1. A dog legged staircase for a common residential building is to be provided where floor finish to terrace level height is 3300 mm and a side entrance door of 1800 mm height is proposed under the landing. Draw plan and section through the first flight of the staircase.

Or

Draw plan and sectional details of a RCC one way continuous slab, slab panels measuring 3200 mm x 6500 mm.

2. Draw details of any two the following on suitable scale
   a) Reinforcement details of a large size rectangular RCC column
   b) Wooden ground floor
   c) Continuous beam having clear span of 5.6 m supported on 230 mm wall
   d) Damp proofing details of RCC roof.

3. Briefly discuss the following
   a) Types of cement concrete mix used in buildings
   b) Damp proofing in buildings
   c) Lime manufacturing process, its types and uses
   d) Various types of staircases
Q. 1: Discuss in brief the impact of social, religious and geographical conditions on the development of Egyptian Architecture or West Asian Architecture.

Q. 2: Describe the characteristic features of the domestic and the public buildings of Greek architecture.

OR

Q. 2': Explain with neat sketches, various steps of development for the introduction of light in the interiors from Greek to Baroque period.

Q. 3: "During Roman times, the emphasis was given to the architecture for the public". Explain the statement giving suitable example(s) to justify your answer.

Q. 4: Explain briefly with the help of plan and elevation/ section (any TWO):
   i) Hagia Sophia, Constantinople
   ii) Parthenon, Athens
   iii) St. Peters, Rome

Q. 5: Highlight the architectural characteristics of Byzantine and Romanesque period from the 3rd-12th century AD.

Q. 6: Explain any TWO of the following:
   i) Structural system adopted in the construction of dome of Florence cathedral
   ii) Geometry and elements on Gothic churches
   iii) Greek and Roman orders
   iv) City of Khorsabad

Q. 7: Discuss the new ideas, movements and inventions associated with the Renaissance and Baroque architectural style.
1. Describe the importance of building bye-laws. Explain the problems that are likely to be encountered in the absence of building bye-laws. [12]

OR

1'. What are the circumstances in which the Development Authority orders “Demolition of Buildings”. [12]

2. Differentiate any Three of the following: [4 x 3]
   a) Fire Prevention and Fire Fighting
   b) NBC and LEED
   c) Carpet Area and Floor Area
   d) Net Density and Gross Density

3. Discuss the provisions in the building bye laws with respect to following: [4 x 3]
   i) Width and length of means of access for residential buildings.
   ii) Exterior open spaces.
   iii) Light and ventilation with respect to different climatic zones.
4. A plot of land measuring 25mx40m has to construct a G+4 storeyed building with uniform floor area, if the land has been utilized to its fullest, and FSI is 250, calculate the permissible ground coverage?
   
   Also calculate the total number of cars and area required for parking, if parking is provided
   
   a) At Basement.
   
   b) At Stilt floor

5. Write short notes on any Three of the following:
   
   a) Acquisition and Disposal of land
   
   b) Applicability of building byelaws
   
   c) Light Plane
   
   d) Skip Floors
   
   e) Accessory buildings
ARTS GALLERY & EXHIBITION SPACE

The authorities of Aligarh Muslim University have decided to construct a “Arts Gallery and Exhibition Space” to exhibit the works and achievements of different departments of the University.

The site measuring 45m x 60m having approach towards North (on shorter side of the site) for the proposed gallery is located in front of the Applied Mathematics department, AMU, Aligarh.

You are requested to design the above mentioned gallery and exhibition space with the following requirements:

1. Director’s room with attached toilet
2. Office for 6 people
3. Display Galleries/ Halls (eight nos.)
4. Open Exhibition Space
5. Store
6. Toilets for male and female
7. Parking for 6 four-wheelers and 20 two-wheelers

Drawing Requirements:

1. All Plan/s (to be evaluated through viva) 25 marks
2. Elevation/s 8 marks
3. Section/s 7 marks
Question

1 (a) Differentiate between Gunter's chain and Revenue chain. [02]

(b) State advantages and disadvantages of plane table survey. [03]

(c) A chain line ABC crosses a river. Points B and C being on the near and distant banks respectively. The respective bearings of C and A taken at D, a point 60m measured at right angles to AB from B are 280° and 190°, AB being 32m. Find the width of the river. [10]

OR

1' (a) Differentiate between magnetic meridian and true meridian. [02]

(b) Describe the method of orientation of plane table by back sighting method. [03]

The following bearings were observed in running a closed traverse with a compass. [10]

<table>
<thead>
<tr>
<th>Line</th>
<th>Observed Bearings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fore bearing</td>
</tr>
<tr>
<td>AB</td>
<td>76° 05'</td>
</tr>
<tr>
<td>BC</td>
<td>114° 20'</td>
</tr>
<tr>
<td>CD</td>
<td>165° 35'</td>
</tr>
<tr>
<td>DE</td>
<td>224° 50'</td>
</tr>
<tr>
<td>EA</td>
<td>304° 50'</td>
</tr>
</tbody>
</table>

At what station (s) do you suspect local attractions? Determine the correct magnetic bearings. If the magnetic declination was 5° 10' W, what is the true bearing of line EA?

2 (a) Define sensitiveness of bubble tube. If the bubble tube of a level has a sensitiveness of 30 seconds per 2 mm division, find the error in staff reading on a vertically held staff at a distance of 150 m, caused by a bubble 2 divisions out of the centre. [03]

(b) What do you mean by permanent adjustment of level? Describe adjustment of cross hair ring of a dumpy level. [04]
(c) The following notes refer to the reciprocal levels taken with one level:

<table>
<thead>
<tr>
<th>Instrument at</th>
<th>Staff reading on</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>1.156</td>
<td>2.597</td>
</tr>
<tr>
<td>B</td>
<td>0.987</td>
<td>2.418</td>
</tr>
</tbody>
</table>

Find (a) the true reduced level of B, (b) the combined correction for curvature and refraction and (c) the error in the collimation adjustment of the instrument.

3 (a) Differentiate between equilibrium and deficient cant. [03]
3 (b) What do you mean by a vertical curve? Classify various types of vertical curves with suitable sketches. [04]
3 (c) A road bend which deflects $85^\circ$ is to be designed for maximum speed of 80 Km/h with a curve consisting of a circular arc combined with two cubic spirals. If the maximum centrifugal ratio is $\frac{1}{4}$ and the maximum rate of change of radial acceleration is $0.3 \, m/s^2/s$, calculate (a) Radius of the circular curve (b) Length of the transition curve (c) Total length of the combined curve and (d) Chainages of the salient points, if the chainage of point of intersection is 1550.40 m.

OR

3'(a) Define centrifugal ratio. How the design speed and minimum radius are related to each other for highway and railway curves? [05]
3'(b) Explain the method of layout of simple circular curve by Rankine’s method of tangential angles. [10]
4 (a) Briefly describe the objectives of theodolite traversing. [03]

OR

4'(a) Explain reduction to centre in triangulation survey. [03]
4'(b) For the following traverse, compute the length of CD so that A, D and E may be in one straight line.

<table>
<thead>
<tr>
<th>Line</th>
<th>Length (m)</th>
<th>Bearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>110</td>
<td>83° 12' 00&quot;</td>
</tr>
<tr>
<td>BC</td>
<td>165</td>
<td>30° 42' 00&quot;</td>
</tr>
<tr>
<td>CD</td>
<td>?</td>
<td>346° 06' 00&quot;</td>
</tr>
<tr>
<td>DE</td>
<td>212</td>
<td>16° 18' 00&quot;</td>
</tr>
</tbody>
</table>