RAJASTHAN INSTITUTE OF ENGG & TECHNOLOGY, JAIPUR

I MID-TERM SESSION-2017-18

B. Tech. II YEAR IV SEM (CIVIL ENGINEERING)

SUBJECT: - **Strength of Material-II (4CE1A)**

**SET-A**

Time: 2 Hrs. Max. Marks: 20

Note: - *No provision for supplementary answer sheet*

Q.1. Calculate the deflection of a simply supported beam with central point load?

OR

Q.1. Calculate the deflection of cantilever with point load at free end?

Q.2. Calculate the deflection of a simply supported beam with uniformly distributed load?

OR

Q.2. Calculate the deflection of cantilever with uniformly distributed load?

Q.3. Calculate the strength of a solid circular shaft?

OR

Q.3. Calculate the deflection of a cantilever beam with point load W at a distance L1 From the fixed end. Length of beam=L

Q.4. Prove that for a shaft

 $\frac{τ}{R}$=$\frac{Cθ}{L}$

OR

Q.4. Calculate the deflection of a cantilever with varying distributed load zero at free end and W N/m at the fixed end.

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SUBJECT: - **Strength of Material-II (4CE1A)**

**SET-B**

Time: 2 Hrs. Max. Marks: 20

Note: - *No provision for supplementary answer sheet*

Q.1. Calculate the deflection of a cantilever with a point load of 100 KN at free end? Length of Beam=10m.Take EI=8X1012 N-mm2.

OR

Q.1. Calculate the strength of a hollow circular shaft?

Q.2 A wooden beam 140 mm wide and 240 mm deep has a span of 4 m. Determine the load that can be placed at its centre to cause the beam a deflection of 10 mm. Take E as 6GPa.

OR

Q.2. A cantilever beam 2 m long is subjected to a uniformly distributed load of 5 KN/m over its entire length. Find the slope and deflection of the cantilever beam at its free end. Take EI=2.5X1012 N-mm2

Q.3. A cantilever 2.5 m long is loaded with a uniformly distributed load of 10 KN/m over a length of 1.5 m from the fixed end. Determine the slope and deflection at the free end of the cantilever. Take flexural rigidity of the beam as 1.9X1012 N-mm2

OR

Q.3. A cantilever of 2 m span carries a triangular load of zero intensity at the free end and 100 KN/m at the fixed end. Determine the slope and deflection at the free end. Take I=100X106 mm4 and E= 200 GPa

Q.4. Prove that for a shaft $\frac{τ}{R}$=$\frac{Cθ}{L}$

OR

Q.4. A simply supported beam of span 4 m is carrying a uniformly distributed load of 2 KN/m over the entire span. Find the maximum slope and deflection of the beam, Take EI for the beam as 80X109 N-mm2