S.B. Ro	oll No	
	STRUCTURAL MECHANICS	
	4 th Exam/Civil/3510/May'18	
Duration	ion: 3Hrs. M.Marks:75	
	SECTION-A	
Q1. Fill	ll in the blanks. 15x1=15	
a.	Cast iron is a material.	
b.	About 80% of the failures in mechanics parts are caused by	
C.	If a material regains its original position on the removal of external forces, it is called a material.	-
d.	When a material can be drawn into wires, it is called material.	
e.		
f.	The strain has units.	
g.	The ratio of lateral strain to linear strain is known as	
h.	Effect of tensile is to the length of the body.	
i.	A beam encastered at both the ends is called	
j.	Load acting at a point is known as	
k.	A load which is spread uniformly over the entire or small portion of the beam is known as	·
I.	A beam which is fixed at one end and free at other end is known as	
	. Moment of Inertia of a circular section is	
	The unit of Moment of inertia is	
0.	Euler's formula is applicable for	
SECTION-B		
	ttempt any five questions. 5x6=30	
	Define the terms: Stress, Strain, Elasticity and Elastic limit.	
	State and explain Hooke's law.	
	What are temperature stresses and strains?	
	Draw S.F and B.M diagram for a cantilever carrying a point load W at the free end.	
	Define the terms: Moment of Inertia and Radius of gyration.	
	What assumptions are made in Euler's theory?	
VII.	Define and explain the following terms: Shear force, Bending moment and point of contra flo	exure.
	SECTION-C	
Q3. At	ttempt any three questions. 3x10=30	
a.	0	
	(i) Top flange= 200mm x 80 mm (ii) Bottom flange= 100mm x 40mm	1
	(iii) Central web= 280mm x 60mm (iv) Overall depth= 400mm	
b.	, , , ,	
	length of the beam is 6m. Draw the S.F.D and B.M.D for the beam and also calculate the max	(. BIVI
_	at the section.	
C.	,	ung s
٦	modulus for timber is 17500 N/mm ² , determine (i) crippling load, (ii) safe load if FOS = 3	0.25
d.	For a material Young's modulus is given as 1.2 x 10 ⁵ N/mm ² and the Poisson's ratio is	U.25.

Calculate the Bulk modulus and Modulus of Rigidity.