B. Arch. (Sem. - VI) Examination

May / June – 2015

ESS - IV

Time : **3** Hours]   [Total Marks : **160**

SECTION - I : (LANDSCAPE)

1   Explain your understanding of landscape elements in detail   **15**

like Land, water, vegetation, etc.

OR

Explain behavior of land, water, vegetation in following natural
settings (any three)

(a) Desert   (b) Ravine Land   (c) Lakes

(d) Mangroves   (e)   Scrub Land.

2   Explain the following topics in terms of design values with   **20**

supporting description and sketches : **(any four)**

(i)   Lighting

(ii)   Water

(iii)   Seasonal Variations

(iv)   Site Planning

(v)   Existing Site Conditions

3   Explain the following terms graphically. **(any five)**   **15**

(i)   Spot Elevation and Benchmark

(ii)   Angle of repose

(iii) Ridge and Valley

(iv)   Confined Aquifer and Unconfined Aquifer

(v)   Swale

(vi)   Drainage Pattern

4   Calculate annual surface runoff water quantity for an   **15**

institutional building of around 1000 sq.mts. Hard surface area of 500 sq.mts, Semi soft surface area of 200 sq.mts and Soft surface area of 300 sq.mts. Design a rainwater harvesting tank with 10% liters storage capacity. Annual rainfall of Rajkot is 800 mm.

Runoff co-efficient for various surfaces:

·   Hard paved (RCC / tiles) -0.9

·   Soft paved (Brick paving / Mangalore tiles / compacted earth) - 0.7

·   Soil (Lawn/ Open soil)- 0.5

5   How Plant material works in the following conditions -   **5**

Sketches : **(any five)**

(i)   for Screening

(ii)   in Avenues

(iii)   as a Physical Barrier

(iv)   as a Visual Barrier

(v)   as a Focal point

(vi)   for Softening built forms

6   Match the following   **10**

(i)	Foliage	(a)	Lotus
(ii)	Grasses	(b)	Lawn
(iii)	Palm	(c)	Garmado
(iv)	Succulents	(d)	Money Plant
(v)	Flowering Tree	(e)	Peepal tree
(vi)	Sculptures plant	(f)	Bamboo
(vii)	Bulbous plant	(g)	Alovera
(viii)	Climber	(h)	Champa
(ix)	Creeper	(i)	Areca
(x)	Aquatic	(j)	Spider Lily

SECTION - II

1   Label components of Vapor Compression Cycle (Refrigeration   15
System) schematically and explain Window A.C system.
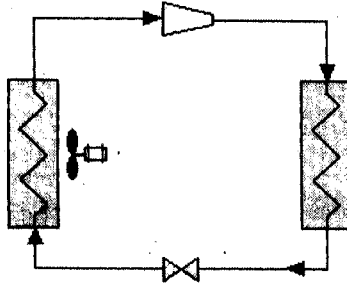
2   What is Psychrometric Chart? Find out from Psychrometric   20

Chart: D.B. Temp. = 40 deg.C., R.H. = 30%, Enthalpy, Specific Humidity and W.B. Temp. Submit the chart with answer sheet with marking.

OR

Explain the following process of air conditioning with block   20

diagram and draw the same on Psychrometric chart

(a)   Cooling and humidification

(b)   Heating and dehumidification

3   Explain with Fig: **(any three)**   15

(a)   Spilt A/c system- Components, Design consideration

(b)   Single duct VAV System v/s Zoned Re-heat system

(c)   Factors considered for Zoning Design

(d)   Factors influencing Thermal Comfort

(e)   Different Duct Shape, Material

(f)   Grilles, Diffusers and Registers

4   Define: **(any five)**   15

   (a)   Tonnage of Refrigeration (TR)

   (b)   Thermostat and Humidistat

   (c)   Sensible Heat and Latent Heat

   (d)   Evaporative Cooling

   (e)   Air Changes per Hour

   (f)   Refrigerant

   (g)   Infiltration of Air

   (h)   Seven processes in Air Conditioning

5   What are different factors taken into consideration while   15
     doing heat load calculation? Explain in details.

                            OR

     Label Central AC plant with components (Plant room with   15
     Chiller, Compressor and Condenser), Cooling Tower, (Air
     Conditioned Space with Supply Air Duct, Return Air Duct,
     Supply Diffuser, Return Grill), (AHU room with Fan having Air
     filter, Cooling Coil), Fresh Air Dampers and explain the role of
     major component and working of the system.

Fig. 1 ASHRAE Psychrometric Chart No. 1