	L1	CO1	1
5	What is an arch? Explain. What are the methods used for analysis of fixed arches? Distinguish between two hinged and three hinged arches? Give the equation for a parabolic arch whose springing is at different levels? State Eddy's theorem as applicable to arches?	L3	CO1	2

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