



DAS-8193 Seat No. _____
B. Arch. (Sem. VI) Examination
May - 2022
Environmental Science & Services - IV

Time : 3 Hours]

[Total Marks : 160

SECTION-I : Landscape

Students Taking This Examination Do Keep in Mind the Following Instructions:

- (1) Answer any four questions out of the following seven questions.
- (2) Understand the question asked and maximum marks for it and then answer accordingly.
- (3) Draw apt diagrams or drawings as you deem appropriate for any of the questions.
- (4) Do attach (staple) with your answer book(s) the Q. No. 6 and 7.

- 1 (a) How are Nature and Culture related? What is **20**
Landscape Architecture fundamentally all about? In what ways learning about Landscape Architecture help architects? What is 'affordance'?
- (b) Using the IPSA campus, explain "affordance" with two appropriate examples to show how in different ways landscape design can help modify a person's behavior in the outdoors.

- 2 What are the prerequisites and code of behaviour for a **20**
good site visit? What can a good site visit teach an architect? In what ways what an architect learns from a site visit help her/him design a building and its site better. According to you, mention one good historical and one good contemporary example of a building and site design (together) that represents this "better" in India.

- 3 Briefly explain these words / terms (any five): 20
- (a) "Site"
 - (b) Contour
 - (c) Sensory Experience
 - (d) Watershed
 - (e) Gully Erosion
 - (f) "Landscaping"
 - (g) Ian McHarg
 - (h) Michael Laurie.
- 4 (a) In what different ways a coloured Google Earth 20
image can be useful to an architect? What do shades
of greens and sepias (browns) represent and how can
these be useful in making good site planning decisions?
- (b) What are Landform, Land Cover, and Land Use? How
can a Google Earth image help us identify these
features?
- 5 Using the image below, respond to on this page, the 20
following four items :
- (a) List Human made elements (minimum five)
 - (b) List Nature made elements (minimum five)
 - (c) Show where will you locate a bench for one person,
two persons, and more than ten persons and why?
 - (d) Render this drawing in pencil colours and suggest an
apt name for this place.



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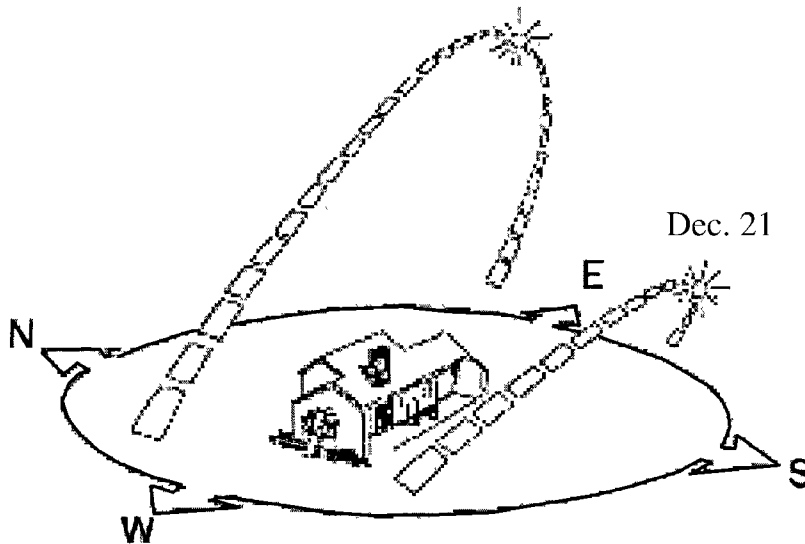
Environmental Science & Services - IV

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Invigilators Sign : _____ Date : _____

- 6 Rajkot, almost in the middle of the Saurashtra peninsula 20 is in a dry arid bio-climatic region (rainfall of about 650mm / 25" or lower). As students of IPSA, you know the climatic data of this city. The topography is rugged and undulating due to the underlying sandstone formations and the resulting soil type clayey loam to clayey*. Using all this information, the sun-path image below, and your general knowledge and common sense, address the following items / queries:

June 21



IMPORTANT: Write your exam / roll number on this page and DO attach this page with your answer book.

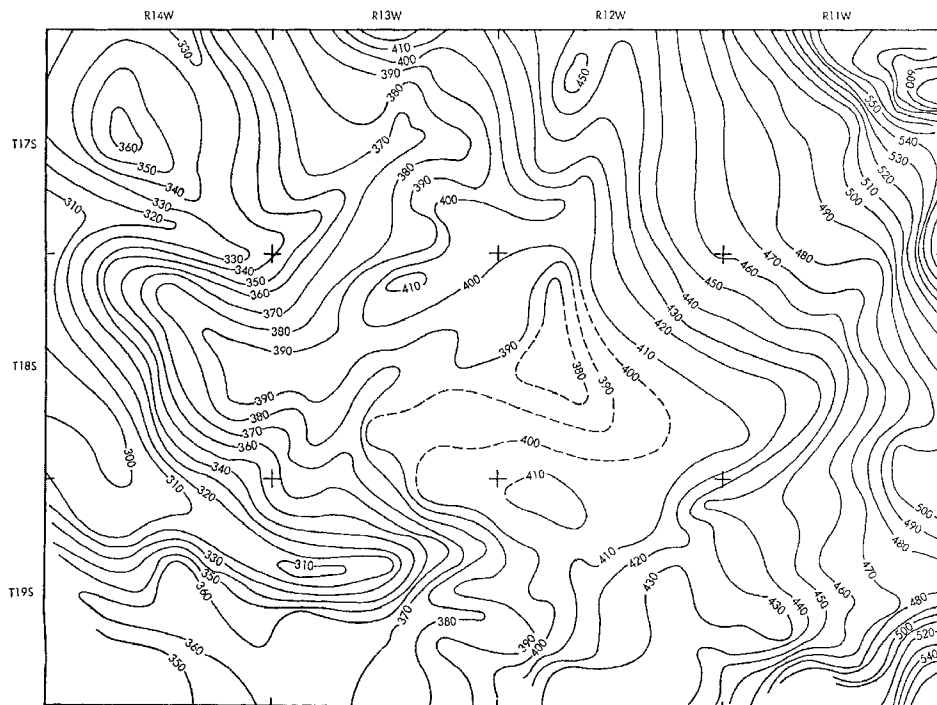
- Add few apt landscape elements (not just trees) around the house in the above sun-path illustration and give reasons for their placement.
- What types of plants are more suitable and advisable to plant here?
- What environmental values and concerns should be addressed while designing outdoor places in Rajkot area?
- As an architect, what lessons you remember from this subject during this semester while you design buildings in Rajkot area?

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- 7 On this page, answer and/or draw the following questions 20
using the contour plan given below :
- (a) What is the contour interval of the contour plan given below? 2
(b) Distinctly show and label (as needed) 10
(i) HPs and LPs
(ii) Major Ridges and Channels
(iii) Elevation belts of 150 meters for lower most elevations and higher most elevations
(iv) West facing aspects (assume North on the top)
(v) Areas with the steepest slopes
(vi) Water gathering slopes along one of the channels.
(c) Show and label areas / with high and low suitability 4
for human activities / development. Give your reasons for choosing these areas.
(d) What major lessons did you learn as an architect? 4



IMPORTANT: Write your exam / roll number on this page and DO attach this page with your answer book before leaving the exam room.

SECTION - II (HVAC)

Instruction : Attempt any four questions.

- 1** What is HVAC ? What are the factors to be considered for the calculating Heat Load ? How much heat is removed by a 1 ton of refrigeration ? **20**
 - 2** Explain with neat sketch Vapour compression refrigeration cycle in Air Conditioning. **20**
 - 3** Draw a sketch of Psychrometric Chart. Show Wet Bulb Temperature lines, Dry Bulbs Temperature lines, Relative humidity curve and Saturation curve. Explain sensible heating and cooling as well as humidification and dehumidification process through simple graphic. **20**
 - 4** Explain with sketch (any 5) **20**
 - (1) AHU
 - (2) Diffuser
 - (3) Thermostat
 - (4) Return Air Duct
 - (5) Dampers
 - (6) Cooling Tower
 - (7) Humidifier
 - 5** Discuss various materials, shapes and construction of duct for air conditioning applications. What are the factors architect have to consider in design from the perspective of ducting system in any space ? **20**
 - 6** Give the classification of air conditioning system. Explain the difference between Constant Air Flow and Variable Air Flow cooling system. **20**
 - 7** What is Zoning and what are the aspects we consider from HVAC zoning point while designing a SuperStore/Mall. **20**
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