B.A.R.C.H. (AUTUMN 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) Skewback
   (b) Florentine arch
   (c) Glasswool
   (d) Laminated glass
   (e) Polythene
   (f) Extrusion

2. | Draw the Plan and sectional detail of a window in a cavity wall.

3. | What are the various types of non-ferrous metals used in building construction? Write in detail about their characteristics and uses.

OR

3' | What are the various types of plastics and fibres used in building construction? Write in detail about their characteristics and uses.

4. | Draw the following (any two):
   (a) 4-centered arch with support details
   (b) Details of a steel window in plan.
   (c) Sectional detail of a stepped footing foundation in black 
   

P.T.O.

M.M. [5X2=10]

[10]  
[10]  
[10]  
[2X5=10]
Answer all questions.
All Questions carry equal Marks

Draw neat sketches to support your answer.

1. Discuss in brief impact of religion and technology on development of architecture style. (12)

2. Explain any two.
   a. Concept of Vastu-Shastra.
   b. Secular Architecture of Vedic period.
   c. Factors on which Indus valley civilization flourishes.

3. Discuss various architecture characteristic of Buddhist architecture in India. (12)

OR

3. Discuss the architecture characteristic of Jain Architecture? Elaborate the example of Adinath temple. (12)

4. Differentiate between the architectural characteristics of North Indian and South Indian temple? (12)

5. Discuss any two

   a) Sun temple Konark.
   b) Stupa at Sanchi
   c) Lad Khan Temple,
   d) Lingaraja Temple, Puri
Answer all questions.
All Questions carry equal Marks

Draw neat sketches to support your answer.

1. Define the term Climate and discuss various elements of climate. (12)
2. What are the factors that influence air temperature and discuss in detail. (12)
3. What are the factors to be considered at the design stage with which good ventilation system in a building can be achieved? (12)

OR

3. Explain preparation of sun-path diagram and its use in designing of louvers, as well as graphical representation of their efficiency. (12)

4. a. Discuss heat exchange process in building. (12)
b. What do you understand by human heat balance and comfort?

5. Explain any four (12)
   a. Macro and Micro climate,
   b. Stack effect,
   c. Time lag
   d. Energy efficient architecture,
   e. Day light factor
   f. Relative Humidity and Absolute Humidity
   g. Application of Solar Charts in the design.
2015-16
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.

Q.No. Question M.M.
1(a) Discuss in detail the chemical water quality parameters [06]
1(b) With the help of sketches describe the various layout of water distribution piping [06]

OR

1' Briefly describe the graphical method used for the determination of capacity of [12]
overhead tanks. Following table gives the variations in water demand. Using any
one of the methods calculate the capacity of storage tank to meet out the variations
in water demand if the pumps are operated from 4.0 a.m. to 10.0 a.m. and from 3.0
p.m. to 9.0 p.m.

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Water demand (10^2 L)</th>
<th>Time (hours)</th>
<th>Water demand (10^3 L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midnight to 1 a.m.</td>
<td>15</td>
<td>12.0 - 13.0</td>
<td>95</td>
</tr>
<tr>
<td>1.0 - 2.0</td>
<td>15</td>
<td>13.0 - 14.0</td>
<td>110</td>
</tr>
<tr>
<td>2.0 - 3.0</td>
<td>20</td>
<td>14.0 - 15.0</td>
<td>105</td>
</tr>
<tr>
<td>3.0 - 4.0</td>
<td>40</td>
<td>15.0 - 16.0</td>
<td>100</td>
</tr>
<tr>
<td>4.0 - 5.0</td>
<td>60</td>
<td>16.0 - 17.0</td>
<td>110</td>
</tr>
<tr>
<td>5.0 - 6.0</td>
<td>80</td>
<td>17.0 - 18.0</td>
<td>100</td>
</tr>
<tr>
<td>6.0 - 7.0</td>
<td>90</td>
<td>18.0 - 19.0</td>
<td>90</td>
</tr>
<tr>
<td>7.0 - 8.0</td>
<td>100</td>
<td>19.0 - 20.0</td>
<td>100</td>
</tr>
<tr>
<td>8.0 - 9.0</td>
<td>130</td>
<td>20.0 - 21.0</td>
<td>110</td>
</tr>
<tr>
<td>9.0 - 10.0</td>
<td>110</td>
<td>21.0 - 22.0</td>
<td>80</td>
</tr>
<tr>
<td>10.0 - 11.0</td>
<td>100</td>
<td>22.0 - 23.0</td>
<td>60</td>
</tr>
<tr>
<td>11.0 - 12.0</td>
<td>90</td>
<td>23.0 - Midnight</td>
<td>40</td>
</tr>
</tbody>
</table>

Cond......2.
2 (a) Draw the water treatment flowsheets for surface and subsurface sources of water supplies.

2 (b) Derive the equations used for the determination of terminal settling velocities. Find the terminal settling velocity of a particle of diameter 0.4 mm and specific gravity 2.65 settling in water. Assume dynamic viscosity of water as $1.002 \times 10^{-3}$ N-s/m².

2 (c) Draw breakpoint chlorination curve and explain its significance in water treatment.

3 (a) Differentiate between separate and combined sewerage system.

3 (b) What is the objective of secondary treatment in wastewater treatment? Briefly describe the different systems used for secondary treatment.

3 (c) Differentiate between velocity and displacement types of water meters.

OR

3' (a) Briefly explain the precautions to be taken while using wastewater for irrigation purpose.

3' (b) What are the different types of sanitary appliances used these days? Give the specifications of each.

4 (a) Briefly explain wastewater collection systems.

4 (a) With the help of neat sketches describe the various building plumbing systems.

5 (a) Design a septic tank for 30 users assuming wastewater contribution per person as 50 l/day and period of cleaning as two years.

5 (b) Explain the functioning of a Bell type of Cistern.

5 (c) Briefly describe the different types of sewers and drainage pipes (based on materials)
PLAY SCHOOL

Design and present an elementary Play School for an educational society at Aligarh on a site measuring 450 mts x 450 mts on a 45 mts wide Ramghat Road in the west of the site adjacent to UPSIDC Tala Nagri.

Design the building/site with following features/facilities.

* From Lawn and Parking for 5 Buses (30 seater) and 2 Vans 18 seater and 5 Cars and 5 Cycles and 5 Motorcycles.
* Entrance lounge to seat 20 people with general toilet.
* Plan 6 classrooms (max capacity 25) and 2 activity spaces indoors and 2 outdoors for age group 3-6 years.
* Design the staff room and Principal chamber with attached toilet and other administrative staff room(s) so that the students are provided with adequate and desirable watch and ward for their safety and wellbeing apart from facilitating learning with ease and fun.
* Provide suitable toilet for assisted pupil, teachers and other staff.
* Provide pantry and lunch area for staff.
* Provide sleeping room for 10 kids care taker and aaya and storage space for Linen, diapers and napkins etc.
* Music and dance room with music system etc.
* Outdoor Assembly and play pockets with play accessories.
* Multi-purpose hall to seat 150 people.

Present your scheme through following drawings

* Site Plan
* Floor Plans, two elevations and two sections.
* Concept (Viva)
1. Explain factors shaping the behaviour of a person by detailing the role of id, ego, superego and other environmental factors in rural and urban societies and their aspirations. [12]

2. Describe the factors responsible for creating social status in human society in detail especially focusing on traditional and trends of changes through industrialization in ascribed and earned social status with suitable examples. [12]

3. What do you understand by roles, norms, values in a society? Explain in detail in the context of traditional and modern social and class stratification. [12]

4. Explain the process of Modernization, Urbanization. Migration, slums and Class reflection in Indian social housing such as LIG, MIG and HIG etc. [12]

5. Explain any two of the following in detail
   - Verna, Caste and class: social processes; unity and diversity in India; tribal, pastoral and agricultural communities and their shelters/houses. [12]