Reg. No.										

MANIPAL UNIVERSITY

FOURTH SEMESTER B. ARCH. DEGREE EXAMINATION – APRIL/MAY 2014

SUBJECT: ARC 214 – PRINCIPLES OF ARCHITECTURE II

(2007 SCHEME)

Thursday, May 15, 2014

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

- **Answer any FIVE of the following questions.**
- **Draw neat sketches wherever required.**

1A. Explain briefly the various space concepts that have evolved in history.

1B. Name the types of space concepts.

(7½+2½ = 10 marks)

2. How is character developed through structure and technology?

(10 marks)

3. Explain the factors that led to development of roman style.

(10 marks)

4. Explain in detail symbolic aesthetic theory.

(10 marks)

5. Identify and explain the type of criticism in the following passage:

There have been no comprehensive standards developed for the Indian context especially in metropolitan cities as far as accessibility criteria and pedestrian spacing is concerned.

The Indian Roads Congress (IRC) has stipulated standards for pedestrian facilities like Sidewalks, Guard Rails and Pedestrian Crossings – both at-grade and grade-separated (Indian Roads Congress, 1998). But these lack the "human" element like aesthetics, scale, form and proportion.

Pedestrian amenities and street furniture do not find a place in these standards. Context specific standards according to the location in the city, hierarchy of streets and functions of streets have not been thought of.

2. OBJECTIVES

- A report of the existing status of pedestrian facilities in the area under consideration.
- Analysis of the existing facilities from a qualitative point of view.
- To highlight issues relating to pedestrian facility planning.
- Recommendations to promote planning of pedestrian facilities based on a qualitative evaluation.

3. PEDESTRIAN ENVIRONMENT QUALITY EVALUATION

3.1 Evaluation methods for pedestrian facilities.

In the western countries, especially the United States, there have been recent efforts made to design "livable" communities where walking and cycling are accepted as important modes of transportation.

Planners have been trying to create analysis and design methods to create "livable" streets.

The quality of the walking environment is a subject which has seen comparatively little study and analysis vis-à-vis other modes of transportation.

Evaluating the walking environment is much more complex than the vehicular roadway, because while occupants of automobiles are ensconced in their insulated environment, the pedestrian is exposed to a variety of diverse environmental conditions.

3.2 Measures of the pedestrian environment.

Dan Burden, a prominent advocate of pedestrian issues, states that the pedestrian in the roadside environment is subjected to diverse factors which affect his/her feeling of safety, comfort, and convenience. (Burden, Dan 1996)

These factors could be categorized under three general performance measures describing the roadside pedestrian environment;

1. Sidewalk capacity,
2. Quality of the walking environment, and
3. The pedestrian's perception of safety (or comfort) with respect to motor vehicle traffic.

The first measure – sidewalk capacity – was devised by Fruin (Fruin, J.J 1971) in the early 1970s. It has been incorporated in the Highway Capacity Manual and is only accepted method of quantifying sidewalk capacity.

The third measure - the perceived safety or comfort (with respect to the presence of motor vehicle traffic) - has not yet been quantified as a stand-alone performance measure.

There have been attempts made by researchers like Sarkar (Sarkar, S 1995) and Khisty (Khisty, C.J. 1994) which incorporate a combination of these three measures.

3.3 Current practice

The current practice for evaluating pedestrian facilities comprises of three basic types of evaluation methods (Shafer, C.Scott. 1999):

1. Traditional traffic output methods - volumes, reductions in delay.
2. Capacity-based methods – e.g. Highway Capacity Manual.
3. Roadway characteristics-based methods – Pedestrian environment factor.

Traditional Traffic Output Methods

They generally use measures which are designed to evaluate the efficiency of vehicular traffic flow and are thus inappropriate for evaluating pedestrian facilities.

Capacity-Based Methods

They use the principles of Highway capacity which have been suitably adjusted to evaluate pedestrian facilities. They could be appropriate for planning pedestrian facilities, but provide little evaluative information.

Roadway Characteristics-Based Methods

This is based on the characteristics of the streetscape on which the pedestrian facility is located. These methods are designed from a pedestrian's perspective. It attempts to quantify the comfort level or stress level of pedestrians while encountering certain roadway characteristics.

The pedestrian environment factor (PEF) is a similar evaluation measure for pedestrians that incorporate the following roadway or streetscape variables: sidewalk availability, ease of street crossings, connectivity of the street/sidewalk system, and terrain/grade. The PEF values are used to evaluate pedestrian facilities on an area-wide basis, and are most often used in mode choice models to determine the inclination for pedestrian travel.

User Perception Method

This is an alternative which uses actual user inputs in evaluating pedestrian facilities. Human experience within a transportation corridor, whether a highway or a sidewalk, creates perceptions which could be used to measure the efficacy of goals related to physical, social and economic environments in a community.

According to Sarkar, "A comfortable environment makes the journey by foot pleasant and enjoyable."(Sarkar, S. 2002) She states that the key attributes of comfort could be used to qualitatively grade the physical, physiological, and psychological comfort levels of walkways. Comfort is a very subjective issue and it varies spatially and culturally. Qualitative evaluation could be used to judge comfort requirements to increase efficient use of the pedestrian network.

(10 marks)

5. Analyze the following example in Fig Q6 for small group ecology and decide the positive and negative aspects of each plan in terms of the privacy, territoriality and defensible spaces and give suggestions on which plan would be better for the users and why.

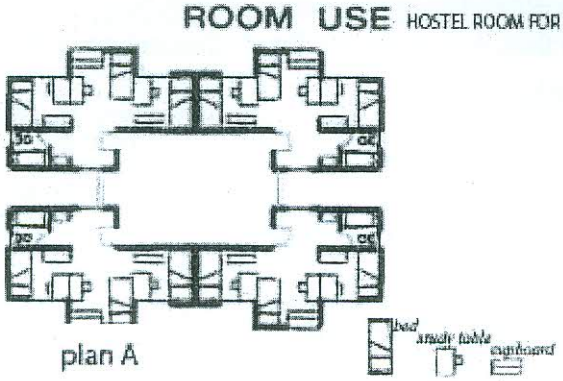
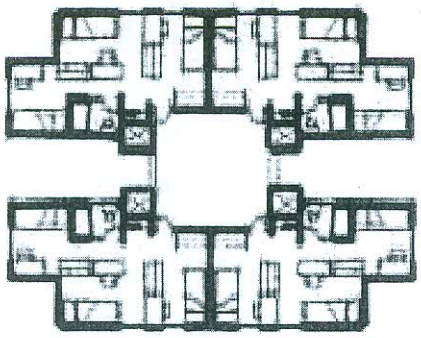


Fig Q 6



Plan B

(10 marks)