Models in Urban Morphology

Questions

1. What do you mean by urban morphology? 2 marks
2. Name the different zones in Burgess’ model. 2 marks
3. Why is Transition Zone also known as ‘grey zone’, ‘twilight zone’ or ‘urban blight’? 2 marks
4. Mention the factors of evolution of the zone of low income group, zone of middle income group and zone of high income group and commuter zone. 5 marks
5. Analyse the changing landuse pattern of different zones due to invasion of one zone into others from centre to periphery in Burgess’ model by different social groups- 5 marks
6. Why were the American cities during the 1920’s growing rapidly?) 2 marks
7. What do you think about concentric zone model in between nomothetic and ideographic? 5 marks
8. How are the sectors produced according to Homer Hoyt? 5 marks
9. Name the different sectors in Hoyt’s model. 2 marks
10. How is directional aspect introduced in zonal model according to Homer Hoyt? 2 marks
11. What are the different functional areas of a city according to multiple nuclei theory? 2 marks
12. Critically evaluate the Multiple Nuclei theory. 10 marks

Urban Morphology is the the study of internal structure of the cities, involves the analysis of the locational pattern of the functions and residences. One needs to know where they are found and why. This pattern is outcome of several factors. The segregation of functions and residences and internal differentiation of cities occur due to economic and social causes.
Concentric Zone Model

The Concentric Zone Model, propounded by E.M. Burgess, of the Chicago School of Sociology in 1923 is a pioneering work on the study of the internal structure of a city, i.e. Chicago, U.S.A. This classical model depicts city structure and city growth. In spite of being essentially American in character, it has been the source of inspiration for social scientists all over the world who refuted it, upheld it, tried to draw parallels or suggested modifications. His model, referred to as the concentric zone or zonal model also deals with the urban growth process. Burgess demonstrated how with functional differentiation and growing population which competes for space; the city enlarges itself but still maintains a basic structure.

The Concentric Zone Model suggests that as cities expand, the interaction of people and their economic social and political organizations create rings of urban growth from centre to outwards as follows:

1. Central Business District (CBD)
2. Transition Zone
3. Zone of lower income group
4. Zone of middle and high income group
5. Commuter Zone.

These expand outward from the city centre which is the main area of commercial activity or the Central Business District (CBD).

Central Business District (CBD).

The CBD consists of the- 

- Headquarters of banks.
- Financial organizations.
- Corporate bodies.
- Specialized retail outlets.
Transition Zone: around the CBD lies this zone. This is intermediate between commercial and residential areas, having wholesaling or light manufacturing activity. This area has also been described as a grey zone, twilight zone or urban blight owing to its association with factories,
slums and poor ethnic enclaves. The CBD extends its territory by converting the older houses of the transition zone for commercial purposes.

**Zone of lower income group:** This zone houses the lower-income, blue-collar, working class population, who live in apartment blocks. This is surrounded by

**Zone of middle and higher income group:** It is the fourth zone from centre.

**Commuter Zone:** The last or fifth zone, also called the commuter zone is characterized by single family dwellings and bungalows with garden.

Apart from zone one and two the rest evolve due to-

(i) Residential segregation based on being able to commute to work.
(ii) Degree of freedom of choice and
(iii) Social segregation.

The cities centre and around it lies the business area where people need to live close to the inner city. Due to lack of space as well as economic constraints, the housing pattern that evolves here is normally one of close rows of apartment blocks with a minimum of open space. Those who can afford both travel cost and larger living space have the option to move out, forming the outer ring of larger apartment blocks or separate bungalows. Apart from this economic segregation there also exists ethnic segregation. In Chicago during 1920's (on which Burgess based his model), the first generation migrants clustered together forming small islands of ethnic groups. These areas retained the culture of the immigrants in their food, dress, religion and language. Such sharp ethnic segregation however, was limited to the poorer areas of the city only. Affluence and urbanization lead to homogenization of the population.

The two inner rings of Burgess’ model are distinct in their functional character. The transition zone actually marks the extension of the CBD, where older derelict houses are converted for commercial use. The CBD is the life centre of the city and is also the most accessible part because people from all economic as well as social groups need to commute there every day. Very often the CBD draws people from outside the urban limits. The ‘centrality’ of a city can be measured by the character of its CBD. The more important regional centres that serve a large hinterland will have larger CBDs, where financial as well as material and service transactions draw people daily from other service centres too. Burgess’ model places industries within the central ring of the city. Light manufacturing occurred in the city centres of America at that time, although the idea of separate industrial districts in the metropolises had already taken shape by the turn of the century.

The concentric zone model was based on the land use pattern of Chicago in the 1920’s. Sociologists and geographers of the University of Chicago, considered urban growth to be an
ecological process, whereby competition, invasion, succession or dominance by different urban groups over the city space could be compared to plant growth. As a city spreads, each zone extends into the next (invasion and succession). The urban landscape is therefore undergoing alternations at all time as it grows in size. Thus old buildings in the twilight zone are renovated for commercial use, while residents of zone two move out to occupy abandoned houses of the middle class residential area in zone three. This finally results in the commuter zone being pushed further away from the city centre. The centripetal force involved in the urban growth process is dependent on an efficient transport system and road network. In America during the 1920’s a growing automobile industry and well-surfaced highways were perfect conditions for a rapid spread of the city.

Since the concentric zone model is based on the empirical study of American cities especially Chicago, it is essentially an inductive one. The universality of the model is therefore difficult to establish, although it has been widely studied and discussed. There have been many criticisms leveled against it, which show how wide has been its impact. There have also been several attempts to explain the structure of various cities using this model. Harold Carter has divided the varying opinions about this model into three categories:

(i) Destructive criticism that reject the thesis altogether,
(ii) Criticisms that lay emphasis on factors that were given less weight by Burgess (such as location of industries), and
(iii) Providing the elaboration of modifying the model to make it more universal than it originally was. In this category, several attempts have been made from which a pattern n be deduced. The inductive model has therefore been given a deductive form.

Limitations of the model:

Burgess’ model demarcated each zone by a line. M.R. Davie argues that this is unnatural since change is never abrupt. Moreover the basic homogeneity of each zone is questionable. While geographers generally agree that homogenous areas do emerge in a pattern in the city, they do accept the idea that these occur in continuous concentric zones as a rule. The occurrence of industrial areas has also been ignored. But what limits the model is its lack of universality, since this theory is restricted to a particular time and place that is Chicago in the 1920’s.
Homer Hoyt’s Sector Model:

Several suggestions have been made regarding possible variations of the Concentric Zone Model, propounded by E.M. Burgess, to make it more universally acceptable. There is one proposed by Homer Hoyt in 1939. Hoyt presented what has been called the sector theory. His study was based on twenty-five widely distributed cities of the USA. From these he concluded that the rent areas in American cities tend to conform to the pattern of sector rather than of concentric circles. Particular urban landuse types tend to cluster together and when they begin to extend outward from the city centre, they do so along communication axes thus producing sectors. They do not encircle the city at its outer limits.

Different sectors according to Hoyt are as follows

1. CBD
2. Wholesale and light manufacturing.
3. Low-class residential
4. Middle-class residential
5. High-class residential

The model demonstrate a CBD from which grow the sectors belonging to different economic levels. The picture presents a central commercial area with sectoral landuse zones radiating from it. Some kinds of landuse tend to attract each other such as industrial areas and working-class residences, while some repel each other.

The wealthy occupies the most favoured residential locations stretching outwards from the CBD.

Residential areas where the poor live align with or lie immediately adjacent to the industrial area.
Heavy industry areas and warehouses are likely to be aligned along transport routes, but they will tend to be farther away from upper class housing. Hoyt thus introduced a directional aspect to zonal model.

**C.D. Harris and E.L. Ullman’s Multiple Nuclei Model:**

C.D. Harris and E.L. Ullman (1945) proposed a model with multiple nuclei as follows:

1. CBD
2. Wholesale and light manufacturing
3. Low-class residential
4. Middle-class residential
5. High-class residential
6. Heavy manufacturing.
7. Outlying Business District
8. Residential Suburb

They observed that towns and cities do not necessarily grow around a single business district. Differential landuse patterns evolve around several commercial centres and it is an agglomeration of these that make the city. Some underlying factors are common in the way in which growth takes place around a number of nuclei:

1. Certain activities require specialized facilities. A port for instance, needs to be located at the waterfront while business areas must have a high degree of accessibility.
2. Certain kinds of activities will tend to stay apart such as heavy industry and upper class residences.
3. Certain kinds of activities are found together to their mutual advantage.
4. The rental rates differ from one area to another.

The model does not say anything that has not already been discussed by Burgess or Hoyt. But it demonstrates that even without restoring to the concept of zones of sectors, urban landuse patterns can be explained quite satisfactorily.
**Key**

1. Central Business District
2. Wholesale light manufacturing
3. Low-class Residential
4. Middle-class Residential
5. High-class Residential
6. Heavy Manufacturing
7. Outlying Business District
8. Residential Suburb
9. Industrial Suburb

*Source: Harris & Ullman (1945)*