

KATHMANDU UNIVERSITY
End Semester Examination
January/February 2024

Level : B.Arch.
Year : III
Time : 2 hrs. 30mins.

31 JAN 2024

Course : ARCH 305
Semester : I
F. M. : 40

SECTION "B"

[8Q × 2.5 = 20 marks]

Write short note on *ANY EIGHT* questions.

1. Structural glazing
2. Composite action window
3. Match boarded door
4. Hammerbeam truss
5. Crib retaining wall
6. Underpinning
7. Sunken slab
8. Column formwork
9. Thatch as roofing material

SECTION "C"

[20 marks]

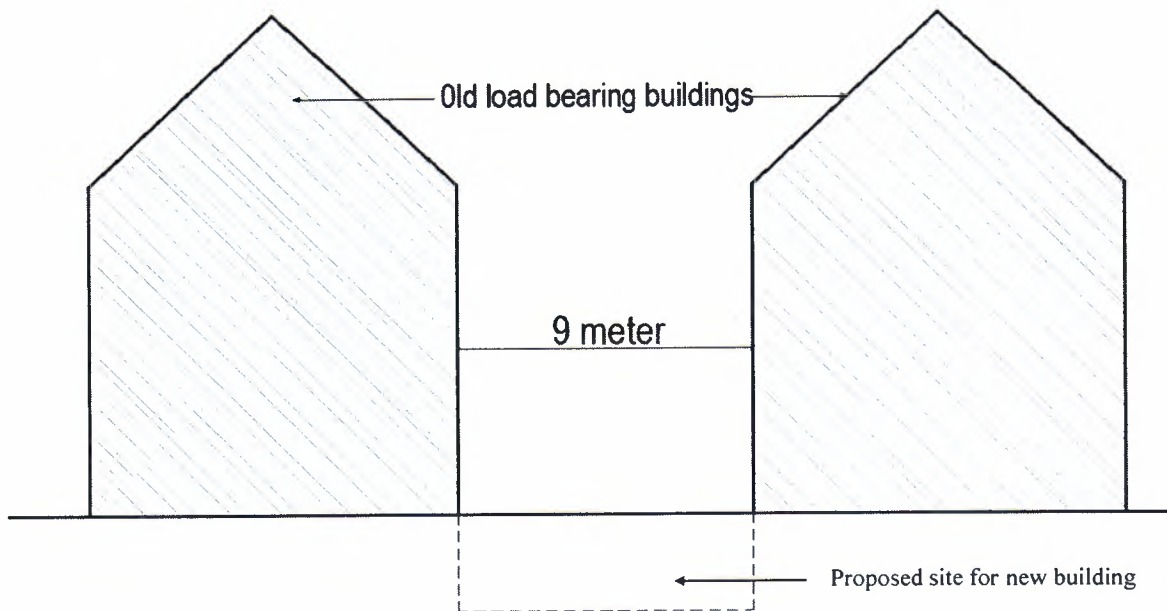
Attempt *ALL* questions.

10. What type of wooden window would be appropriate for the opening size, width 6ft height 6ft. Design and draw Plan, elevation, section, details with provision of net sash. Assume the wall thickness in 9". Indicate name and size of all its components, assume necessary data if needed. What kind of timber would be ideal for this window which is subjected to constant weather conditions? [6 marks]

OR

Design and draw Plan, elevation Section, details of wooden door for main entrance of a house for the opening size, width 6ft height 8ft. Indicate name and size of all its components, assume necessary data if needed. What kind of timber would be ideal for this window which is subjected to constant weather conditions? [6 marks]

11. What are the major components in any R.C.C framed structure buildings? Provide a detail explanation of each component in terms of its function and relevance within the structural system supported by suitable illustration. [7 marks]
12. As illustrated in the provided diagram, the construction of a new house is planned between two existing load-bearing structures. Caution must be exercised to safeguard the integrity of the old buildings and prevent any risk of collapse. Propose a suitable shoring method that addresses the support needs for the two adjacent old buildings allowing the smooth construction work of new building. The separation distance between the two buildings is 9 meters. Draw and explain the shoring that you have selected with all the necessary components. [7 marks]



KATHMANDU UNIVERSITY
End Semester Examination
January/February 2024

Marks Scored:

Level : B.Arch.

Year : III

Exam Roll No. :

Registration No.:

31 JAN 2024

Time: 30 mins.

Course : ARCH 305

Semester : I

F. M. : 10

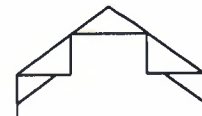
Date :

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose and encircle in the appropriate option.

- The primary function door Jamb is to:
a. Aesthetic detailing
b. Securing the door in place
c. Allowing ventilation
d. Providing structural support
- _____ is the depression or recess made inside the door frame to receive the door shutter.
a. Jamb
b. Rebate
c. Sill
d. Horn
- Which type of door is commonly used for closets and storage areas due to its space-saving design?
a. Revolving
b. Swing
c. Sliding
d. Pivot
- Which window type is known for its ability to fold and stack neatly to one side, creating a wide opening?
a. bi-fold
b. Side hung
c. Sliding
d. Jalousie
- The function of window mullion is to:
a. Support the window frame
b. Divide the window into separate panes
c. Provide secure locking mechanism
d. Channel rainwater away from the window
- Which type of window opens outward on hinges located at the top and allows for ventilation while preventing the rain from entering?
a. Sliding
b. Swinging
c. Pivot
d. Awning
- In the truss roof system, the primary function of king post is to:
a. Support the ridge beam
b. Provide lateral stability
c. Distribute load to walls
d. Connect roof rafters
- Name the type of truss shown in the figure
a. King post truss
b. Queen post truss
c. Hammerbeam truss
d. Scissor truss
- Number of strips of timber laid at regular spacing as a base on to which cladding, sheet materials and tiles may be fixed is:
a. Eaves
b. batten
c. purlin
d. rafter



10. The member that connects the upper ends of the rafters forming the apex of the triangle is:
 a. Wall plate b. Rafter c. Ridge board d. Purlin
11. Which force exerts pressure on a retaining wall, causing it to resist soil movement?
 a. Shear force b. Tensile force
 c. Compressive force d. Earth pressure
12. The retaining wall which comprised of stem and base slab is:
 a. Cantilever retaining wall b. Crib retaining wall
 c. Gravity retaining wall d. Anchored retaining wall
13. Which component of scaffolding is used for vertical support and connects to the ground or a lower level?
 a. Ledgers b. Standards c. Putlogs d. Rakers
14. Which retaining wall walls are multi-celled, rectangular wire mesh boxes, filled with rocks or suitable materials?
 a. Counter fort retaining wall b. Crib retaining wall
 c. Gabion retaining wall d. Pile retaining wall
15. The major function of Counterfort retaining wall is
 a. Enhancing aesthetics b. Increasing structural rigidity
 c. Allowing for drainage d. Minimizing construction cost
16. What is the purpose of a transom in scaffolding?
 a. To connect two scaffolding bays b. To provide vertical support
 c. To enhance aesthetic d. To provide insulation
17. Which of the following is a safety feature used on scaffolding to prevent objects from falling?
 a. Base plate b. Guard rail c. Raker d. Toe board
18. The column is considered as short column if the ratio of length(L) and breadth (B) is:
 a. $B/L \leq 12$ b. $L/B \geq 12$ c. $L/B \leq 12$ d. $B/L \geq 12$
19. The slab is considered as one way slab if the ratio of longer span (l) to shorter span (b) is:
 a. Lesser than 2 b. Equal or greater than 2
 c. Lesser than 2 d. Equal or greater than 2
20. Which safety feature is crucial for preventing scaffold collapse and instability?:
 a. Diagonal brace b. Base plate c. Transom d. Ledger