**Enrolment No._____**

# SARVAJANIK UNIVERSITY

**W-2024 Date: 17-10-24 Time: 09:30 AM to 12:30 PM**
**Backlog Exam**

**B. Architecture - SEMESTER– II EXAMINATION**

**Course Code: BRAR12203** **Total Marks: 180**

**Course Name: BASICS OF BUILDING MATERIALS, COMPONENTS AND STRUCTURE**

**Instructions:**

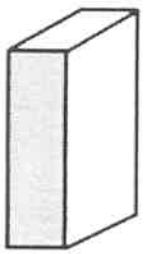
**1. Attempt all questions.**
**2. Make suitable assumptions wherever necessary.**
**3. Figures to the right indicate full marks**
**4. Draw sketches wherever required.**

**Q.1. (A) Do as directed** **(20)**

1. A two track window will give _____opening
2. Stone wall can be constructed without use of mortar (True/false)
3. _____ is the vertical elevation of an object above a surface (such as sea level or land)
4. For residential buildings minimum width of stairs must be _____ centimeters
5. A revolving door has springs which help closing and opening of shutters. (True/false)
6. A first-class brick should not absorb water more than 20 - 22% by weight. (True/false)
7. Single Joist Timber Floors can span up to _____ meters
8. _____is the study of 30 years of climatic data.
9. Bricks are primarily made from wood pulp and synthetic fibers. (True/false)
10. Sliding doors are a space-saving option as they swing open wide into the room. (True/false)

**(B) Select the correct answer** **(20)**

1. Identify the given brick position



a.) Stretcher b.) Header c.) Soldier d.) Rowlock

2. The state of Rajasthan, with its extreme temperatures and low rainfall, mostly falls under which climatic zone?
   a) Tropical Rainforest Zone b) Hot and Dry Zone c) Coastal Zone d) Himalayan Mountain Zone

3. An arch with a center point on the springing line is known as?
   a) Venetian Arch b) Segmental Arch c) Horseshoe Arch d) Semicircular Arch

4. The minimum headroom of a stair is _____.
   a) 1.0 meters b) 1.2 meters c) 3.0 meters d) 2.0 meters

5. A door moving on a pivot is known as_____.
   a) Collapsible door b) Sliding folding door c) Revolving door d) Rolling shutter door

6. Most part of india receives rainfall from _____
   a.) March to june b) june to september c) august to november d) november to february

7. The standard brick size in centimeters is
   a.) 19 x 9 x 9 b.) 20 x 10 x 5 c.) 23 x 11.5 x 7.5 d.) 23 x 7.5 x 11.5

8. Which type of door swings both inward and outward, often found in public buildings?
   a) Sliding door b) Revolving door c) French door d) Pocket door

9. The central, wedge-shaped stone at the top of an arch that locks the other stones in place is called
   a) Keystone b) Impost c) Voussoir d) Skewback Answer

10. Which type of bond is commonly used in brick masonry, consisting of overlapping rows of stretchers and headers?
    a) Flemish bond b) English bond c) Stretcher bond d) Header bond

## Q2.Answer in Brief (Any Four) (20)

1. Weather shade and its importance in buildings
2. Explain types of brick by shape and material.
3. Explain Stone masonry and its uses.
4. compare between ladders, stairs and ramp
5. What is timber construction and its various components.?
6. Explain and sketch Gable Roof

## Q3: Sketch and Label the following in detail (Any Four) (40)

1. Draw plan and elevation of stretcher bond
2. Draw plan and elevation of Spiral Staircase

3. Draw plan and elevation of Corner window
4. Timber wall & its Component
5. Draw semicircular arch with proper labeling of all the elements

**Q4. Answer in detail with neat sketches. (Any Two)** **(30)**

1. Explain in detail with sketches Rat Trap bond
2. Explain and sketch plan/elevation of minimum 5 different types of Door
3. Explain and sketch plan/elevation of minimum 5 different types of Roof

**Q-5. Attempt the following question A and B as instructed** **(50)**

**A. Calculate net stress at points A, B, C & D , for a column subjected to 1000 KN eccentric load as shown in Fig -1.** **(14)**

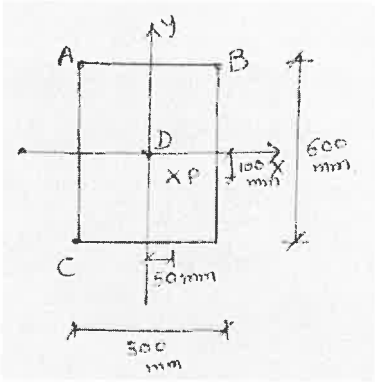



Fig- 1

**B. Attempt any THREE out of following** **(36)**

1. Calculate & draw bending stress diagram for a cantilever beam subjected to full uniformly distributed load of 10 KN/m on a span of 3 m. cross section of a beam is shown in (12)

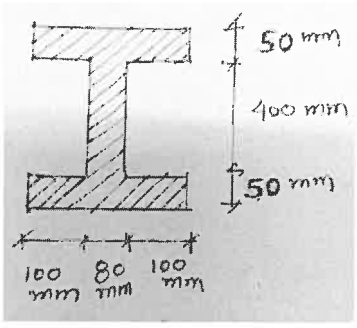



Fig-2

2. Calculate maximum deflection for a beam shown in Fig - 3. (12)

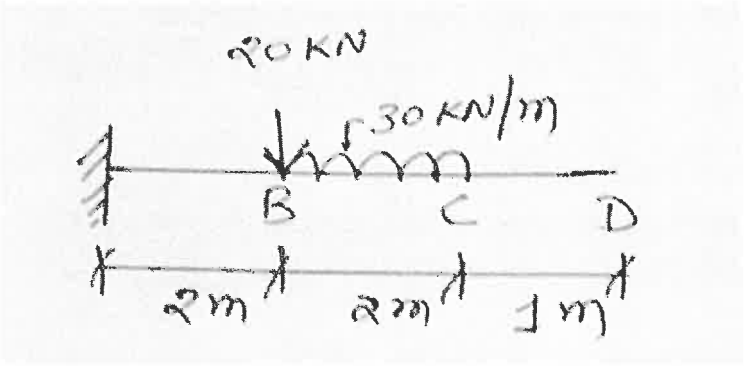



Fig - 3.

3. Calculate & draw Bending moment diagram for an indeterminate beam as shown in fig – 4, using Moment distribution method. (12)

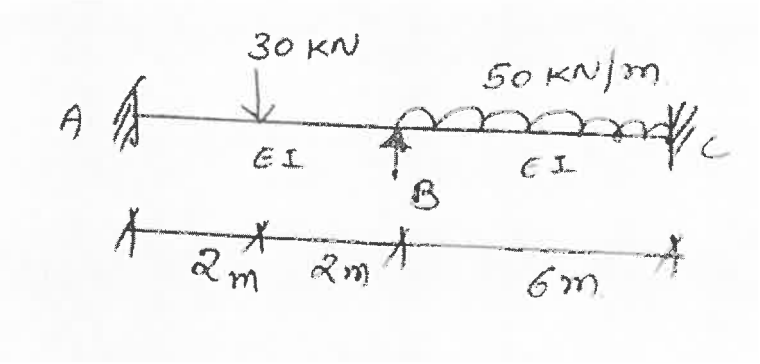



Fig – 4

5. Calculate & draw shear stress distribution diagram for a beam shown in (12)

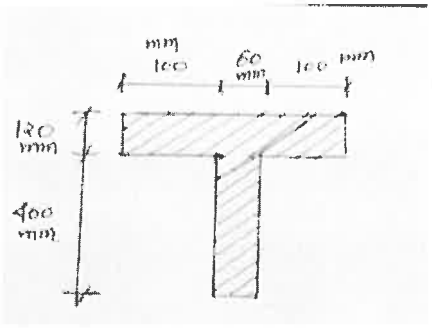



Fig – 5.