2014-15
B. ARCH (SUMMER SEMESTER) EXAMINATION
ARCHITECTURE
CONSTRUCTION AND MATERIALS-II
AR-203

Maximum Marks: 40
Credits: 05
Duration: Three Hours

Answer all the questions.
Support your answers with relevant sketches where necessary.
Well drafted and neat sketches shall be given extra credit.

Q.No.  Question
1  Write in brief about the following terms: (any five)
   (a) Raft foundation
   (b) Quinto Acuto arch
   (c) Fibre Reinforced concrete
   (d) Toughened glass
   (e) Spandrel
   (f) Annealing

2  Draw the Plan and sectional detail of a steel grillage foundation.  [10]

OR

2' Draw the sectional detail of a Franki pile.

3(a) What are the various types of glass? Write in detail about the characteristics and uses of any two.  [06]

OR

3'(a) What are the various types of steel? Write in detail about the characteristics and uses of any two.  [06]

3(b) Write about the applications of aluminium in building construction industry.  [04]

4 Draw the following:
   (a) Mezzo acute arch with support details
   (b) Sectional detail of a steel window  [5x2=10]
1. Discuss the Indus Valley Civilisation with reference to the development of architecture and planning of that period. [10]

2. Explain why Gupta period is called the "Golden Period of Architecture". [10]

OR

2* What is Rock-cut architecture. Discuss in brief with the help of at least TWO examples. [10]

3. Explain in brief any FOUR of the following terms:
   a) Adaksha
   b) Caperams
   c) Garbha Griha
   d) Pradakshina
   e) Siddhara
   f) Vastu Purush Mandala

[16]

4. Differentiate between the architectural characteristics of North Indian and South Indian Temples. [10]

5. Discuss any TWO of the followings:
   a) Stupa at Sanchi
   b) Sun Temple at Konark
   c) Lingaraja Temple, Puri
   d) Shore Temple at Mamallapuram

[14]
1. What do you understand by the climate? Describe various elements of climate, their characteristics and behaviour in detail.

2. Describe the importance of climate design for architects in present times in view of energy crises and global warming.

OR

2'. Explain any THREE of the following:
- Time lag and decrement factor, globe thermometer, effective temperature, sol-air temperature, glare, smart glasses, periodic and steady state heat flow.

3. Explain heat control methods in a building through its (floors and roofs) OR (walls and windows).

4. Explain preparation of sun-path diagram and its use in designing of louvers, as well as graphical representation of their efficiency.

5(a). Explain need of ventilation in buildings as well as behaviour of wind inside and outside of buildings also describe designing of buildings for proper air flow in buildings.

5(b). Explain the designing of windows in a building using day light factor concept for required illumination.
B.TECH. (AUTUMN SEMESTER) EXAMINATION
CIVIL ENGINEERING
WATER SUPPLY AND SANITATION
AR 217

Maximum Marks: 60  Credits: 03  Duration: Three Hours

Answer all the questions.
Assume suitable data if missing.
Notations used have their usual meaning.
Use of Nomograph and partially flow diagram permitted.

Q. No.  Question  M.M.
1(a) Describe in detail the different water demands for a town.  [05]
1(b) What is the significance of population forecasting? Name various methods used for population forecasting. Find the population for the decade 2040 from the following census record using geometric increase and incremental increase methods.

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (10^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>600</td>
</tr>
<tr>
<td>1980</td>
<td>850</td>
</tr>
<tr>
<td>1990</td>
<td>1100</td>
</tr>
<tr>
<td>2000</td>
<td>1460</td>
</tr>
<tr>
<td>2010</td>
<td>1750</td>
</tr>
</tbody>
</table>

OR

1'(a) Briefly explain how variation in hourly water demand is met out?  [02]
1'(b) Draw the layout of a water supply connection for a house from water mains. Briefly explain the purpose of each appliance used.
1'(c) Briefly explain the different water distribution systems  [04]
1'(d) What are indicator organisms?  [02]

2(a) Design a sedimentation tank for a flow of 10 MLD. Assume the value of surface overflow rate as 28 m^3/m^2.d. Design both rectangular and circular cross sections.  [04]
2(b) Describe, with the help of equations, the lime soda process for treatment of hardness  [06]

Contd... 2.
in water and briefly explain the significance of addition of excess lime.

2 (c)  Briefly explain the purpose of aeration in water treatment.

3 (a)  Discuss in detail the various methods of sewage disposal.

3 (b)  Draw the flowsheet of sewage treatment and explain the purpose of primary, secondary and tertiary treatment.

OR

3'(a)  A 500 mm sewer was laid such that it flows at 40% of its maximum capacity. If the velocity of flow is 1.3 m/s, find the depth of flow and the slope at which the sewer was laid.

3'(b)  Compare the advantages and disadvantages of separate and combined sewerage systems.

3' (c)  What are manholes? Describe the construction and working of a manhole.

4 (a)  Differentiate between one pipe and two pipe system of building drainage.

4'(b)  Design a septic tank for 50 users assuming wastewater contribution per person as 60 litres per day and period of clearing as two years.

4 (c)  Write the specifications of W.C.s, wash basins and sinks.

5 (a)  Describe the working of an activated sludge process used for wastewater treatment.

5 (b)  The 5 day 20°C BOD of wastewater sample is 300 mg/L. Calculate the 3 day BOD if the temperature was maintained at 27°C. Take $K_{20} = 0.23$ d$^{-1}$.

5 (c)  What are traps? Briefly describe the differentiate types of traps.
Figure 4-12
Nomograph for Manning formula in English and SI metric units for circular pipes flowing full based on n = 0.013.

Figure 4-13
Relative quantity, velocity, and cross-sectional area of flow in a circular pipe for any depth of flow.
2014 - 2015
B.ARCHITECTURE AUTUMN (III SEMESTER) EXAMINATION
ARCHITECTURAL DESIGN – I
(AR-251)
Credits: 08

Max Marks : 40
Duration : Six Hours

NOTE: i) Use of standards is permitted, however their supply in the examination hall is not guaranteed.
   ii) Present the scheme through the to-scale drawn and drafted sketches.
   iii) Neat presentation of Graphics and write-ups carry additional weight-age within maximum marks.
   iv) Concept of design shall be evaluated through viva-voice.
   v) Assumed and write any missing data/situation/dimensions

Design and present a RESTAURANT for the shoppers and shop/showroom owners of a mall on Ramghat road at Aligarh on a floor earmarked for the purpose with 600X600 column grid with 8 mts X 8 mts c/c structural bays for a floor measuring 24 X 40 mts (deep). 45 mtr wide Ramghat Road is in the west of the site adjacent to PAC Campus and measures 100 mts X 150 Mts.

Design the building/site with following features/facilities:

1. Park and Parking for 40 cars and 40 two–wheelers in the 20 mts front setback.
2. Entrance lounge with and staircase and to seat 20 people; together with gender based toilets.
3. Banquet Hall for 100 people.
4. 16 dining cubicles of capacity 4.
5. Kitchen area with dry and wet cooking areas, washing area and frozen store.
6. Manager’s chamber, bill & cash counters.

*Present your scheme through two scale plan to suggest structural and furniture layout.
*Two sections through toilets staircase lift and kitchen.
*Interior View
*Concept(Viva)
Use of standards is permitted, however their supply in the examination hall is not guaranteed.

Present the scheme through the to-scale drawn and drafted sketches.

Neat presentation of Graphics and write-ups carry additional weight-age within maximum marks.

Concept of design shall be evaluated through viva-voice.

Assumed and write any missing data/situation/dimensions

Design and present a primary school for the benefit of residents of Swarn Jayanti Nagar Colony of ADA in Aligarh on a site measuring 120 mts X 250 mts accessed by a 30 mtr wide road on the east and served by a 20 mtr wide service lane on the northern side.

Design the building/site with following features/facilities:

1. Parking for 2 cars, 2 buses, 10 two-wheelers, 20 rickshaws and 50 cycles in the 20 mts front setback.
2. Entrance lounge with and staircase and to seat 20 people; together with gender based toilets.
3. Prayer Hall/ground for 500 people.
4. 10 classrooms of capacity 50 each for 1st to 5th standards.
5. 5 Activity rooms for arts & craft, clay/pottery, computer, indoor play equipments and performing arts.
6. Principal’s chamber with attached toilets and waiting area.
7. Staff room for 10 teachers with attached/adjacent staff toilet.
8. Office to seat 5 officials with store and records room.
9. Library, computer room, sick room.
10. Outdoor play areas and parks.

*To scale Site plan with layout of built and open spaces, in conjunction with road and entrance(s).

*Floor plans

*One elevation and one section through toilets, staircase.

*Concept (Viva)
2014 — 15
B.ARCHITECTURE (III SEMESTER) EXAMINATION
MAN, SOCIETY AND BUILDINGS
HU-208
Credits: 02

Maximum Marks: 60
Duration: Three Hours

Note: (i) Answer any five questions.
(ii) All parts of a question should be attempted in one continuation
(iii) All questions carry equal marks
(iv) Assume any data if not given

Q. 1 (a) Discuss man as hunter and food gatherer in detail. (6)
(b) Discuss how man realized the need of housing and how he solved
this problem in the primitive ages. (6)

Q. 2 (a) What are the various ways of acquiring information about any topic
(6)
(b) Explain with example inductive method and deductive method of
knowledge investigation. (6)

Q. 3 (a) Define the term "EKISTICS" and discuss its scope in brief. (6)
(b) Describe the formation of community and discuss its characteristics
in detail. (6)

Q. 4 (a) Define group, class, association in the context of Sociology
(6)
(b) Discuss briefly the changes that took place in Indian society at
large in last sixty years. How these social changes have affected
the planning of a house? (6)

Q. 5 (a) How does religious beliefs and practices affect the design concepts
of building? (6)
(b) List and discuss the differences in a typical Hindu's house and a typical Muslim's house.

Q. 6
(a) On the basis of the definition of social stratification and its characteristics, can you say that stratification is a universal phenomenon?
(b) Write a comparative account of the characteristics of rural and urban communities in India.

Q. 7
Write short notes on any four of the following:
(a) Ascribed and achieved status.
(b) Closed and open stratification.
(c) Social circle.
(d) Influence
(e) Prestige
(f) Political power.