Khulna University of Engineering & Technology

Department of Architecture

B. Arch 4th Year 1st Term Regular Examination, 2023

Course No: Arch 4131   Course Title: Architecture of Bengal I

Full Marks: 210   Time: 03 Hours

N.B.   i) Answer any three questions from each section in separate script
          ii) Figures in the right margin indicate full marks

Section-A

1.	a)	What are the prominent building materials in Bengal and why? How did these materials help to constitute vernacular architecture in Bengal?	15+10 =25
	b)	What does 'Rural social structure' mean? Briefly explain.	10
2.		How might the political history of Bengal mentioned in the article 'Settlements in Ancient Bengal: Some observations' by Nupur Dasgupta have influenced the development of the ancient Bengal's settlements?	35
3.	a)	What is the Bengal Delta and how is this delta born?	10
	b)	Give a brief about the 'Architecture of wind, water and clay' in Bengal.	25
4.	a)	Although the introvert layout of the traditional house form of the rural area does not seem suitable according to our climate, but how have people made this layout climatically comfortable over the ages?	15
	b)	'With the change off season, the use of indoor, semi-outdoor and outdoor space of our traditional house form also changes.'-Explain the statement using example.	20

Section-B

5.	a)	'Sompura Vihara is magnificent of Buddhist art and architecture of its time'- Explain with sketches.	28
	b)	Describe different types of stupas based on their relics.	07
6.	a)	Briefly describe 'Chandraketugarh' with necessary sketches.	20
	b)	Illustrate the architectural development of Buddhist shrine in Bengal.	15
7.	a)	What are the architectural differences between temples of the early Hindu period and the medieval period?	25
	b)	What roles do Acharyas and Sutradharas play in the temple constructions?	10
8.	a)	Briefly describe the architectural characteristics of 'Kantajie Temple 'focusing its decorative schemes with neat sketches.	25
	b)	Write short note on 'Dolmancha Bishnupur' with sketches.	10

Khulna University of Engineering & Technology

Department of Architecture

B. Arch 4th Year 1st Term Regular Examination, 2023

Course No: Arch 4141   Course Title: Research Methodology

Full Marks: 210   Time: 03 Hours

N.B   i) Answer any three questions from each section in separate script
ii) Figures in the right margin indicate full marks.

Section-A

1.	a)	Briefly discuss the inductive and deductive forms of scientific research with examples.	20
	b)	Mention some alternatives to social research on which people typically rely for information and decision-making.	15
2.	a)	What do you understand by longitudinal research? Explain three types of longitudinal research with examples.	5+15=20
	b)	What makes a strong hypothesis? Explain with examples.	5+10=15
3.	a)	What do you understand by replication in a study? Explain some reasons for why a replication fails.	5+10=15
	b)	Why does some research fail to have "acceptable" scientific quality or are rejected by journals? Explain.	20
4.	a)	What is quantitative research? Discuss two types of quantitative research with examples.	4+16=20
	b)	What do you understand by architectural research? Distinguish between design and research.	5+10=15

Section-B

5.	a)	Define the term 'Literature Review'. Elaborate the function of literature review.	15
	b)	How literature review brings clarity and focus of a research, explain with an example.	20
6.	a)	Differentiate between primary and secondary sources of data collection method.	10
	b)	Suppose you are conducting a research on "Investigating peoples' attitude towards public property". Which data collection method will you adopt? Explain.	25
7.	a)	For 'measuring safety in public space' which sampling strategy would you follow for respondent selection in questionnaire? Explain in detail.	23
	b)	Write down the advantages of interview data collection method.	12
8.	a)	How does referencing increase the research value and acceptance? Explain with justification.	11
	b)	Write short notes on (any 03):	3X8=24

  i.   Focus Group Discussion (FGD)
  ii. Non-probability Sampling
  iii. Plagiarism
  iv. Systematic Sample Design

Khulna University of Engineering & Technology

Department of Architecture

B. Arch 4th Year 1st Term Regular Examination, 2023

Course No: Arch 4153   Course Title: Landscape Design Theory

Full Marks: 210   Time: 03 Hours

N.B   i) Answer any three questions from each section in separate script
       ii) Figures in the right margin indicate full marks.

Section-A

1. a) What is site suitability?   05
    b) How will you describe Geoffrey Bawa as a landscape architect? Critically   30
        justify the landscaping ideology of Lunuganga Country Estate with
        necessary illustrations.

2. a) What is site integration and synthesis? Why is site inventory checklist   15
        important?
    b) Discuss about the golden age of gardens. Illustrate the design ideology of   5+15=20
        Japanese garden with sketches.

3. a) Discuss the features of France garden design in light of the concepts of   15
        16th century garden design.
    b) What is "nursery culture"? Discuss the features of Victorian garden design   5+15=20
        which introduce nursery culture in 19th century garden design.

4. a) Discuss about the landscape design objectives of 20th century with the   15
        ideology of your campus (KUET).
    b) Write short notes on (any two):   2X10=20
        i.   Genius loci
        ii.   Islamic garden
        iii. Joseph Paxton

Section-B

5. a) What is landscape? Define "landscape" according to three scholars.   10
    b) Describe three distinct perspectives of landscape ecology.   10
    c) How do you think the roles of humans affect an area's ecology? Depict your   15
        thoughts on it.

6. a) Define River Bank Protection (RBP).   10
    b) Discuss the riverbank protection method known as stone "rip-rap". Provide a   15
        conventional illustration with it.
    c) Discuss the advantages and disadvantages of the riverbank protection method –   10
        "sack".

7. a) What is land erosion? Discuss the causes of land erosion according to your own   15
        perspective with necessary details.
    b) As some parts of Bangladesh are prone to river erosion, quite a few amount of   20
        erosion control methods should be practiced here. Imagine you are a facilitator,
        and your job is to educate inhabitants living near the erosion-effected land.
        What are the parameters you are willing to discuss with them?

8. a) What is green infrastructure? Describe the benefits of green infrastructure.   10
    b) Illustrate a sectional perspective view of sustainable urban drainage system   20
        (SUD) and delineate the necessary attributes.
    c) Discuss the differences of extensive and intensive green roof.   05

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B. Arch 4th Year 1st Term Regular Examination, 2023

Course No: CE 4125   Course Title: Structure V

Full Marks: 210   Time: 03 Hours

N.B.   i) Answer any three questions from each section in separate script
        ii) Figures in the right margin indicate full marks

Section-A

1. a) Define Truss. Why you choose truss over beam?   06

   b) Determine the forces in all the members of a truss as shown in figure below. Also determine the determinacy and stability.   29

8 KN

30° 60° 60° 60° 60° 30°

A   B   G   C   F   D   E

6 KN   12 KN

2,000mm   2,00mm   2,000mm
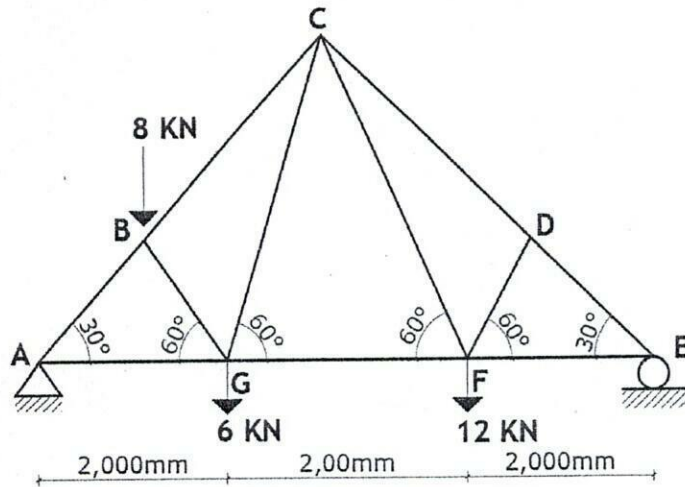
Figure: 1(b)

2. a) A cantilever truss of span 4.5m is shown in figure below. Find the forces in all the members of the truss.   20

1.5m

A   1000 KN   B   1000 KN   C   500 KN

I   H   G   D

1.5m   1.5m   1.5m
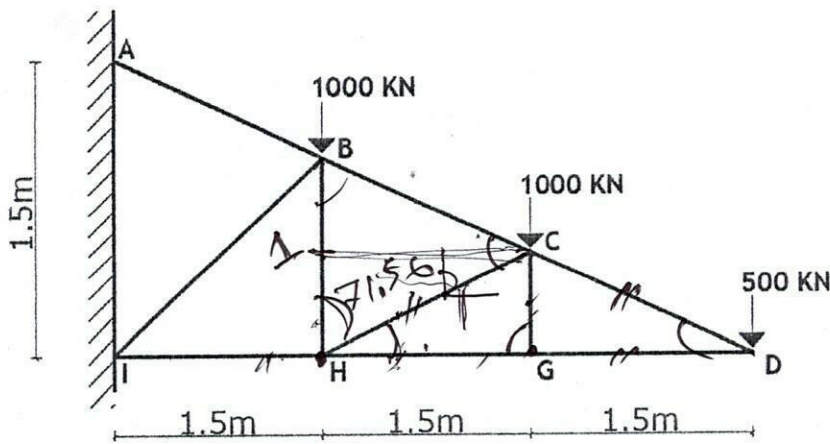
Figure: 2(a)

   b) Define zero force member. Discuss about the joint method and section method for the analysis of truss.   10

   c) What are the applications of truss in Civil Engineering construction?   05

3. a) Discuss about the concept of consolidation. How it effects settlement of structure?   15

b) What is geostatic stress of soil? Calculate the effective stress of soil for the following condition. - Show graphically.   12
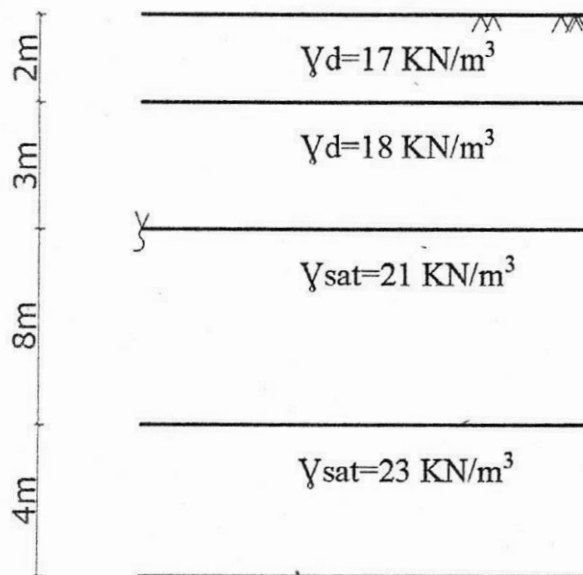

Figure: 3(b)

c) Write short notes on: 08
  i.   General shear failure
  ii. Local shear failure

4. a) What are the types of shallow foundation? Describe briefly.   12

b) What is pile foundation and under what conditions pile foundation is used?   08

c) Describe the relationship of load vs. settlement with neat sketches.   06

d) Define: (i) Bearing capacity of soil (ii) Immediate settlement (iii) Factor of safety   09

Section-B

5. a) What is pre-stressing of concrete? Explain briefly.   05

b) A pre-stressed girder shown in the figure consist of one pre-stressing bar. The girder is designed so that the bottom has no tensile stress. But after loading several tensile crack was seen in the bottom layer. Determine the stresses of the member at top & bottom fibre.   30
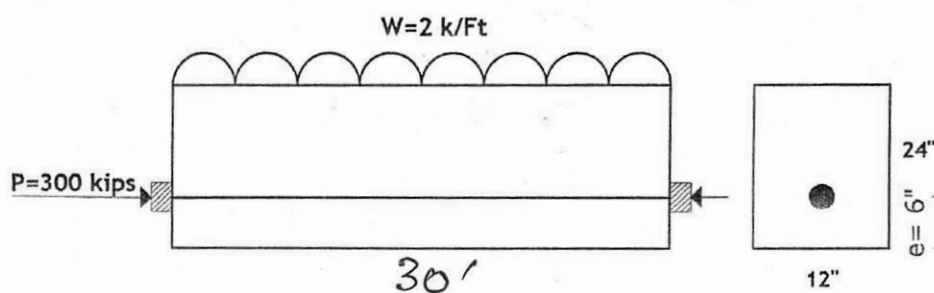

Figure: 5(b)

6. a) Determine the buckling strength of a w 24 x 162 column. The length of the column is 35ft. For major axis buckling pinned at both end & for minor axis buckling it is pinned at one end and fixed on the other. Given, section properties, I_x=5170 in^4, I_y=443 in^4, E=29000ksi.   15

b) A column of a building is subjected to 1200kips loads. To renovate the building new equipments need to be move into the building which will increase the loads on the column. If the section used is w 16 x 100, how much load can be increased on that column? Section properties, A_g=29.4 inch², I_x=1490 in⁴, I_y=186 in⁴, F_y=50 ksi. The column is fixed at major axis & pinned at minor axis with a bracing in the middle.   20

7. a) Determine M_y, M_n, Z for the steel T beam shown in the following figure. Calculate the shape factor & the nominal load (W_n) that can be placed on the beam for a 12ft simple span. F_y= 60 ksi.   25
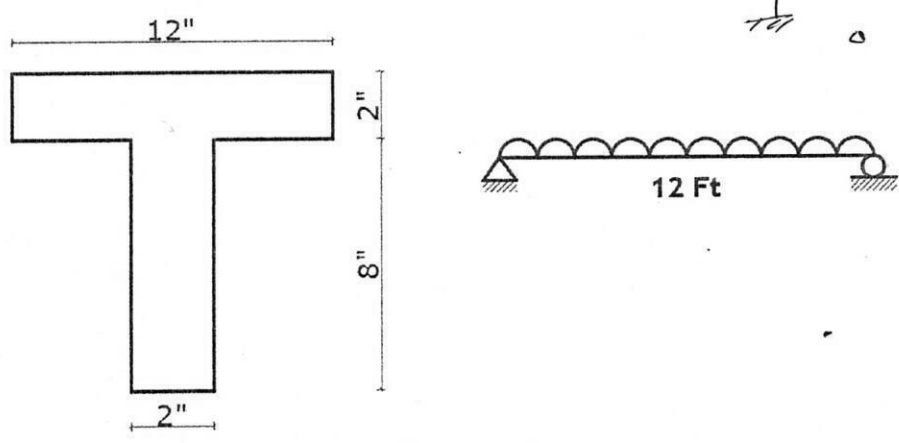

Figure: 7(a)

b) Show with neat sketch the relationship between nominal resisting moment of a beam with unbraced length.   10

8. Calculate the effective length factor for a w 10 x 60 column AB made from 50ksi steel in the unbraced frame shown below. Column AB has a design factor load of P_u=450 kips. The columns are oriented such a way that major axis bending occurs in the plane of the frame. The columns are braced continuously along the length for out of plane buckling. Check if the design is okay. Necessary chart will be provided. Z= 0.84   35
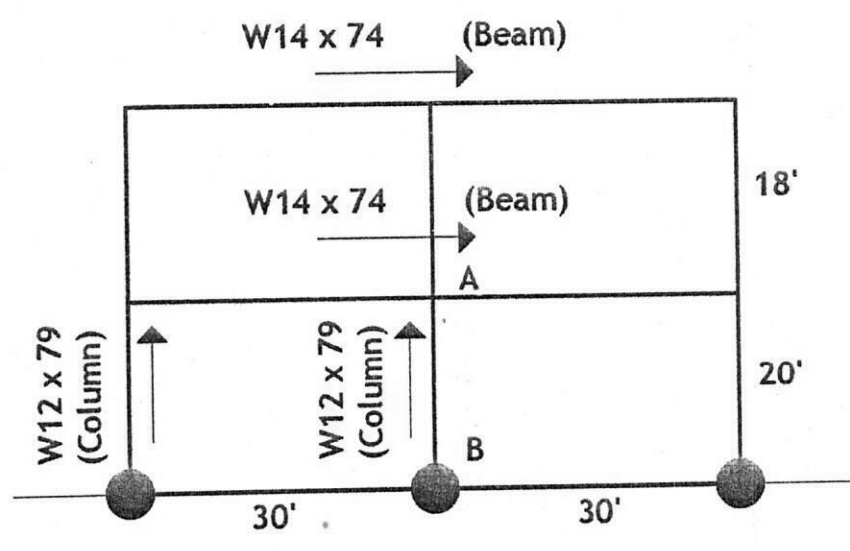

Figure: 8

Section properties,
W 14 x 74
A= 21.8 in²
I_x = 795 in⁴
I_y = 134 in⁴

W 12 x 79
A= 23.2 in²
I_x = 662 in⁴
I_y = 216 in⁴