L-2/T-1/ARCH **Date: 20/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 B. Arch. Examinations 2018-2019

Sub: **ARCH 231** (Architecture of Western World)

Full Marks: 140 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FIVE** questions in this section. Answer **Q. No. 1** and any **THREE** from the rest.

1. Write short notes on any three of the following **(8⅓ ×3=25)**
   (a) Ribbed Vaulting System
   (b) Flying Buttress
   (c) Humanism in Renaissance Period
   (d) Hoop-tie-principle.

2. Explain with relevant sketches, 'the Eastern European Architectural Characteristics' using 'Hagia Sophia' at Constantinople as a reference. **(15)**

3. What were the reasons in Romanesque architecture that led to develop Gothic architectural styles in France? Explain with necessary examples and sketches. **(15)**

4. 'Gothic Architecture relies on the evident truthfulness of its structural features." Explain this statement with reference to the structural system of Notre Dame, Paris. (Use sketch, where necessary) **(15)**

5. Discuss the salient features of Renaissance period architecture by highlighting the works of different architects in the Early and High Renaissance Period. **(15)**

SECTION – B

There are **FIVE** questions in this section. Answer **Q. No. 6** and any **THREE** from the rest.

6. Write short notes on any 03 (three) of the followings: **(8⅓ ×3=25)**
   (a) Typical Greek Temple
   (b) Basilika
   (c) Roman Circular Temple
   (d) Greek Theatre.

7. Compare the different 'ORDERS' of GREEK and ROMAN period with sketches. **(15)**

8. Describe with sketches the 'Parthenon' to establish the architectural characteristics of the Greek period. **(15)**

9. Describe with necessary sketches the Colosseum of Roman period to establish the architectural characteristics of that period. **(15)**

10. Discuss the various optical corrections made by the Greeks to overcome the optical illusions created in the Greek temples. **(15)**

L-2/T-1/ARCH **Date: 26/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 B. Arch Examinations 2018-2019

Sub: **ARCH 251** (Visual Environment)

Full Marks: 140 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE** questions.

1. Assess in detail the external vision factors that affect performance of visual task. **(23 ⅓)**

2. Write down short notes on: **(23 ⅓)**
   (a) Physical Laws of light distribution
   (b) Visual Efficiency Measurement Techniques

3. (a) Briefly compare different types of Electrical Lamps in respect to their characteristics and application. Which one would you like to select for any residential interior space design and why? **(23 ⅓)**

4. Illustrate the functional need based or Generic Lighting Systems, i.e. General Lighting, Localized Lighting, Ambient Lighting, Task Lighting, Accent Lighting and Decorative Lighting. **(23 ⅓)**

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE** questions.

5. Assess the unique qualities of daylight in detail. Briefly explain the benefits of daylight considering health and energy issues. **(23 ⅓)**

6. Elaborate on the principle daylight design strategies that need to be considered for high-rise commercial buildings. **(23 ⅓)**

7. Evaluate the Daylight Rule of Thumb (DRT). Justify the importance and application of daylight simulation for sustainable building design. **(23 ⅓)**

8. Appraise with annotated sketches the daylighting features of an internationally renowned architectural project. **(23 ⅓)**

Self-Study/**ARCH** **Date: 20/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

B. Arch. Examinations

Sub: **ARCH 447** (Art and Architecture VI: Modern Art and Architecture)

Full Marks: 140 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer **Q. No. 1** and any **TWO** from the rest.

1. (a) What were the three rhetorical exaggerations that the late modernist adopted and why? **(5)**

   (b) Describe how after Corbusier's Notre dame-du-Haut at Ronchamp, the late modernists took off in a more purely sculptural direction. **(15)**

2. Explain how "The Five" has inverted the Corubsier's syntax in residential architecture similar to Magritte's painting showing inverse of a mermaid with the help of Richard Mier's residential architecture. **(25)**

3. Describe the four aspects that the modern architects failed to address properly. **(25)**

4. (a) What type of architects adopted the second machine aesthetics? **(5)**

   (b) Describe the main features of Pompidou Center, Paris as the climax of second machine aesthetics. **(20)**

SECTION – B

There are **FOUR** questions in this section. Answer **Q. No. 5** and any **TWO** from the rest.

5. Write short notes on two of the followings: **(10×2=20)**

   (a) Paslo Portogheshi's Islamic Center, Rome.

   (b) Radical Eclecticism

   (c) Diamond Series Project of Architect John Hejduk.

6. What are the main differences between Michael Graves and Peter Eisenman in terms of their attitude towards Architecture? **(25)**

7. Name three projects of architect Cedric Price. Describe the main characteristics of Architect Price's large space buildings with the help of Inter-Action center London. **(25)**

8. Explain Works of Architect Charles Moore to argue that he was a post-Modernist. **(25)**

L-2/T-1/ARCH **Date : 30/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 B. Arch Examinations 2018-2019

Sub : **CE 265** (Structure-I: Mechanics)

Full Marks: 140 Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Describe, in brief, the concept of stress tensor in representing state of stress of a body. **(8 1/3)**

   (b) Mass M is attached to the supports by two high strength steel rods (AC & BC) of different diameters, as shown in Figure-01. Determine the value of M that can be supported if the ultimate strength of the rods is 800 MPa while considering a factor of safety of 2. (Cross-sectional area of Rod AC = 300 mm^2 and Rod BC = 200 mm^2). **(15)**

2. (a) Draw the stress-strain curve for mild steel. **(6)**

   (b) Differentiate between True Stress and Engineering Stress. Illustrate the difference in the Figure drawn in Part (a). **(6)**

   (c) A concrete structure, shown in Figure 02, is being acted by its self weight only. Investigate the state of stress at a level of 1 m above the base. Unit weight of concrete is 25 kN/m^3 approximately. **(11 1/3)**

3. (a) Determine the centroid of the composite area, shown in Figure 03. **(12)**

   (b) Determine the force, P, required to resist the downward motion of Block B weighing 2000 N, as shown in Figure 04. Given of the block A is 1500 N. **(11 1/3)**

4. (a) Determine the value of Force, F, required to keep the weight of 800 lb in equilibrium in Figure 05. Also, determine the forces in strings A, B, C and D. **(10)**

   (b) Determine the center of gravity of the object shown in Figure 06. **(13 1/3)**

Contd ....., P/2

CE 265

SECTION - B

There are **FOUR** questions in this section. Answer any **THREE**.

Assume reasonable value for any missing data.

5. (a) A cable exerts 5000 lb. force on a vertical pole (See Figure-7). The force in the stay wire should cause the resultant force on the pole to be downward and collinear with the pole. Determine (i) the horizontal & vertical components of the cable pull, (ii) the horizontal & vertical components of the reaction in the stay wire & (iii) the net force on the pole. **(12)**

   (b) A block weighing 10 kN is resting on an inclined plane and is subjected to 20 kN force (See Figure-8). Determine its components normal to, and parallel to the inclined plane. The plane makes an angle of 20^0 with the horizontal. **(11 1/3)**

6. (a) Cylinders A (diameter 30 cm) and B (diameter 30 cm) have a mass of 200 kg each & cylinder C (diameter 60 cm) has a mass of 400 kg (See Figure-9). Compute all contact forces and plane reactions. **(12)**

   (b) A 500 lb. cylinder **A** rest on a smooth inclined plane. For a tension in the rope of 250 lb., find the inclination of the plane and the plane reaction. (See Figure-10). **(11 1/3)**

7. (a) State and prove the Parallelogram Law of Forces. **(9)**

   (b) Determine the weight W and the reaction at B if the link AB is in equilibrium. There is no friction at the pulley (See Figure-11). **(14 1/3)**

8. (a) Write down the characteristics of a Couple and give two practical examples. **(9)**

   (b) An electric light fixture weighting 15 N hangs from a point C, by two strings AC and BC. The string AC is inclined at 60° to the horizontal and BC at 45° to the horizontal as shown in Figure-12. Determine the forces in the strings AC and BC. **(14 1/3)**

Contd. — P/3

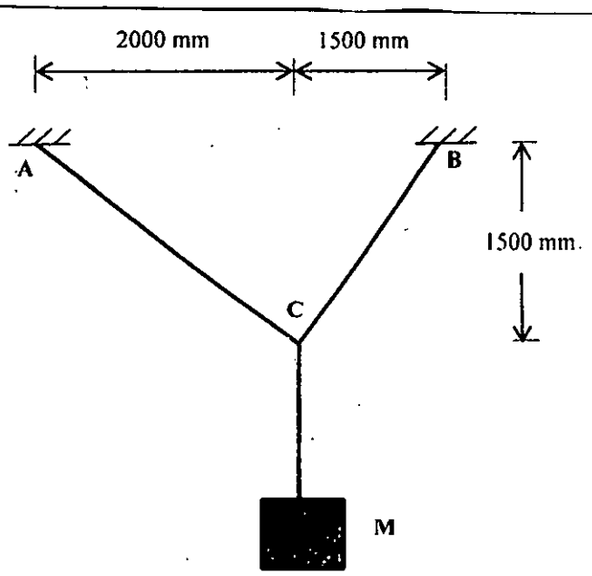

Figure -01

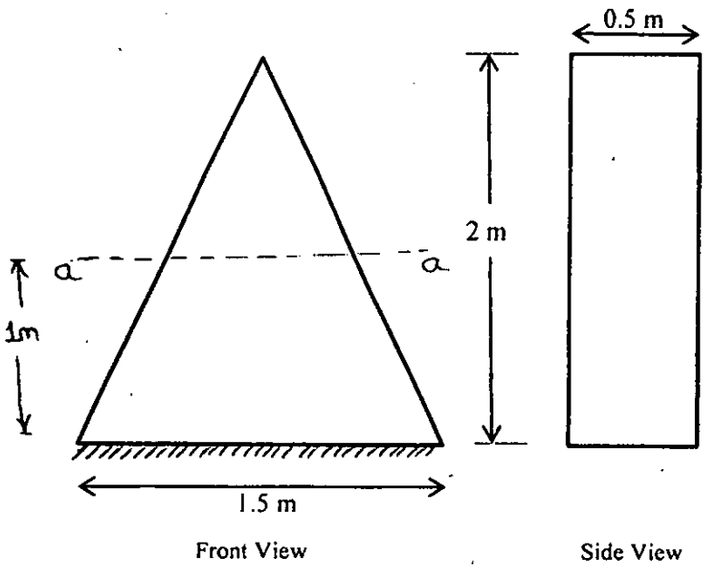

Figure- 02

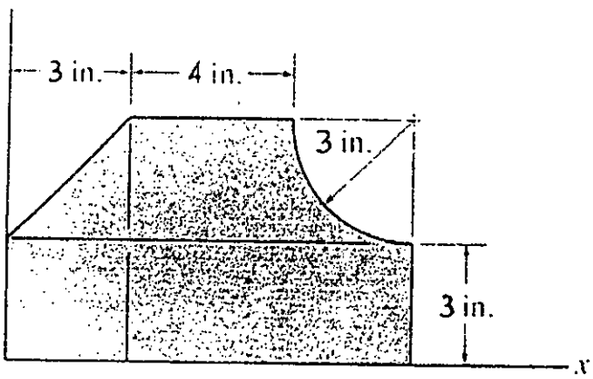

Figure-03

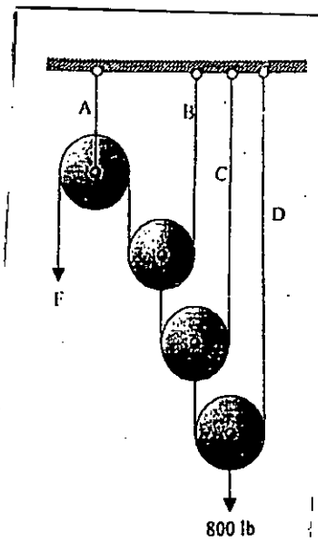

Figure -05

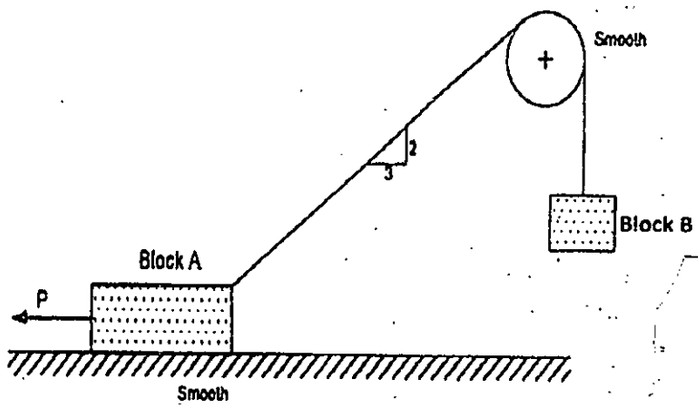

Figure-04

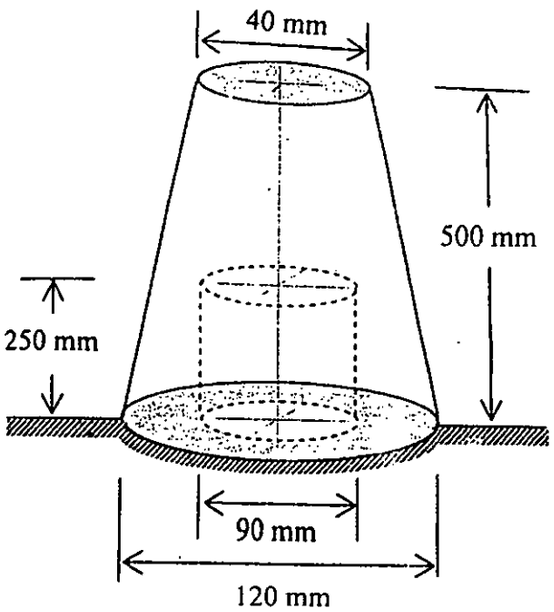

Figure-06

Contd.— P/4

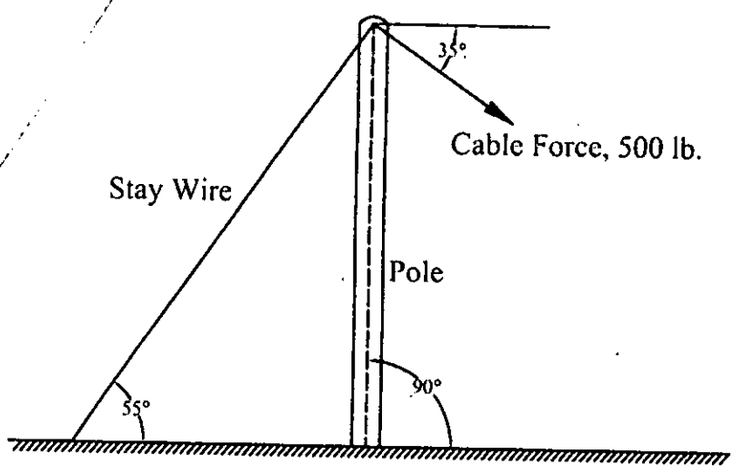

Figure-7

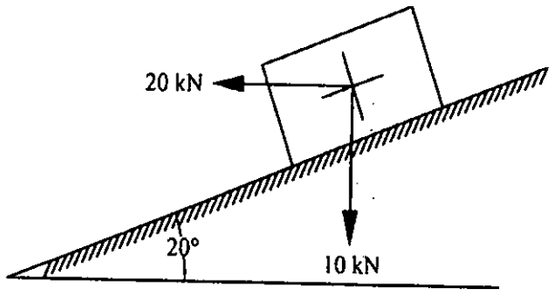

Figure-8

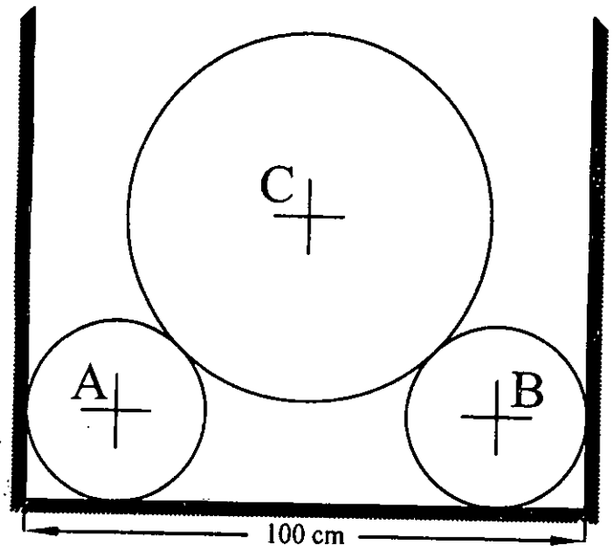

Figure-9

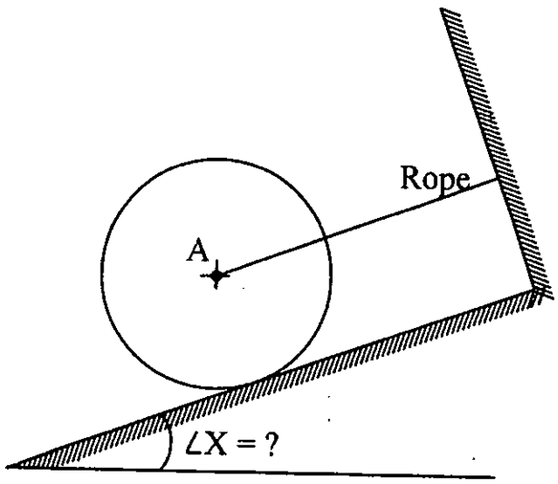

Figure-10

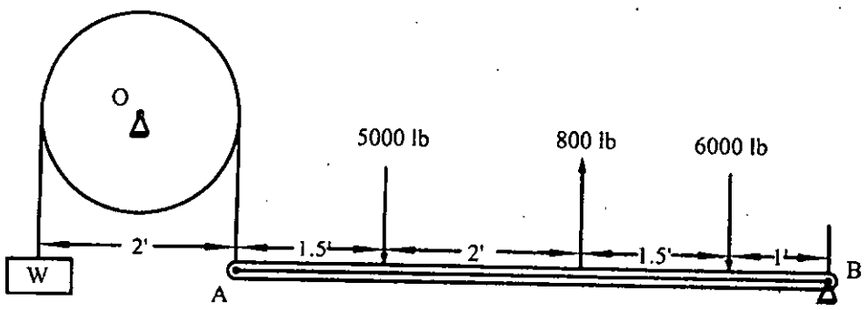

Figure-11

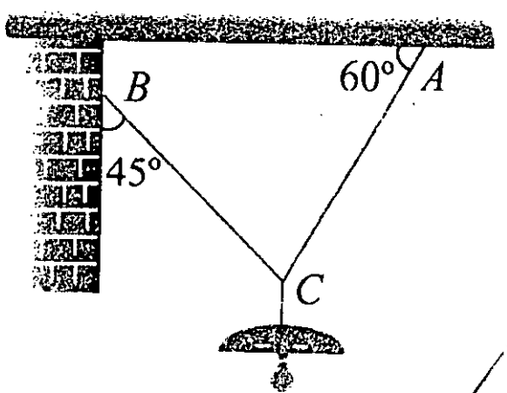

Figure-12