

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2020
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALISATION PAPER FOR URBAN PLANNING

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| Date | : February 27, 2021 |
| Total Marks | : 100 |
| Writing Time | : 150 minutes (2.5 hours) |
| Reading Time | : 15 minutes (prior to writing time) |

GENERAL INSTRUCTIONS:

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is to check the number of pages of the Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
 - **SECTION A** has two parts: Part I - 30 Multiple Choice Questions
Part II - 4 Short Answer Questions
All questions under SECTION A are COMPULSORY.
 - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part on a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You must hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **8 printed pages**, including this instruction page.

GOOD LUCK!

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. _____ is the main reason why the nomadic existence of mankind opted to settle for village life which later gave birth to towns/cities.
 - a) Military Might
 - b) Agricultural surplus
 - c) Spiritual calling
 - d) Sustainable development

2. Hippodamus, the first planner to use the gridiron system is referred to as
 - a) Hippodamus of Marseille
 - b) Hippodamus of Alexandria
 - c) Hippodamus of Thurium
 - d) Hippodamus of Maastricht

3. Which city is widely believed to be the oldest continuously inhabited city in the world?
 - a) Mohenjo-daro, Pakistan
 - b) Athens, Greece
 - c) Damascus, Syria
 - d) Varanasi, India

4. As per Kevin Lynch, which of the following five elements form the image of a city?
 - a) Paths, Edges, Districts, Nodes & Landmarks
 - b) Paths, Edges, Rivers, Nodes & Landforms
 - c) Paths, Edges, Nodes, Monuments & Landmarks
 - d) Paths, Buildings, Nodes, Monuments & Landmarks

5. Which one of the following planning model emphasizes that the role of the planner is not just to serve the interest of the general public but also to actively represent the interest of the least fortunate or the oppressed section of the society?
 - a) Participatory planning
 - b) Advocacy planning
 - c) Transactive planning
 - d) Sustainable planning

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

7. 'Letchworth & Welwyn' are product of the
 - a) City Beautiful movement
 - b) Radiant City
 - c) Broadacre City
 - d) Garden City movement

8. Which one of the following is NOT a design element of Clarence Perry's Neighbourhood Unit?
 - a) Central placement of the church.
 - b) Dedicating at least 10% of the neighbourhood area to parks and open spaces.
 - c) Placing arterial streets along the perimeter.
 - d) Using curvilinear street design for internal roads.

9. City Beautiful movement is associated with
 - a) Le Corbusier
 - b) Frank Lloyd Wright
 - c) Daniel Burnham
 - d) Ebenezer Howard

10. The ethical theory that focuses on judging the moral worth by the end result: 'since the urban plan benefited the residents, the process leading to plan finalization/implementation is immaterial.' is
 - a) Consequentialism
 - b) Kantianism
 - c) Deontology
 - d) Social justice theory

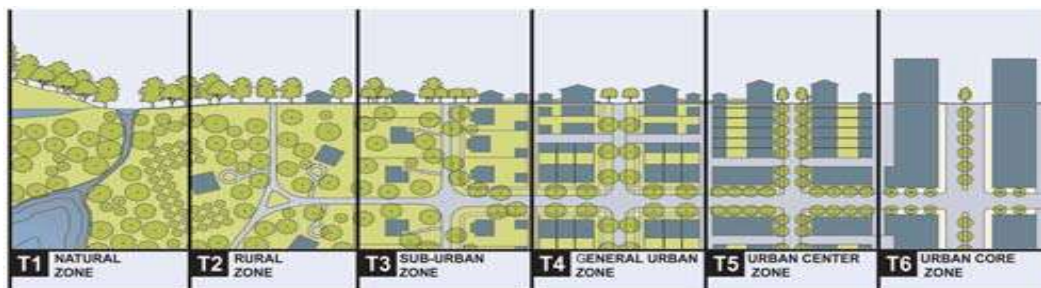
11. 'Megatechnics & Biotechnics' are words associated with
 - a) Frank Gehry
 - b) Patrick Geddes
 - c) Lewis Mumford
 - d) Jane Jacobs

12. GLONASS, the Russian equivalent of GPS is more accurate & precise in
 - a) Urban environment
 - b) Mountainous region
 - c) Desert area
 - d) Ocean

13. AuthaGraph, the most accurate map projection was developed by
 - a) Gerardus Mercator
 - b) Arthur Robinson
 - c) Hajime Narukawa
 - d) John Paul Goode

14. Which one of the following is NOT an element of the 'Topographic Map'?
 - a) Contour lines
 - b) Parcel boundary
 - c) River & forest
 - d) Buildings

15. What is the actual distance on ground equivalent to 2cm on a map of scale 1:25,000?
- a) 1 km
 - b) ½ km
 - c) Quarter of a km
 - d) 50m
16. What is the coverage of a two storied residential building measuring 10m x 10.12m on a 10 decimal plot?
- a) 25%
 - b) 35%
 - c) 45%
 - d) 50%
17. The figure below illustrates the _____ of planning.



- a) transit oriented development
 - b) transect model
 - c) compact city development
 - d) multiple nuclei model
18. The time horizon and the review period of the ‘National Spatial Plan’ as per the Spatial Planning Standards 2017 is
- a) 25 years & 10 years
 - b) 20 years & 10 years
 - c) 20 years but no review
 - d) 10 years & 5 years
19. As per the ‘Road Act of Bhutan 2004’, the ROW (road right of way) shall be 100 feet for
- a) National highways
 - b) District roads
 - c) All feeder road except those within the designated municipal boundary
 - d) All of the above
20. As per the Water Regulation of Bhutan 2014, “No development activities shall be allowed within a buffer zone of one hundred (100) feet, measured from the determinable high flood level of either side, of any _____ without an Environmental Clearance.”
- a) water body
 - b) rivers
 - c) streams
 - d) lakes

21. What is the population density of Bhutan in 2017 as per the PHCB-2017?
- a) 17 persons/sqkm
 - b) 19 persons/sqkm
 - c) 80 persons/hectare
 - d) 120 persons/hectare
22. Which factor is mostly attributed to the growth of urban population in Bhutan?
- a) In-migration
 - b) Immigration
 - c) Low death rate
 - d) High birth rate
23. As per the Tenancy Act of Bhutan 2015, the house owner can increase the rate of the rental units
- a) 10% annually.
 - b) 10% after every 2 years.
 - c) anytime but with written notification.
 - d) anytime but with revised lease agreement.
24. The Land pooling & Readjustment Regulation 2018 allows local government to pool land contribution in excess of 30% to
- a) build parks.
 - b) create reserve plots.
 - c) construct affordable housing.
 - d) cannot pool beyond 30%.
25. The ideal ROW (Right of Way) of primary, secondary and access roads in Bhutan as per the Urban Roads Standard 2002 are
- a) 18m, 12m and 8m
 - b) 15m, 10m and 6m
 - c) 18m, 10m and 6m
 - d) 15m, 10m and 8m
26. The maximum number of 'storeys & coverage' permissible for residential buildings under the Bhutan Building Regulation 2018 is
- a) 2 storey with 45%
 - b) 2 storey with 40%
 - c) 3 storey with 45%
 - d) 3 storey with 40%
27. The permissible building colours for 'Thimphu Thromde' as per the Building Colour Code of Bhutan 2014 are
- a) white, mud colour, light brown & exposed stone masonry.
 - b) white, cream colour, light brown & exposed stone masonry.
 - c) white, mud colour, grey & exposed stone masonry.
 - d) white, mud colour, grey & light yellow.

28. The Building Code of Bhutan 2018 mandates that 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. The minimum parcel of land that shall be registered in a Thram as per the Land Act of Bhutan 2007 is
- 13 decimals.
 - 10 decimals.
 - 7 decimals.
 - 5 decimals.
30. Which is NOT the principle of Intelligent Urbanism propagated by Christopher Benninger?
- Human scale
 - Balanced movement
 - Institutional integrity
 - Let it be

PART II – Short Answer Questions [20 marks]

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.

Question 1

- Define Zoning & Precinct. (2 marks)
- Which land use system would you adopt for regulating development around Jigme Dorji Wangchuck National Referral Hospital (JDWNRH). Justify your choice with related development control regulation (DCR) to achieve the desired urban form, density and safety. (3 marks)

Question 2

- Define land pooling and guided land development. (2 marks)
- What is meant by 'Betterment Charges'? (1 mark)
- State two reasons why land pooling is a better land acquisition model than the earlier state acquisition of private land to carry out urban development works (2 marks)

Question 3

- What is meant by 'eyes on street'? (1 mark)
- Mention four physical design elements and explain how it could improve the security of urban streetscape. (4 marks)

Question 4

- Define Walkability. (1 mark)
- Why are walkable neighbourhoods important? (1 mark)
- What strategies would you adopt to improve the workability of Thimphu city? (3 marks)

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

Paro Valley Plan

Paro is one of the most picturesque and historic valleys of Bhutan. The lush paddyfields with elegant traditional structures, religious sites and the presence of the airport makes it the most sought after tourist destination. Due to its relatively flat terrain and the proximity to the Nation's capital, there is tremendous potential and pressure for growth. However, there are mixed feelings on the growth of urban centres similar to that of the capital city. Therefore, it's very crucial & timely for an appropriate planning intervention to be adopted so as to meet the current demand without compromising the future of the valley. Your role as the planner is to come up with an appropriate planning model to safeguard the wider national interest without overtly impacting the immediate needs of the local community.

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)

CASE II

Thimphu Thromde Plan

Thimphu Thromde is the largest urban centre in Bhutan and is also the Nation's capital. The city is not just a mere place to live, work and retire but the projection of the unique culture, tradition and the very image of Bhutan. In 2002, the Royal Government of Bhutan with an aspiration to make it a 'dream city' for all initiated the Thimphu Structure Plan 2002-27. However, after almost 2 decades of the developmental activities, the Plan seems to have aggravated the imbalances of urban living. Today, we are all grappling with the after effects of haphazard growth with starkly visible conflict with nature, shortage of affordable housing etc. Your role in 2021 is to revamp the whole planning model and recommend strategies to make Thimphu the 21st century capital city that we can be all proud of.

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)

TASHI DELEK