2017-18
B. ARCH (SUMMER SEMESTER) EXAMINATION
ARCHITECTURE
CONSTRUCTION AND MATERIALS-II
AR-203

Maximum Marks: 40
Credits: 05
Duration: Two 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  M.M.
1    Write in short about the following terms: (any four) [4X2.5=10]
(a)  Raymond pile
(b)  Fibres
(c)  Raft foundation
(d)  Plastic
(e)  Spandrill
(f)  Brass

2. What are the various types of glasses used in building construction? Write in
detail about their characteristics and uses. [10]

OR

2' What are the various types of ferrous metals used in building construction?
Write in detail about their characteristics and uses. [10]

3    Draw the following (any two): [2x5=10]
(a) Four-centered arch with support details
(b) Draw the fixing detail of a steel and glass window in 1200 wide opening.
(c) Ogee arch with support details.

4(a) What are the types of defects in the construction of a cavity wall? (5)

4(b) Draw the sectional detail of a parapet in a cavity wall. (5)
2017-2018
B. Arch III Semester Examination
Ancient Architecture (Indian & Far East) AR-209
Credit: 03

Maximum Marks: 60
Duration: Two Hours

Answer all questions.
All Questions carry equal Marks.
Draw neat sketches to support your answer.

1. Write an essay on the 'Great Bath' and 'Granary'- the two symbolic monuments of
the first urban civilization. (15)

Or

Write short notes on any Two of the following: (7.5x2)
a) Impact of the contemporary religion on the development of Ancient architecture
b) Town Planning of the Harappan Civilization.
c) Drainage system of Indus Valley Civilization
d) 'Citadel' of the Indus Valley Civilization

2. Discuss in brief the characteristic features of the Buddhist architecture in India. (15)

3. Elaborate the evolution of the temple architecture with special reference to the
Nagara style? (15)

4. Trace the salient features of the Rock-cut Architecture. How it was occupied special
place in Indian Architecture? (15)

Or

Write short notes on any Two of the following: (7.5x2)
a) Gandhar School of Architecture
b) Chaitya and Vihara
c) Stupa at Sanchi
d) Jain architecture with example
Differentiate between the following:
   a. Thermal diffusivity and thermal conductivity.
   b. Climate and Season.
   c. Equatorial and Subtropical climate.
   d. Equinox and Solstice.
   e. Solar Insolation and Solar Irradiance.

Describe in detail, the movement of wind around buildings placed in a grid iron layout. Use neat sketches to illustrate.

Describe the various adverse effects of precipitation on the different parts of a building.

OR

Describe the complete heat gain process of a building identifying all major modes.

Describe how altitude and vegetation affect the temperature of any geographical location.

OR

Elaborate upon the combined role of massing, orientation, fenestration and shading devices on the climatically sensitive design of buildings.
2017-18
B.TECH. (AUTUMN SEMESTER) EXAMINATION
CIVIL ENGINEERING
WATER SUPPLY AND SANITATION
AR 217

Maximum Marks: 60  Credits: 03  Duration: Two Hours

Answer all the questions.
Assume suitable data if missing.
Notations used have their usual meaning.

Q.No.  Question  M.M.
1(a)  What are coliforms? Briefly explain their significance.  [04]
1(b)  Define BOD and explain its significance. What happens when BOD containing wastewater is discharged in water bodies?  [06]
1(c)  Briefly explain the difference in the quality of water obtained from surface and subsurface sources. What are water borne diseases?  [05]
2.  Briefly explain the practice adopted for meeting out the variation in water demand.  [15]

Following table gives the hourly water demand of a town. Calculate the capacity of storage tank required to meet out the variation in demand assume pumping hours as 4 a.m. to 6 a.m. and 3.0 p.m. to 9.0 p.m. Use any one method.

<table>
<thead>
<tr>
<th>Time</th>
<th>Water demand (l)</th>
<th>Time</th>
<th>Water demand (l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midnight - 1.0</td>
<td>45000</td>
<td>12 - 13</td>
<td>95000</td>
</tr>
<tr>
<td>1.0 - 2.0</td>
<td>45000</td>
<td>13 - 14</td>
<td>110000</td>
</tr>
<tr>
<td>2.0 - 3.0</td>
<td>60000</td>
<td>14 - 15</td>
<td>120000</td>
</tr>
<tr>
<td>3.0 - 4.0</td>
<td>75000</td>
<td>15 - 16</td>
<td>135000</td>
</tr>
<tr>
<td>4.0 - 5.0</td>
<td>90000</td>
<td>16 - 17</td>
<td>125000</td>
</tr>
<tr>
<td>5.0 - 6.0</td>
<td>110000</td>
<td>17 - 18</td>
<td>140000</td>
</tr>
<tr>
<td>6.0 - 7.0</td>
<td>118000</td>
<td>18 - 19</td>
<td>135000</td>
</tr>
<tr>
<td>7.0 - 8.0</td>
<td>150000</td>
<td>19 - 20</td>
<td>125000</td>
</tr>
<tr>
<td>8.0 - 9.0</td>
<td>180000</td>
<td>20 - 21</td>
<td>115000</td>
</tr>
<tr>
<td>9.0 - 10</td>
<td>140000</td>
<td>21 - 22</td>
<td>120000</td>
</tr>
<tr>
<td>10 - 11</td>
<td>115000</td>
<td>22 - 23</td>
<td>110000</td>
</tr>
<tr>
<td>11 - 12</td>
<td>105000</td>
<td>23 - 24</td>
<td>75000</td>
</tr>
</tbody>
</table>

OR

contd..... 2.
2' (a) With the help of sketches describe the different layout of the water distribution pipelines. [10]

2' (b) Design a sedimentation tank for a flow of 8 MLD of water assume SOR as 25 m³/m².d. Design both rectangular and circular sections. [05]

3 (a) What are traps? Explain the different types of traps used in sanitary engineering. Support your answer with sketches. [06]

3 (b) Describe the use of screens and grit removal in sewage treatment. Design a grit removal for a flow of 12 MLD assume horizontal velocity as 0.3 m/s and settling velocity as 0.018 m/s. [09]

OR

3' (b) Describe with the help of sketches one pipe and two pipe systems of building drainage. [09]

4 (a) Briefly describe the working of septic tanks. Design a septic tank for 35 users. Assume wastewater contribution per user as 65 l per day. [09]

4 (b) Draw separate flowsheets for sewage treatment involving activated sludge process and UASB as secondary treatment units. Briefly write the advantages of anaerobic treatment. [06]
2017-18
B.A.R.C.H. (III SEMESTER) EXAMINATION
AR 251N, ARCHITECTURAL DESIGN - 1

Maximum Marks: 40
Credits: 07
Duration: Six Hours

* Assume any missing data.
* Neat and good drafted drawings will be credited more.

The term ‘Sulabh Shauchalaya’ refers to a system of operating and maintaining community toilets with bathing, laundry and urinals facility with attendant’s service round the clock. These complexes have electricity and 24 hours water supply and soap powder/liquid is supplied free to users for washing hands. It has separate enclosures for men and women. The user are charged nominal sum for using WC and bath. Use of urinal facility is free. Children, disabled persons and those who cannot afford are allowed to use the facility free of charge.

Observing the advantages of ‘Sulabh Shauchalaya’ Municipal Corporation of Delhi has decided to construct such toilets at various locations. You are requested to design the said ‘Sulabh Shauchalaya’ with requirements as given below and represent your scheme on scale 1:50 or 1:25.

**Design requirements:-**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Attendant counter</td>
</tr>
<tr>
<td>2</td>
<td>Small Store</td>
</tr>
<tr>
<td>3</td>
<td>Male section</td>
</tr>
<tr>
<td>a) WCs</td>
<td>3 Nos.</td>
</tr>
<tr>
<td>b) Bath Rooms</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>c) Urinals</td>
<td>4 Nos.</td>
</tr>
<tr>
<td>d) Wash Basins</td>
<td>4 Nos.</td>
</tr>
<tr>
<td>4</td>
<td>Female Section</td>
</tr>
<tr>
<td>a) WCs</td>
<td>3 Nos.</td>
</tr>
<tr>
<td>b) Bath Rooms</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>c) Wash Basins</td>
<td>3 Nos.</td>
</tr>
</tbody>
</table>

**Area**

- As required
- 5 sq. m.
- As required
- As required
- As required
- As required

**Drawing Requirements:-**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plan/s (to be evaluated through viva)</td>
</tr>
<tr>
<td>2</td>
<td>Elevation/s</td>
</tr>
<tr>
<td>3</td>
<td>Section/s</td>
</tr>
</tbody>
</table>

**Marks**

- [25]
- [08]
- [07]
Answer any FIVE questions. All questions carry equal marks

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

Q.2 (a) Describe the formation of community in detail. (6)
(b) Describe the reason for the process of urbanization (6)

Q.3 (a) Define slum and how its formation occurs (6)
(b) Discuss the remedies for solving the problems of slum. (6)

Q.4 (a) Differentiate between class system and caste system. (6)
(b) Discuss the Socio-Economic changes that took place from the period of Pre -Independence to modern Independent India (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 (6)

Q.6 (a) On the basis of the definition of social stratification and its characteristics, can you say that stratification is a universal phenomenon (6)
(b) Discuss the relationship between social structure and stratification. (6)

Q.7 Write short notes on any FOUR of the following (12)
(i) Ascribed and achieved status.
(ii) Closed and open stratification.
(iii) Social circle
(iv) Influence
(v) Prestige
(vi) Political power