

SECTION A

PART I: Multiple Choice Questions [30 marks]

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Which of the following is the world largest city by population?
 - a) Tokyo, Japan
 - b) Delhi, India
 - c) Shanghai, China
 - d) Sao Paulo, Brazil

2. Which statement best describes the current urbanization and urban problems?
 - a) Every major city is similar to each other and faces the same urban problems.
 - b) To solve emerging urban issues, the existing urban management method focuses on the construction of new infrastructure or adding resources like manpower.
 - c) The urban population ratio will reach 70 percent by 2050 and explosive urban population growth is expected in European countries.
 - d) Smart cities cannot collect information on water & sewerage leakage points due to its complex system.

3. Urban planning emerged as a scholarly discipline in the 1900s and the first academic program was offered at
 - a) University of Birmingham
 - b) University of Liverpool
 - c) Harvard University
 - d) Massachusetts Institute of Technology

4. The smart city characteristic of 4th industrial revolution (early 21st century) using the core technologies of Big Data/AI/IoT base hyperconnectivity is
 - a) Industrial city
 - b) City of mass consumption
 - c) City for entrepreneurship
 - d) City for citizen

5. Which of the following is the Planning Model/Theory advocated by Charles E. Lindblom?
 - a) Synoptic planning
 - b) Advocacy planning
 - c) Incremental planning
 - d) Transactive planning

6. The normative ethical theory acting to promote the best outcome or ‘the greatest good for the greatest number’ is
 - a) Virtue ethics
 - b) Deontology
 - c) Utilitarianism
 - d) None of the above

7. The 'McMillan Plan' redesigning the monumental core of Washington, D.C. is the product of which of the following?
 - a) City Beautiful movement
 - b) Radiant City
 - c) Broadacre City
 - d) Garden City movement

8. Gentrification process normally results in
 - a) increase property & land value.
 - b) better parks and cycling lanes.
 - c) displacement of lower income residents.
 - d) All of the above.

9. Which is NOT a design element of Clarence Perry's Neighbourhood Unit?
 - a) Central placement of the school.
 - b) Keep 5% of the neighbourhood area for low income housing.
 - c) Place arterial streets along the perimeter.
 - d) Use curvilinear street design for internal roads.

10. 'Radiant City or Ville Radieuse' is associated with
 - a) Daniel Burnham
 - b) Le Corbusier
 - c) Frank Lloyd Wright
 - d) Ebenezer Howard

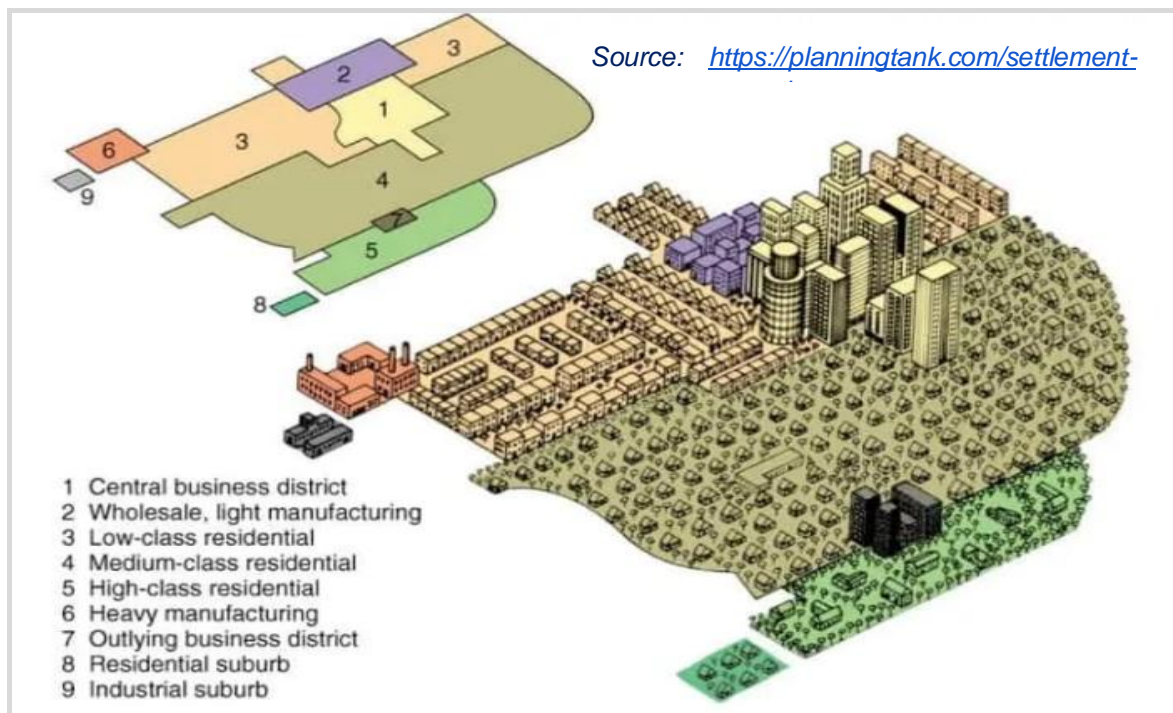
11. Jane Jacobs work on 'The Death and Life of Great American Cities' is about
 - a) how to rejuvenate old derelict places.
 - b) how to beautify American cities.
 - c) how cities function, evolve and fail.
 - d) how cities fail to boost the economic interest of the Americans.

12. Which one of the following is not a map projection, the method of representing the spherical/curved surface on a flat plane?
 - a) Robinson projection
 - b) Lambert Conformal Conic
 - c) Space Oblique Mercator
 - d) WGS 1984

13. Contour lines connect points of equal height or elevation on a map, hence it is normal to see intersecting contour lines on a map.
 - a) True
 - b) False

14. Map depicting all legal land objects based on a survey of the boundaries of land parcel is
 - a) Topographic map
 - b) Thematic map
 - c) Cadastral map
 - d) Physical map

15. If a straight road measures $\frac{1}{2}$ km on ground, what would be the distance on a map of scale 1:50,000?
- 1 mm
 - 1 cm
 - 2 cm
 - 5 cm
16. What is the plinth area of a TWO storied residential building measuring 10m x 10m on a 10 decimal plot?
- 10 sqm
 - 100 sqm
 - 200 sqm
 - None of the above
17. The figure below illustrates the _____ of urban land use theory.



- Hoyt Model
 - Concentric Zone Model
 - Multiple Nuclei Model
 - Central Place Theory
18. The time horizon & review period for the 'Regional Spatial Plan' as per the Spatial Planning Standards 2017 is
- 20 years & 5 years
 - 20 years & 10 years
 - 10 years & 5 years
 - 10 years but no review

19. The Road Rules and Regulation 2016 mandates all Dzongkhag Roads to have the road right of way (ROW) of _____ from the centerline of the road on either side.
- 50 feet
 - 30 feet
 - 20 feet
 - 3 metres from the plot boundary
20. As per the Water Regulation of Bhutan 2014, the buffer width of 100 feet measured from the determinable high flood level on either side of any water body is applicable to
- Thromde areas
 - Rural area
 - Areas within spatial planning boundary
 - Whole country
21. The population density of Thimphu Thromde in 2017 as per the PHCB 2017 is
- 856 persons/sq km.
 - 1773 persons/sq km.
 - 2086 persons/sq km.
 - 4389 persons/sq km.
22. The maximum number of permissible floors in rural areas of Bhutan as per the BBR-2018 is
- 1 floor
 - 2 floors
 - 3 floors
 - 4 floors
23. As per the Tenancy Rules and Regulations of the Kingdom of Bhutan 2021, a security deposit not exceeding _____ rent shall be collected during the time of signing the tenancy agreement.
- one month
 - two months
 - three months
 - NO security deposit.
24. Which of the following activities is/are permissible during the moratorium imposed as per the Land Pooling & Readjustment Regulation 2018?
- The owner of a plot may sell to the local government.
 - The local government may sell land to the owner of a plot.
 - The owner of a plot may sell the plot where the purchaser acknowledges in writing, that the land is subject to a proposed land pooling scheme and that the land may be reconfigured and reduced in size under that scheme.
 - All of the above.
25. As per the Urban Roads Standard 2002, the minimum dimension of the passenger car parking space at 45 degree parking is
- 3.2 m x 4.2 m
 - 2.3 m x 4.5 m
 - 2 m x 6 m
 - 4.5 m x 7.2 m

26. In line with the Bhutan Building Regulation 2018, which of the following developments is/are prohibited in the existing clustered villages?
- Hotels/resorts and offices
 - Group housing/hostels
 - Polluting factories
 - All of the above.
27. The permissible building colors for 'Phuentsholing Thromde' as per the Building Color Code of Bhutan 2014 are:
- white, mud color, light brown & exposed stone masonry.
 - white, cream color, light brown & exposed stone masonry.
 - white, mud color, grey & exposed stone masonry.
 - white, mud color, grey & light yellow.
28. The Building Code of Bhutan 2018 mandates the provision of access to disabled person to the ground floor of all
- Commercial buildings.
 - Institutional buildings.
 - Both commercial/institutional buildings.
 - Access preferred but not mandatory.
29. As per the Land Act of Bhutan 2007, a landowner shall not locate/construct a well, pond, cesspool or refuse receptacle within _____ from the boundary of his/her land in order to avoid discharge/percolation into the neighbor's plot.
- ½ metre
 - 5 metre
 - 2 metre
 - 3 metre
30. Bhutan's THREE tier/level of spatial planning framework are:
- National Spatial Plan, Regional Spatial Plan & Structure Plan.
 - National Spatial Plan, Regional Spatial Plan & Local Spatial Plan.
 - National Spatial Plan, Valley Plan & Local Spatial Plan.
 - Valley Plan, Structure Plan & Local Area Plan.

PART II – Short Answer Questions [20 marks]

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.

Question 1

- a) What are the five zones of the ‘Concentric Zone Model’ proposed by Ernest Burgess? (2.5 marks)
- b) Which urban land use model would best explain the growth of urban centres in Bhutan? Elaborate on your choice of the alternate land use model. (2.5 marks)

Question 2

- a) List the five physical elements elaborated by Kevin Lynch that attributes toward the mental image of a city. (2.5 marks)
- b) Using the elements put forth by Kevin Lynch, identify the various element with regard to Thimphu City. (2.5 marks)

Question 3

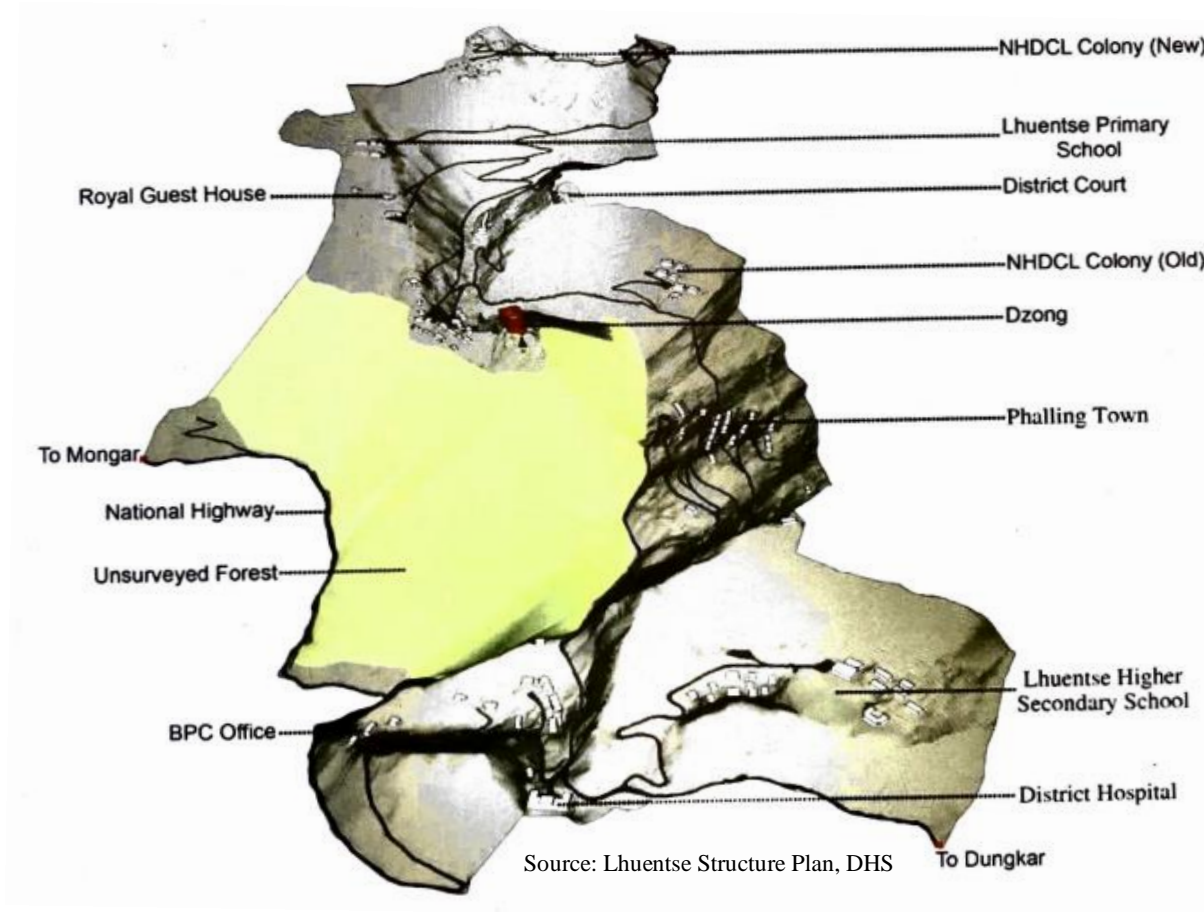
- a) What is urbanization? (1 mark)
- b) List down four factors responsible for urban growth in western Bhutan. (2 marks)
- c) Should Bhutanese planners encourage or temper urban growth? Elaborate on your choice. (2 marks)

Question 4

- a) Define Walkability. (1 mark)
- b) List down four strategies to improve the workability of Thimphu Thromde. (4 marks)

CASE II: Lhuentse Town

Lhuentse dzongkhag, renowned as the ancestral home of the Wangchuck Dynasty, is located in eastern part of Bhutan. Though the urbanization trend in Bhutan is picking up rapidly, Lhuentse Town is witnessing sluggish urban growth. You are hired to make Lhuentse Town: the administrative capital of Lhuentse Dzongkhag, a model small town to promote regional development and curb the current east-west migration trend. Your proposal should be based on the locational advantage & potential of the place but taking into consideration the topographic constraint and other related ground realities.



The proposal must include but not be limited to the following components:

- a) Analysis (15 marks)
 - Study of existing situation
 - Identification of issues
 - Opportunities & constraints
- b) Goal setting (10 marks)
 - Visioning/Theme
 - Planning Principle to be adopted
- c) Plan Proposals: use sketches to illustrate your idea. (25 marks)