

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

June, 2015

00346

**BAR-029 : ARCHITECTURAL SCIENCES AND
SERVICES - I (CLIMATOLOGY)**

Time : 3 hours

Maximum Marks : 70

Note : Section A is compulsory. Answer any two questions from Section B. Use of scientific calculator is permitted. Supplement your answers with sketches wherever necessary.

SECTION A

1. (a) Identify the dwelling types given below in relation to their geographic location. What climate prevails in those areas you have mentioned ? Identify the building material used. What causes the form of these dwelling units to take this particular shape ?

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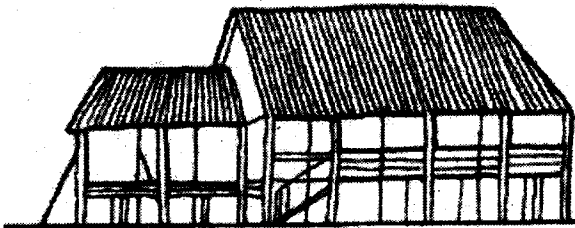


Fig. (i) Airy Shelters

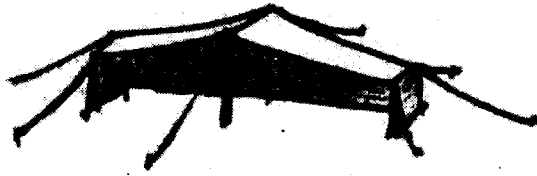


Fig. (ii) Bedouin Tent

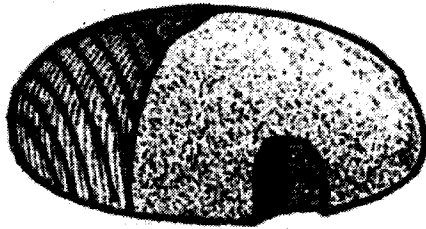


Fig. (iii) Zulu Hut

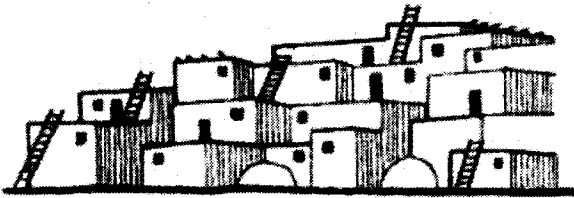


Fig. (iv) Monolithic Dwellings

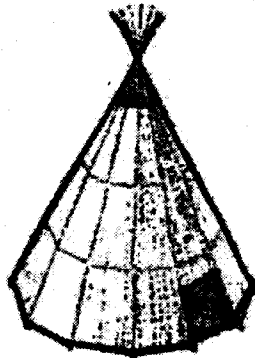


Fig. (v) Wigwam

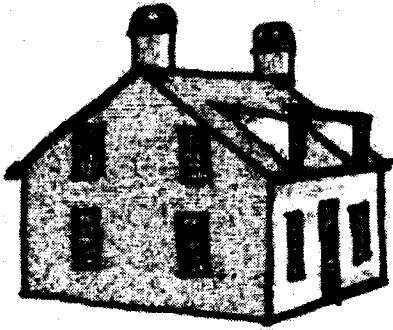


Fig. (vi) Colonial House, 18th Century

- (b) What is a double roof ? Explain with a diagram. In which climate is it most suitable ? 3
- (c) In terms of roof surface, compare the heat gain of a white painted roof with bright aluminium roof in a house in Ecuador. 3
- (d) Define solar azimuth angle. 3
- (e) What is a Bioclimatic chart ? 3

SECTION B

Answer any **two** of the following questions :

2. (a) Explain ventilation by stack effect. 7
- (b) Discuss the causes and effects of dampness in buildings. 8
- (c) Explain the term 'Driving Rain Index'. 5
3. (a) Draw diagrams to illustrate the following : 8
- (i) Five methods to overcome glare in hot dry regions.
- (ii) Three methods to overcome glare in warm humid regions.
- (b) Explain the use of Mahoney's table in design. 7
- (c) Define sol-air temperature and solar gain factor. 5
4. (a) Explain the building design and layout planning considerations for an office building in
- (i) Warm Humid climate,
- (ii) Composite climate. 15
- (b) Explain the procedure for calculation of thermal transmittance for a composite wall. 5
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