

09/1F23

CBCS SCHEME



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BESCKA204/BESCK204A

Second Semester B.E./B.Tech. Degree Examination, June/July 2023 Introduction to Civil Engineering

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Briefly explain any 4 branches of Civil Engineering.	10	L1	CO1
	b.	What is RCC? Explain its advantages and disadvantages.	10	L1	CO1
OR					
Q.2	a.	Explain the classification of bricks. Also mention the properties of good bricks.	10	L1	CO1
	b.	What is PSC? Explain its advantages and disadvantages.	10	L1	CO1
Module – 2					
Q.3	a.	What are the major sustainable development goals Enumerate few?	10	L1	CO2
	b.	Define solid waste management. Explain its importance.	10	L1	CO2
OR					
Q.4	a.	Write a note on smart city concept. Explain the core elements of smart city infrastructure.	10	L1	CO2
	b.	Explain the measures taken to control air pollution.	10	L1	CO2
Module – 3					
Q.5	a.	Define: i) Resolution and composition of forces. ii) Principle of superposition and principle of transmissibility of forces.	5	L4	CO4
	b.	State and prove Lami's theorem.	5	L2	CO3
	c.	Find the equilibrium of forces with respect to point 'A' for given system of forces in Fig.Q.5(c).	10	L3	CO3

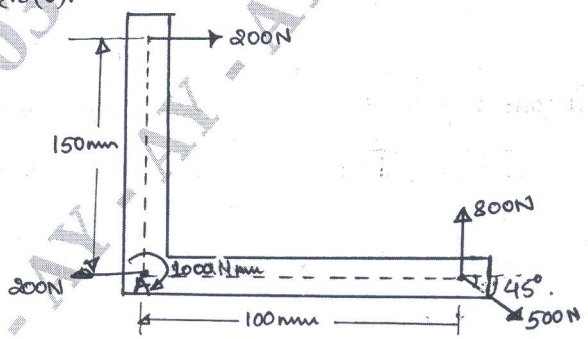


Fig.Q.5(c)

OR

Q.6 a. State and prove Varignon's theorem of moments. 5 L2 CO3

b. Find the tension forces in the given strings. Also find W_1 in Fig.Q.6(b). 7 L3 CO3

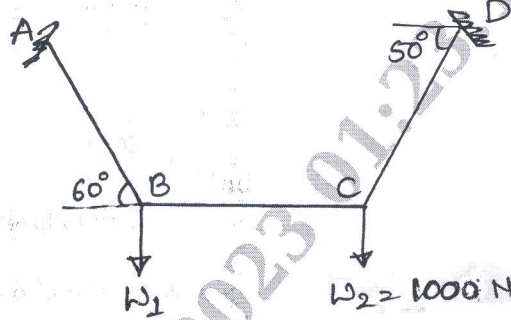


Fig.Q.6(b)

c. Find the resultant magnitude and direction with respect to point 'O' in Fig.Q6(c). 8 L3 CO3

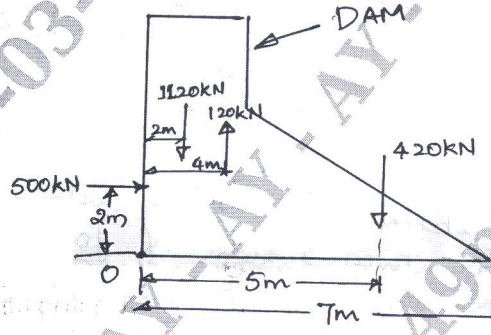


Fig.Q.6(c)

Module - 4

Q.7 a. State and prove parallel axis theorem. 5 L2 CO4

b. Find the centroid of a triangle using first principle. 7 L3 CO4

c. Locate the centroid for the given shaded area in Fig.Q.7(c). 8 L3 CO4

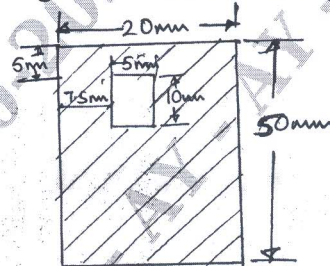


Fig.Q.7(c)

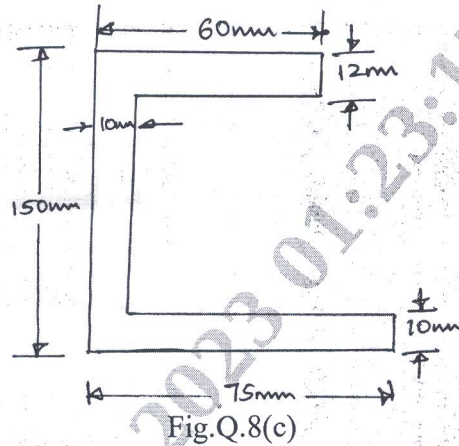
OR

Q.8 a. Define centroid and polar moment of inertia. 4 L1 CO4

b. Define:
 i) Perpendicular axis theorem.
 ii) Radius of gyration. 4 L1 CO4

c. Locate the centroid for the given 'C' section in Fig.Q.8(c).

12 L3 CO4



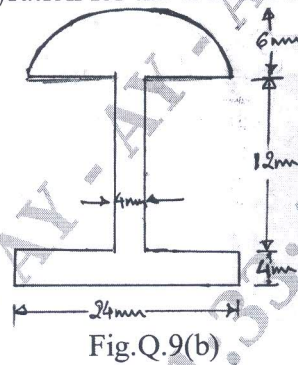
Module - 5

Q.9 a. Find the moment of inertia of a circle along its centroidal axis. (I_{xx} and I_{yy}).

10 L2 CO5

b. Find the polar radius of gyration for the area shown in Fig.Q.9(b).

10 L3 CO5



OR

Q.10 a. Derive an expression for moment of inertia of a quarter circle with radius 'R'.

10 L3 CO5

b. Determine the moment of inertia in Fig.Q.10(b) about horizontal centroidal axis for the shaded area. Also find the radius of gyration. Take $R_1 = 50\text{mm}$ and $R_2 = 20\text{mm}$.

10 L3 CO5

