

BRAINWARE UNIVERSITY

ODD Semester Examinations 2021-22

Programme – Diploma in Civil Engineering - 2019 [Dip.CE]

Course Name – Mechanics of Structure

Course Code - DCE304

(Semester III)				
Time allotted: 1 Hour 15 Minutes	Full Marks: 60			
(Multiple choise				
Choose the correct alternative from the following				
(I) Youngs modulus of elasticity and Poissons ratio of a material are 1.25 x 102 MPa and 0.34 respectively. The modulus of rigidity of the material is				
A) 0.9469 MPa	B) 0.8375 MPa			
C) 0.4664 MPa	D) 0.4025 MPa			
(II) The slope is denoted by				
A) k	B) y			
C) i	D) c			
(III) How do point loads and udl be represented in SFD?				
A) Simple lines and curved lines	B) Curved lines and inclined lines			
C) Simple lines and inclined lines	D) Cant represent any more			
(IV) What will be the the radius of gyration of a circular plate of dia	meter 10cm?			
A) 1.5cm	B) 2.0cm			
C) 2.5cm	D) 3cm			
(1) Which point on the atyon of the property	analise limit?			
(V) Which point on the stress strain curve occurs after the proportionA) Upper yield point	B) Lower yield point			
C) Elastic limit	D) Ultimate point			
(VI) A rectangular block of size 400mm x 50mm x 50mm is subjecteis 1×106 kg/cm2, the strain energy will be	d to a shear stress of 500kg/cm2. If the modulus of rigidity of the material			
A) 125 kg-cm	B) 1000 kg-cm			
C) 500 kg-cm	D) 100 kg cm			
-	5/ 200 Ng 0.11			
(VII) What is the formula of theorem of parallel axis?				
A) $IAD = IG + Ah$	B) IAB = Ah2 + IG			
C) IAB = IG – Ah2	D) IAB = IG + Ixx			
(VIII) The is the distance between Centres to centre of	effective lateral ends.			
A) Mean length	B) Stripped length			
C) True length	D) Actual length			
(IX) What is the bulk modulus of elasticity?				
A) The ratio of shear stress to shear strain	B) The ratio of direct stress to direct strain			
C) The ratio of volumetric stress to volumetric strain	D) The ratio of direct stress to volumetric strain			
(X) A tensile test was conducted on a mild steel bar. The diameter and the gauge length of bat was 3cm and 20cm respectively. The extension was 0.21mm. What is the value to strain?				
A) 0.001	B) 0.00105			
C) 0.0105	D) 0.005			
(XI) At the shearing stress in a beam are maximum.				

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A) Extreme fibres	B) Modulus of section	
C) Neutral axis	D) Along the cross-sectional area	
	ial, for which Youngs modulus is 1.2 and modulus of rigidity is 4.8.	
A) 7	B) 8	
C) 9	D) 10	
(XIII) Find the strain of a brass rod of length 250mm which is sub	ojected to a tensile load of 50kN when the extension of rod is equal to 0.3mm?	
A) 0.025	B) 0.0012	
C) 0.0046	D) 0.0014	
C) 0.0040	<i>b)</i> 0.0014	
(XIV) U.D.L stands for?		
A) Uniformly diluted length	B) Uniformly developed loads	
C) Uniaxial distributed load	D) Uniformly distributed loads	
(XV) Shear force is diagram is representation of shear for		
A) Scalar	B) Aerial	
C) Graphical	D) Statically	
(XVI) If forces P, P and P of a system are such that the force polyg	gon does not close, then the system will	
A) Be in equilibrium	B) Reduce to a resultant force	
C) Reduce to a couple	D) Not be in equilibrium	
c) Reduce to a couple	b) Not be in equilibrium	
(XVII) In cantilever beams, the slope is at fixed e	end.	
A) Maximum	B) Zero	
C) Minimum	D) Uniform	
(XVIII) Hinged supports offers vertical and reaction.		
A) Horizontal	B) Moment	
C) Rotation	D) Couple	
(VIV) A member which does not regain its original change after re	movel of the lead producing deformation is said	
(XIX) A member which does not regain its original shape after re		
A) Plastic	B) Elastic	
C) Rigid	D) None of the mentioned	
(XX) of column mainly depends upon end condi	itions.	
A) Radius of gyration	B) Slenderness ratio	
C) Factored load	D) Effective length	
,	, ,	
(XXI) Curvature of the beam is to bending moment.		
A) Equal	B) Directly proportion	
C) Inversely proportion	D) Coincides	
(nom) =		
(XXII) For circular section, the maximum shear stress is equal to		
A) 2/3.	B) 3/2.	
C) 4/3.	D) 3/4.	
(XXIII) In SFD, vertical lines are for		
A) Point loads	B) UDL	
C) UVL	D) LDP	
C) 0 V L	5) 251	
(XXIV) support develops support moment.		
A) Hinged	B) Simple	
C) Fixed	D) Joint	
Anna and an		
(XXV) What is the moment of inertia of a triangular section about		
A) bh3/12	B) bh3/24	
C) bh3/36	D) bh3/6	
(XXVI) The materials which have the same elastic properties in all directions are called		
A) Isotropic	B) Brittle	
C) Homogenous	D) Hard	
(XXVII) A bar of cross-section A and length L is subjected to an a	xial load W. the strain energy stored in the bar would be	

A) WL / AE	B) W2L / 4AE		
C) W2L / 2AE	D) W2L / 2AE		
(VV/III) Stunits of Ronding moment is			
(XXVIII) SI units of Bending moment is A) kN	B) kN2		
C) kNm	D) km		
C) KWIII	D) Kill		
(XXIX) What is the relationship between the linear e	elastic properties Youngs modulus, bulk modulus and rigidity modulus?		
A) $1/E = 9/k + 3/G$	B) 9/E = 3/K + 1/G		
C) $3/E = 9/K + 1/G$	D) $9/E = 1/K + 3/G$		
(XXX) A circular rod of dia 30 mm and length 200ml be its Poissons ratio?	A circular rod of dia 30 mm and length 200mm is extended to 0.09mm length and 0.0045 diameters through a tensile force. What will so Poissons ratio?		
A) 0.3	B) 0.31		
C) 0.32	D) 0.33		
(WW) Danding recorded by			
(XXXI) Bending moment can be denoted by	D) M		
A) K C) N	B) M D) F		
C) N	טןר		
(XXXII) The rate of change of shear force is equal to			
A) Direction of load	B) Change in BMD		
C) Intensity of loading	D) Maximum bending		
(VVVIII) A tancile test was condusted an a steel har	The gauge length of the baryups 10cm and the outension was 2mm. What will be the		
percentage elongation?	The gauge length of the bar was 10cm and the extension was 2mm. What will be the		
A) 0.002	B) 0.02		
C) 0.2	D) 2		
C) 0.2	5)2		
(XXXIV) If a material had a modulus of elasticity of a value of the Poissons ratio?	2.1 kgf/cm2 and a modulus of rigidity of 0.8 kgf/cm2 then what will be the approximate		
A) 0.26	B) 0.31		
C) 0.47	D) 0.43		
(XXXV) What is the moment of inertia of a rectangu	lar section about an horizontal axis passing through base?		
A) bd3/12	B) bd3/6		
C) bd3/3	D) bd2/3		
(XXXVI) A simply supported beam of span "x" mete	rs carries a udl of "w" per unit length over the entire span, the maximum bending		
moment occurs at			
A) At point of contra flexure	B) Centre		
C) End supports	D) Anywhere on the beam		
(XXXVII) What is the strain energy stored in a body of	due to gradually applied load?		
A) σE/V	B) σE2/V		
C) σV2/E	D) σV2/2E		
(MMM) Mile et i et e le codice e conservat et end essentiel	anta of a simulation and additional		
(XXXVIII) What is the bending moment at end supp			
A) Maximum	B) Minimum D) Uniform		
C) Zero	b) official		
(XXXIX) The value of is relatively high fo	r short columns.		
A) Safe load	B) Factored load		
C) Working load	D) Buckling load		
(XL) At the point of contraflexure, the value of bend	ting moment is		
A) Zero	B) Maximum		
C) Can't be determined	D) Minimum		
c _j can est determined	o) Pilitinani		
(XLI) Example for cantilever beam is			
A) Portico slabs	B) Roof slab		
C) Bridges	D) Railway sleepers		
(XLII) Elastic curve is also known as			
(ALII) LIUSUIC CUI VE IS AISO KITOVIII AS			

A) Refraction curve	B) Reflection curve	
C) Deflection curve	D) Random curve	
Many of the desired states of the state of t	0.40	
(XLIII) Calculate the modulus of section of rectangle beam of si		
A) 5.4 × 106 mm3	B) 6.2 × 106 mm3	
C) 5.5 × 106 mm3	D) 6.4 × 106 mm3	
(VLIV) A simple support offers only reaction normal to	the axis of the beam	
(XLIV) A simple support offers only reaction normal to		
A) Horizontal	B) Vertical	
C) Inclined	D) Moment	
(XLV) The property by which a body returns to its original shape after removal of the force is called		
A) Plasticity	B) Elasticity	
C) Ductility	D) Malleability	
C) Ductifity	D) Matteability	
(XLVI) What is the ratio of Youngs modulus E to shear modulus	G in terms of Poissons ratio?	
A) $2(1 + \mu)$	B) 2(1 – µ)	
C) 1/2 (1 – µ)	D) $1/2(1+\mu)$	
/ / C F/	, , , , , , , , , , , , , , , , , , , ,	
(XLVII) What is the moment of inertia of a circular section?		
Α) πD4/64	B) πD3/32	
C) πD3/64	D) πD4/32	
(XLVIII) A simply supported beam of span 1 m carries a point lo	ad "w" in centre determine the shear force in the half left of the beam.	
A) W/3	B) W/4	
C) W/2	D) W	
(mm) 2		
(XLIX) Continuous beams are		
A) Statically determinate beams	B) Statically indeterminate beams	
C) Statically gravity beams	D) Framed beams	
(L) Shear force is unbalanced to the left or right of the se	ction	
_		
A) Horizontal force	B) Vertical force	
C) Inclined force	D) Conditional force	
(LI) What is MOI?		
A) ml2	B) mal	
C) ar2	D) None of the mentioned	
C) a12	b) Notice of the mentioned	
(LII) The dimension of strain is?		
A) LT-2	B) N/m2	
C) N	D) Dimensionless	
3 ,	2, 2	
(LIII) The axis about which moment of area is taken is known as	S	
A) Axis of area	B) Axis of moment	
C) Axis of reference	D) Axis of rotation	
(LIV) For columns, the slenderness ratio is more t		
A) Long	B) Short	
C) Average	D) Medium	
(LV) The maximum shear stress is times the average she		
A) 2.5	B) 3	
C) 1.2	D) 1.5	
(LVI) What kind of elastic materials are derived from a strain en	orgy density function?	
		
A) Cauchy elastic materials	B) Cauchy elastic materials	
C) Hyper elastic materials	D) None of the mentioned	
(LVII) At hinge, the moments will be		
	P) Minimum	
A) Maximum	B) Minimum	
C) Uniform	D) Zero	
(LVIII) Elastic limit is the point		

A) up to which stress is proportional to strain	B) At which elongation takes place without application of additional load	
C) Up to which if the load is removed, original volume and shapes are regained	D) None of the mentioned	
(LIX) Long columns fail due to		
A) Direct stress	B) Buckling stress	
C) Lateral stress	D) Tensile stress	
(LX) Some structural members subjected to a long time sustained loads deform progressively with time especially at elevated temperatures. What is such a phenomenon called?		
A) Fatigue	B) Creep	
C) Creep relaxation	D) Fracture	