



**SECTION A**

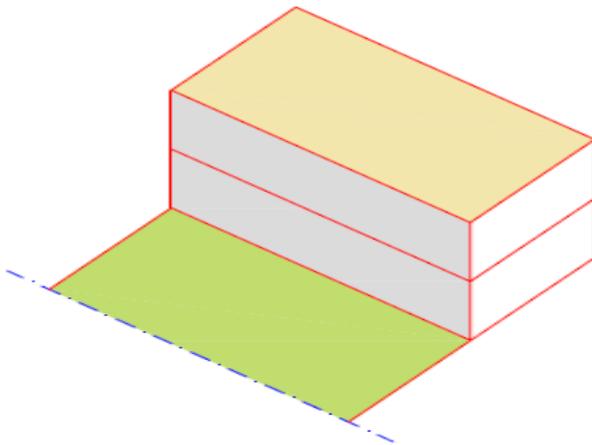
**PART I: Multiple Choice Questions (30 marks)**

**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. The Vision of the National Human Settlement Policy of Bhutan is
  - a) development of live-able human settlements.
  - b) promote different types of settlements.
  - c) promote affordable housing for all.
  - d) promote different tiers of spatial planning.
  
2. As per the Bhutan Building Regulation 2018, the maximum allowable floor in rural areas is
  - a) One
  - b) Two
  - c) Three
  - d) Four
  
3. The agency mandated to formulate policies related to housing and function as a Tenancy Authority in Bhutan is the
  - a) National Housing Development Corporation Limited.
  - b) Department of Human Settlement.
  - c) Tenancy unit under each Local Government.
  - d) National Pension and Provident Fund.
  
4. The distance between the plot boundary and building or the distance between the buildings is called
  - a) Coverage
  - b) Setback
  - c) Plinth
  - d) Floor Area Ratio
  
5. According to the Building Code of Bhutan 2018, the travel distance to the fire exit on each floor in residential buildings should not exceed
  - a) 30 metres
  - b) 45 metres
  - c) 22.5 metres
  - d) 25.5 metres
  
6. The formula for calculating the Indicative Contribution Ratio (ICR) for land pooling is
  - a)  $ICR = \frac{\text{Infrastructure requirement (IR)} + \text{Area of proposed Reserve Plots (ARP)}}{\text{Area of Contributing Land (ACL)}} \times 100$
  - b)  $ICR = \frac{\text{Infrastructure requirement (IR)} + \text{Area of Contributing Land (ACL)}}{\text{Area of proposed Reserve Plots (ARP)}} \times 100$
  - c)  $ICR = \frac{\text{Area of proposed Reserve Plots (ARP)} + \text{Area of Contributing Land (ACL)}}{\text{Infrastructure requirement (IR)}} \times 100$
  - d)  $ICR = \frac{\text{Area of Contributing Land (ACL)} - \text{Area of proposed Reserve Plots (ARP)}}{\text{Infrastructure requirement (IR)}} \times 100$

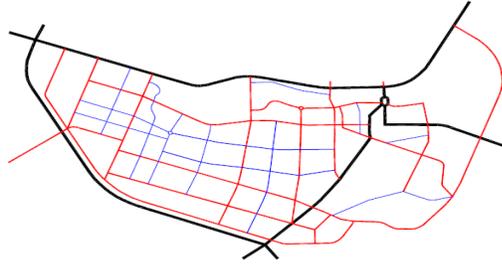
### PAPER III: SUBJECT SPECIALISATION PAPER FOR URBAN PLANNING

7. Under the Spatial Planning Framework, the tiers of spatial plans in Bhutan as per hierarchy are
- Regional Spatial Plan; National Spatial Plan; Valley Development Plan; and Local Area Plan.
  - Action Area Plan; Structure Plan; Local Area Plan; and National Spatial Plan.
  - National Spatial Plan; Regional Spatial Plan; Local Spatial Plan; and Action Area Plan.
  - National Spatial Plan; Structure Plan; Regional Spatial Plan; and Local Area Plan.
8. The time horizon for a Structure Plan for implementation and review is
- 30 years and 10 years.
  - 20 years, and 10 years.
  - 20 years and 5 years.
  - 25 years and 5 years.
9. The FAR and coverage for the building in the figure below will be



- 1 and 25%
  - 1 and 50 %
  - 1 and 100%
  - 1 and 200%
10. Buffers of water courses, natural drainage and other sensitive areas shall be categorized as
- Zones
  - Precincts
  - Overlays
  - Setback
11. As per the Spatial Planning Standards 2017 of Bhutan, the population density 300-500 pph is considered as
- Very high
  - Low
  - Medium
  - High

12. In the figure below, the road network in red is classified as



- a) Tertiary road
  - b) Primary road
  - c) Secondary road
  - d) Access road
13. The minimum distance between development areas and landfill sites as per the Spatial Planning Standards 2017 for Bhutan is
- a) 2000 m
  - b) 1000 m
  - c) 1500 m
  - d) 1250 m
14. The founder of the Garden City Movement is
- a) Edward Bellamy
  - b) Ebenezer Howard
  - c) Henry George
  - d) Raymond Unwin
15. Who is the author of the seminal book “Towards a New Architecture” where the house is proclaimed as a “machine for living in”?
- a) Ann Rand
  - b) Le Corbusier
  - c) Jonathan F.P.Rose
  - d) Ebenezer Howard
16. The formula to calculate FAR is
- a) Total lot size/ Gross Floor Area
  - b) Gross Floor Area/Total lot size
  - c) Total lot size X Gross Floor area
  - d) Total Plinth Area x Gross Floor Area
17. What would be the FAR for a plot measuring 20 mx 25 m, has two floors measuring 10 mx10 m each and no restriction on coverage?
- a) 1
  - b) 0.5
  - c) 0.4
  - d) 1.5

18. The Vision for the National Housing Policy of Bhutan is
- increased availability of affordable, safe and decent housing.
  - brining about community vitality.
  - enhanced human dignity through safe and affordable housing for all citizens.
  - enhance livability
19. “A balance with nature” is a principle of which of the following urban planning theory?
- Smart Growth
  - Intelligent Urbanism
  - Eco City Model
  - New Urbanism
20. Type of urban development that maximizes the amount of residential, business and leisure space within walking distance of public transport is known as
- Walkability
  - Human Scale
  - Compact cities
  - Transit Oriented Development
21. Traditional Neighborhood Development (TND) means being able to walk somewhere within
- 30 minutes
  - 45 minutes
  - 15 minutes
  - 10 minutes
22. The Thimphu Structure Plan 2004 was based on the principles of
- Smart Growth
  - Intelligent Urbanism
  - Eco City Model
  - New Urbanism
23. The vision of the Comprehensive National Development Plan for Bhutan 2030 is
- promote economic development.
  - promote resilient cities.
  - promote regionally balanced development and reduction of disparity between urban and rural areas.
  - promote affordable housing.
24. The letter N in the GREENIST objective of the Comprehensive National Development Plan for Bhutan 2030 stands for
- Network society for regional development.
  - Network society for enhanced connectivity.
  - Network society for smart growth.
  - Network society for integrated communication.

25. The National Capital Region for Bhutan is
- Thimphu-Paro-Haa
  - Thimphu-Paro-Chhukha
  - Thimphu-Chhukha-Samtse
  - Thimphu-Paro-Wangdue/Punakha
26. For the National Land Use Plan for Bhutan, for an urban area the
- population in primary industry should be less than 50%.
  - population in primary industry should be more than 50%.
  - population in primary industry should be less than 25%.
  - population in primary industry should be more than 25%.
27. The total land area of Bhutan is
- 37,500 sq.km
  - 38,394 sq.km
  - 38,485 sq.km
  - 37,252 sq.km
28. The percentage of urban population of Bhutan in 2017 was
- 42%
  - 35.7%
  - 37.8%
  - 3.9%
29. In Bhutan, the maximum limit of land pooling is
- 28%
  - 32%
  - 25%
  - 30%
30. Gentrification is a process of urban development in which
- a city neighborhood changes from low to high value.
  - a neighborhood's residents are often displaced.
  - there will be rising rents and living costs.
  - All of the above.

**PART II – Short Answer Questions [20 marks]**

**This part has 4 Short Answer Questions carrying 5 marks each. Answer ALL the questions.**

- List down five principles of New Urbanism. (5 marks)
- List down four factors contributing to rural-urban migration in Bhutan. (2 marks)
  - Do you think building height should be restricted in Bhutan? Justify your answer. (3 marks)
- List down five ways to improve the process of urban planning in Bhutan? (5 marks)
- What are the different land mobilization techniques adopted in Bhutan for urban development? Describe briefly. (4 marks)
  - What do you understand by the concept of Garden Cities? (1 mark)

**SECTION B: CASE STUDY [50 marks]**

**Choose either CASE I or CASE II from this section. Each case study carries 50 marks. Mark for each sub-question is indicated in the brackets.**

**CASE I**

Thimphu Thromde has been facing issues of storm water management for years now. In addition, many areas in the Thromde lack adequate drinking water supply. You have been recruited as the lead Planner to come up with an implementable plan to address the above-mentioned issues. Using Water Sensitive Urban Design (WSUD) or Low Impact Development (LID) concept, prepare a proposal to address the problems for both storm water management and drinking water supply.

The proposals must include but not be limited to the following:

1. Analyses **(15 marks)**
  - ✓ Study of existing scenario;
  - ✓ Identification of issues; and
  - ✓ SWOT analysis.
2. Visioning exercise and planning principles to be adopted. **(10 marks)**
3. Proposals to address the problems. Lay out at least five strategies with simple sketches to illustrate your ideas. **(25 marks)**

**CASE II**

Bajo town is considered as a bad example of urban planning even though it has all the necessary elements of a livable town such as roads, open spaces, mixed uses and so on. You have been asked to review the plan and come up with strategies to improve the image of the town. Describe some of the strategies/interventions you would propose.

The proposals must include but not be limited to the following:

1. Analyses **(15 marks)**
  - ✓ Study of existing scenario;
  - ✓ Identification of issues; and
  - ✓ SWOT analysis.
2. Visioning exercise and planning principles to be adopted. **(10 marks)**
3. Proposals to address the problems. Lay out at least five strategies with simple sketches to illustrate your ideas. **(25 marks)**

**TASHI DELEK**