Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2022

BC3ES04 Basic Civil Engineering

Programme: B.Sc. Branch/Specialisation: Computer Science

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Nominal ratio for M20 grade of concrete is- **1**
(a) 1:3:6 (b) 1:1.5:3 (c) 1:4:8 (d) None of these

ii. Age of tree can be determined by counting the- **1**
(a) Heart Wood (b) Cambium Layer
(c) Annular Rings (d) None of these

iii. Length of Engineer's Chain is- **1**
(a) 66 ft (b) 66 m (c) 100 ft (d) 100 m

iv. If bearing of a line given in RB system is N 34^o 45' E then bearing in WCB system will be- **1**
(a) 34^o 45' (b) 214^o 45' (c) 145^o 15' (d) None of these

v. Following is not the shallow foundation: **1**
(a) Isolated footing (b) Pile foundation
(c) Raft foundation (d) Combined footing

vi. Which one is not the part of stair? **1**
(a) Nosing (b) Balustrade (c) Lintel (d) Newel post

vii. If the resultant of two equal forces has the same magnitude as either of the forces, then the angle between the two forces is- **1**
(a) 30^o (b) 60^o (c) 90^o (d) 120^o

viii. The forces which meet at one point and have their lines of action in same plane are called- **1**
(a) Coplanar concurrent forces
(b) Noncoplanar concurrent forces
(c) Coplanar nonconcurrent forces
(d) Noncoplanar nonconcurrent force

P.T.O.

ix. A uniformly distributed load w (kN/m) is acting over the entire length of 8m long cantilever beam. If the shear force at the midpoint of cantilever beam is 12 kN. What is the value of w? **1**
(a) 6 kN/m (b) 4 kN/m (c) 5 kN/m (d) 3 kN/m

x. When the simply supported beam is loaded with point load at centre the bending moment diagram is **1**
(a) A right angled triangle (b) An isosceles triangle
(c) An equilateral triangle (d) A rectangle

Q.2 Attempt any two:

i. Define the term workability. Explain with diagrams the procedure of slump cone test. **5**

ii. Draw the schematic diagram of cross-section of freshly cut timber. Explain in detail the method of its seasoning. **5**

iii. List out laboratory test on cement and explain anyone tests in detail. **5**

Q.3 i. Define ranging and enlist its types. **2**

ii. Calculate the RL of points by rise & fall method, if the staff readings taken at 13 stations are as follows- **8**
1.234, 1.345, 2.376, 4.120, 0.996, 2.334, 2.789, 0.998, 1.330, 1.580, 1.900, 0.778, 1.980
Note: 1. Reduced Level of bench mark is given as 450.000 m.
2. Auto level has been shifted at 4th, 6th and 9th staff stations.

OR iii. The following bearings were taken in running a compass traverse. At what stations do you suspect local attraction? Find the correct bearings of the lines and also compute the included angles. **8**

Line	**Fore Bearing**	**Back Bearing**
PQ	124° 30’	304° 30’
QR	68° 15’	246° 00’
RS	310° 30’	135° 15’
SP	200° 15’	17° 45’

Q.4 Attempt any two:

i. List out various types of stairs commonly used in a residential building. Sketch two types giving their suitability. **5**

ii. Explain with sketches any five foundations used under various conditions. **5**

iii. Define any five components of super structure. **5**

Q.5 i. Define young’ modulus of elasticity, modulus of rigidity, bulk modulus and poison’s ratio. **4**

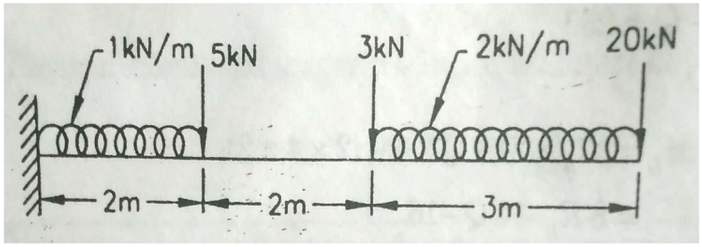
ii. The resultant of two concurrent coplanar forces is perpendicular to the smaller force and angle between the forces is 120°. If the bigger force is 60 N, find the smaller force. **6**

OR iii. State and prove Lami’s theorem. **6**

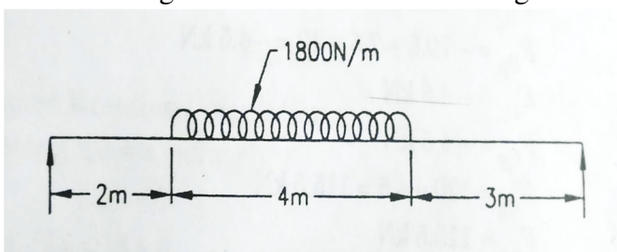
Q.6 Attempt any two:

i. Define bending moment and shear force with sign convention. **3**

ii. Draw bending moment and shear force diagram for given beam. **7**



iii. Draw bending moment and shear force diagram for given beam. **7**



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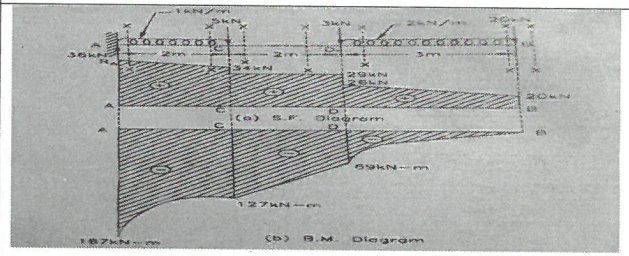
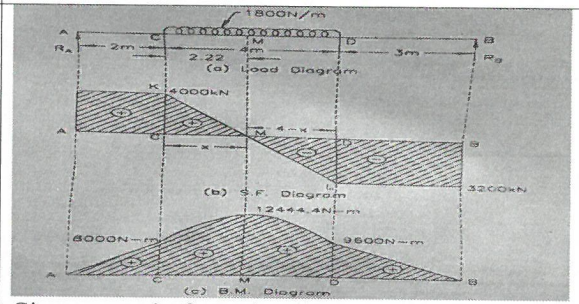
Scheme of Marking

MEDI-CAPS UNIVERSITY Knowledge is Power	Faculty of Engineering End Sem (Odd) Examination Dec-2022 BC3ES09 ~~EN3ES01~~ Basic Civil Engineering Programme: B.Tech. | Branch/Specialisation: All

Note: The Paper Setter should provide the answer wise splitting of the marks in the scheme below.

Q.1	i.	b. 1:1.5:3	1
	ii.	c. Annular Rings	1
	iii.	c. 100 ft.	1
	iv.	a. 34° 45'	1
	v.	b. Pile foundation	1
	vi.	c. Lintel	1
	vii.	d. 120°	1
	viii.	a. coplaner concurrent forces	1
	ix.	d. 3 kN/m	1
	x.	b. an isosceles triangle	1
Q.2	i.	Definition Test	2 3
	ii.	Diagram Seasoning	2.5 2.5
OR	iii.	List Test	2 3
Q.3	i.	Definition type	1 1
	ii.	Calculation Table Check	2 5 1
OR	iii.	Point free from local attraction Corrected bearing	2 6
Q.4	i.	List Sketches with suitability	1 4
	ii.	Foundations	1 each
OR	iii.	Definition of five components	1 each
Q.5	i.	Definitions	1 each
	ii.	Ans = 30 N	6
	iii.	Theorem Proof	2 4
Q.6			
	i.	Definitions	1 each
	ii.	 Give one marks for each step	
	iii.	 Give one marks for each step	

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