

Total No. of Questions : 4]

SEAT No :

P3564

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[Total No. of Pages : 2

First year B. Arch - I

BUILDING TECHNOLOGY AND MATERIAL - I

(1201502) (PP) (2015 Pattern) (End Semester -I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer section I and section II on separate answer sheets.*
- 2) All questions are compulsory.*
- 3) Draw Neat sketches wherever necessary.*
- 4) Figure to the right of each question indicates full marks.*
- 5) Assume suitable data wherever necessary.*

SECTION - I

Q1) a) Draw at a scale of 1: 10, L- Junction in Double Flemish Bond where both walls are 1 brick (230 mm) thick. **[20]**

- i) Alternate odd / even courses.
- ii) Elevation of wall with six courses.
- iii) View.

OR

b) Draw plan and section through strip foundation having 230 mm (one brick) thick load bearing brick wall and show all the details at foundation, plinth formation and steps leading upto the plinth, scale 1 : 10. Assume,

- i) Stone foundation depth 1200 mm.
- ii) Plinth 600 mm.

P.T.O.

Q2) Explain with sketches (Any Three): **[15]**

- a) Any five masonry tools.
- b) Types of waves during Earthquake.
- c) Through stone and bond stone in stone masonry.
- d) Load transfer in Load bearing structure.
- e) Composite Masonry.

SECTION - II

Q3) Explain in detail with sketches (Any Two): **[20]**

- a) Plan of Alternate courses attached pier in,
 - i) Wall of one and half brick (350 mm) thick English Bond.
 - ii) Wall of one brick thick (230 mm).
- b) Six terminologies in semicircular arch.
- c) Typical section through a building showing any five building elements.

Q4) Write short notes on (Any Three): **[15]**

- a) Soil bearing capacity and concept of bulb of pressure.
- b) Importance of plastering and two types of plastering.
- c) What is Lintel and any two types of lintel.
- d) Mortar and two types of mortar.
- e) Concrete block as a building material.



Total No. of Questions : 6]

SEAT No. :

P3565

[4862]-2

[Total No. of Pages : 4

**First Year B. Arch.
THEORY OF STRUCTURE - I
(2015 Pattern) (Semester pattern)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Question No:1 is compulsory.*
- 2) *From remaining solve any four questions.*
- 3) *Use of scientific calculator is allowed.*
- 4) *Draw sketches wherever required.*
- 5) *Figures to the right indicates full marks.*

- Q1)** a) Draw shear force and bending moment diagram for a simply supported beam of span 'l' m with a UDL of w kN/m over entire span. [5]
- b) A beam as shown in fig (1) calculate
- i) Support Reactions. [4]
 - ii) Shear force diagram. [6]
 - iii) Bending moment diagram. [7]

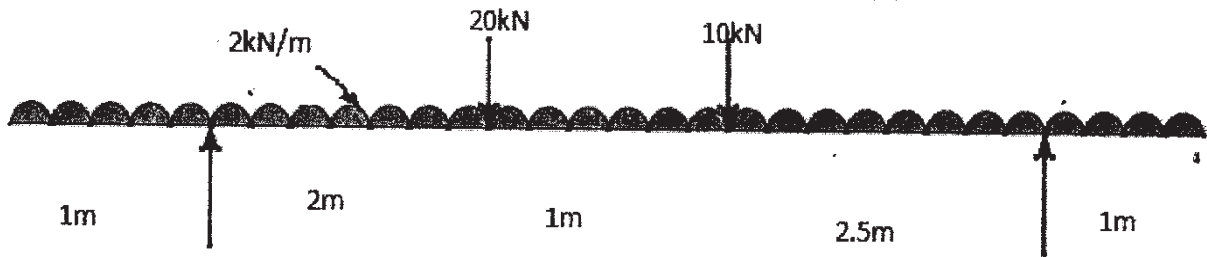


Fig No. (1)

P.T.O.

Q2) a) Calculate moment of Inertia for given section fig (2) about its centroidal X - X and Y - Y axis. **[10]**

b) Define moment of force. **[2]**

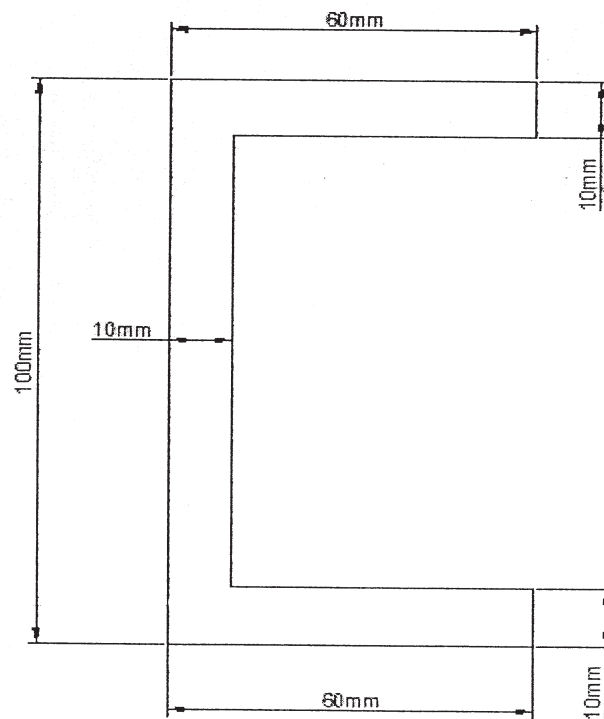


Fig No (2)

Q3) a) Find support reaction for beam given in fig No (3). **[6]**

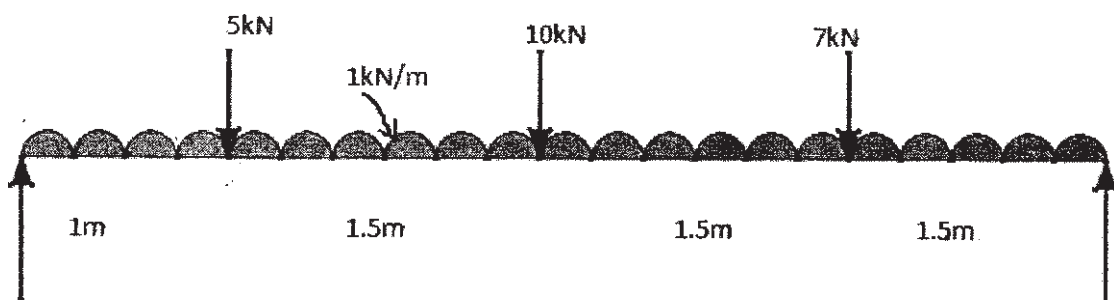


Fig No 3

b) Explain parallel axis theorem and perpendicular axis theorem. **[6]**

- Q4) a)** A wall as shown in fig no (4) rests on a beam of mentioned cross-sectional dimensions. Calculate the total uniformly distributed load (UDL) acting on beam and also find support reactions for beam if density of brick masonry wall is 19 kN/m^3 and density of R.C.C. is 25 kN/m^3 [7]

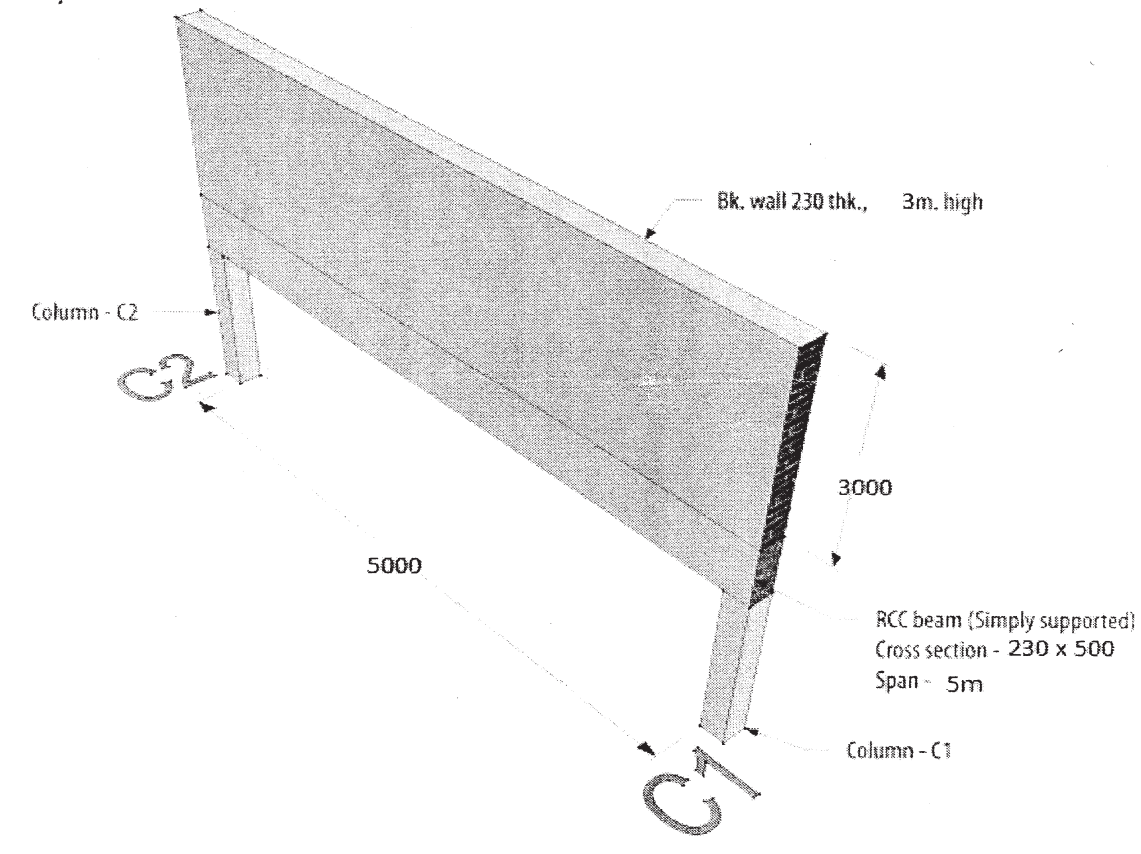


Fig No: 4

- b) What is force? State characteristics and effects of forces. [5]

- Q5) a)** Two forces of magnitude 100 N and 80 N act away from each other at an angle of 60° . Calculate resultant in magnitude and direction. [7]

- b) What are parallel forces? Explain Varignon's theorem. [5]

- Q6) a) Calculate resultant in magnitude and direction for given concurrent force system analytically or graphically.(fig No.:5) [8]

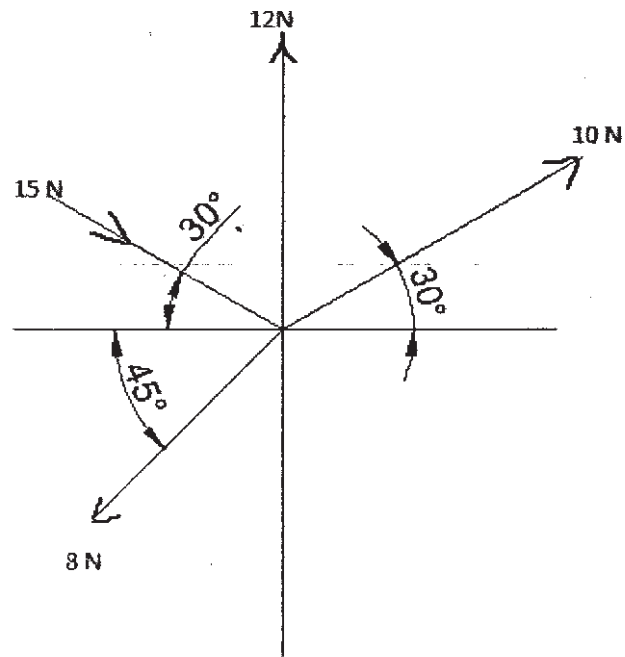


Fig No. 5

- b) Write moment of inertia formulae for

- i) Rectangle. ii) Circle.

[4]

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