

University of Colombo - Sri Lanka
Faculty of Arts
Special Degree Examination in Arts (Geography) - Part I
Second Semester End Examination – 2017/2018
GYG 2232: Locational Models in Geography
Two (02) hours

Answer three (03) questions selecting at least one question from each part.

Use of calculator is allowed.

One graph paper and one drawing paper will be provided.

Part I

01. i) Based on the relationship match the phrases in column-I with the most suitable phrases or answers in column-II.

No	Column I	Column II
1	Push and pull theory	Escribed circle of triangle
2	Pythagoras' theorem	David Smith
3	Graphical method	Davis' concept of 'normal cycle of erosion'
4	Isolated state	Von Thunen's Model
5	Analog model	Tord Palander
6	Maximum profit	Alfred Webber
7	Locational pull	Walter Christaller
8	Market area	Edgar Hoover
9	Law of diminishing returns	Central place theory
10	Material Index	August Losch
11	Locational triangle	Gravity model
12	Hierarchy of settlements	Linear programme

(03 Marks)

ii). Explain the following concepts and principles using diagrams and examples.

- Von Thunen's model
- Feasible region
- Space cost curve
- The three principles in the arrangement of the central places
- Breaking point

(05 Marks)

iii) Explain relationships between following pairs.

- Isotimes and isodapanes
- Range and threshold
- Locational triangle and weight triangle

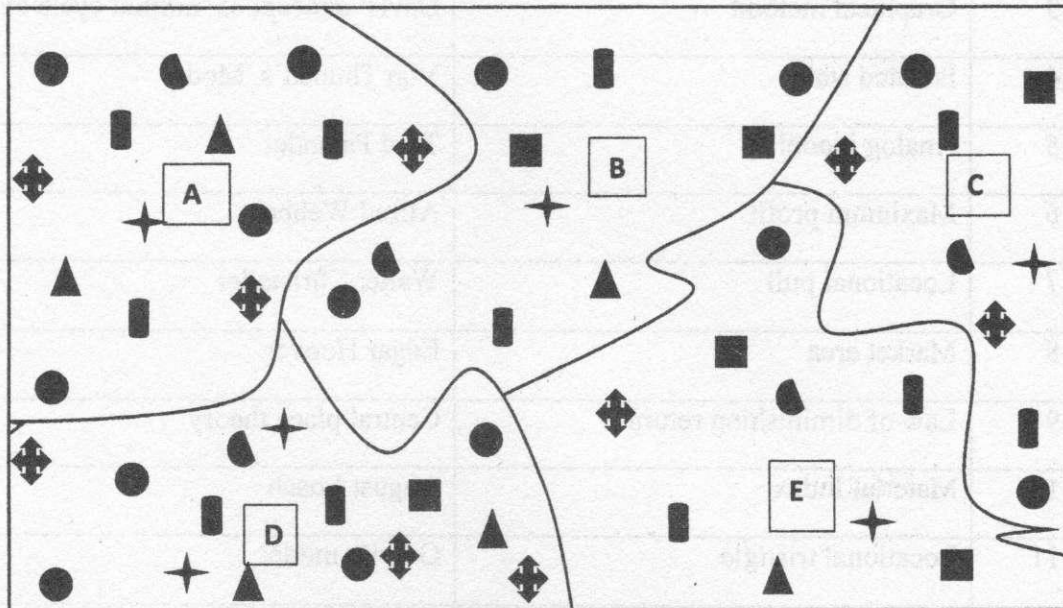
(03 Marks)








iv). Briefly explain the interaction of two masses using arbitrary data of three origins and three destinations.

(04 Marks)

v). Figure 01 shows the location of 5 settlements (A,B,C,D and E) and available services of each settlement. Calculate the centrality index of each settlement by using the Figure 01.

Figure 01: Settlements and available services



	Hospital		School
	Post office		Grocery
	Bank		Book shop
	General Stores		

(05 Marks)

Part II

02. Geographers recognize that migration is a time-space process. Migration is determined on different locations, different times and is contingent on individual characteristics. Critically discuss the appropriateness of modeling of this type of dynamic phenomena in the present world.

(20 Marks)

03. Geographers have made enormous effort to model highly dispersed patterns in Agricultural land uses. Examine the importance of modelling the agricultural land uses in order to secure economic benefits and study the spatial distribution patterns in economic geographical view.

(20 Marks)

Part III

04. The area of second order hexagonal settlement consisting an area of 526.8km^2 is located in a $40,000\text{km}^2$ region. Considering the hexagon comprising six equilateral triangles and perpendicular height of a triangle as 39.00km , answer the following questions.

- i). Find out the radius of a range of a second order settlement
(05 Marks)
- ii). Using an appropriated scale prepare the hierarchical distribution pattern of the 1st, 2nd and 3rd order settlement pattern of the region.
(05 Marks)
- iii). Prepare a summery table to depict distance between two settlements, radius of settlements, number of settlements and area of each settlements.
(04 Marks)
- iv). Can this settlement pattern apply to the present Sri Lankan context? Explain the reasons for your answer?
(06 Marks)

05. Using provided data, answer the following questions.

Table 01: Locations of raw materials, their weights, transport cost and distance to the market from the sources of raw materials

No	Locations of raw materials	Weight (kg) of raw materials to produce 100 units (kg) of finish products.	Transport cost for one unit of raw material per km	Distance (km) to the market (X) from sources of raw materials
1	P	300	1	20
2	Q	250	2	30
3	R	100	5	50
4	S	75	8	35
Transport cost per km for one unit (kg) of final product (Rs)				3

Table 02: Distance between the locations of raw materials

Locations	Distance (km)	Locations	Distance (km)
P to Q	20	Q to R	50
P to R	25	Q to S	45
P to S	35	R to S	65

i). Considering the market is located at "X" find out the appropriate location to locate the manufacturing industry.

- a) If raw materials taken only from P
- b) If raw materials taken only from Q
- c) If raw materials taken only from R
- d) If raw materials taken only from S

(04 Marks)

ii). Assume that an investor decided to take Raw Materials from the places where material index is greater than 1 and to sell the product of the industry to the market located in X. Propose the most suitable method to locate the manufacturing industry. Provide reasons for your answer.

(02 Marks)

iii). Using the proposed method in above 5 (ii) find out the most suitable location to locate the manufacturing industry.

(08 Marks)

iv). Discuss the influence of the proposed method in above 5 (ii) on the variable cost model.

(06 Marks)
