

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. 0731 04 URP 3233 (Retake)

Full Title of Course: Remote Sensing and Photogrammetry

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|---|----------|
| 1. | (a) | Distinguish among different kinds of scattering. For each type, state (i) the relative particle size, (ii) wavelength dependence, and (iii) one practical consequence for remote sensing imagery. [L4, CLO1] | 03 |
| | (b) | What is the additive color model? State the result of mixing: (i) Red + Green, (ii) Red + Blue, (iii) Blue + Green, and (iv) all three equally. [L2, CLO1] | 03 |
| | (c) | State the Stefan-Boltzmann law and Wien's displacement law. Using Wien's law, calculate the wavelength of peak emission for the Sun (surface temperature ≈ 6000 K) and the Earth (≈ 300 K). Discuss the remote sensing significance of your result. [L4, CLO1] | 04 |
| 2. | (a) | Explain the difference between central perspective projection and orthogonal projection. What two major geometric problems does this difference create in uncorrected aerial photos? [L2, CLO2] | 03 |
| | (b) | With appropriate illustration, define the following flight planning terms and state their typical values: (i) forward overlap (end lap), (ii) side lap, (iii) air base, and (iv) nadir line. [L1, CLO2] | 04 |
| | (c) | How does topography affect flight planning? Describe two practical solutions to ensure adequate overlap over varied terrain. [L4, CLO2] | 03 |
| 3. | (a) | Define electromagnetic radiation (EMR). With the exception of objects at absolute zero, all objects emit EMR — briefly explain why this statement is significant for remote sensing. [L2, CLO1] | 04 |
| | (b) | Differentiate between wavelength, frequency, amplitude, and phase of an electromagnetic wave. Why is a high-frequency wave associated with higher energy? [L4, CLO1] | 03 |
| | (c) | Explain why ultraviolet radiation is generally not used for remote sensing of Earth's surface. Distinguish among the sub-divisions of ultraviolet radiation. [L2, CLO1] | 03 |
| 4. | | Write short notes on any 04 of the following- [L2, CLO2] | 2.5×4 10 |
| | (a) | Euler coordinate system | |
| | (b) | Lens Distortion (typology and difference) | |
| | (c) | DSM vs. CHM | |
| | (d) | Image pyramid | |
| | (e) | Differential parallax. | |

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|---|-------------|
| 1. | (a) | Explain different types of outputs a Drone can produce. [L2, CLO3] | 05 |
| | (b) | Compare the "Digital Surface Model (DSM)" and "Digital Terrain Model (DTM)" generated from a drone survey. Analyze which model is more useful for calculating the volume of a stockpile versus predicting flood flow. [L4, CLO3] | 05 |
| 2. | (a) | How supervised classification differ from unsupervised classification. [L2, CLO3] | 03 |
| | (b) | Relate whisk broom and push broom sensor regarding the image properties. [L4, CLO3] | 07 |
| 3. | (a) | A researcher claims a map is "95% accurate" based on the same pixels used to train the classifier. Evaluate the validity of this claim. Design a more robust validation strategy that avoids "training bias." [L5, CLO3] | 05 |
| | (b) | You are given a raw image with significant "striping" and atmospheric haze. Determine which correction should be performed first—radiometric sensor calibration or atmospheric correction—and justify your choice based on the data processing workflow. [L5, CLO3] | 05 |
| 4. | | Write short notes on the following (any five) | 2×5 10 |
| | (a) | Band Combination [L2, CLO2] | |
| | (b) | FCC [L1, CLO2] | |
| | (c) | Image Segmentation [L2, CLO2] | |
| | (d) | Contrast Enhancement [L1, CLO3] | |
| | (e) | Fuzzy vs ANN [L2, CLO3] | |
| | (f) | Cross Validation [L1, CLO3] | |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. URP 3261

Full Title of Course: Remote Sensing and Photogrammetry

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|---|----------------|
| 1. | (a) | What is electromagnetic radiation (EMR), and why do all objects except those at absolute zero emit it? | 02 |
| | (b) | Distinguish between geostationary and sun-synchronous satellite orbits with examples. | 02 |
| | (c) | What are the three additive primary colors in remote sensing imagery? Explain with appropriate example. | 02 |
| | (d) | Classify the major divisions of the electromagnetic spectrum. For each division, state the wavelength range and give one remote sensing application or significance. | 04 |
| 2. | (a) | Describe four key considerations that must be addressed during flight planning for aerial photo acquisition. Include the significance of end lap and side lap percentages. | 06 |
| | (b) | A vertical aerial photograph was taken with a focal length $f = 152$ mm at a flying height $H = 2800$ m above mean sea level (MSL). The terrain elevation $h = 400$ m. Calculate: (i) the photo scale at terrain level, and (ii) the photo scale at sea level. | 04 |
| 3. | (a) | Critically compare vertical and oblique aerial photograph. | 03 |
| | (b) | On a vertical aerial photograph, a straight road segment measures $d = 2.5$ mm on the photo, and its known ground length is $L = 100$ m. (a) Determine the scale of the photograph. (b) If the camera's focal length is $f = 150$ mm, calculate the flying height above the ground (H') at which the photo was taken. | 04 |
| | (c) | Compare direct georeferencing and indirect georeferencing. Under what operational conditions would you prefer each method? | 03 |
| 4. | | Write short notes on any 05 of the following- | 02 × 5 10 |
| | (a) | Polarization of Electromagnetic Radiation | |
| | (b) | Fiducial Marks | |
| | (c) | Ground Sampling Distance | |
| | (d) | Tie Points in Photogrammetry | |
| | (e) | Floating Mark in Stereo viewing | |
| | (f) | DSM vs. DTM | |

Section B

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|--|----|
| 1. | (a) | Describe different types of remote sensing according to the platforms. | 04 |
| | (b) | What type of platform is best suited to track a large weather system, such as a hurricane, and why? | 06 |
| 2. | (a) | Expand your understanding on the image acquisition process of whiskbroom sensor. | 03 |
| | (b) | Discuss the spectral distribution of energy radiated from blackbodies of various temperatures with appropriate figure. | 07 |
| 3. | (a) | Compare between supervised and unsupervised classification techniques in terms of planning implications. | 05 |
| | (b) | Using aerial photographs and other information provided by your supervisor, design Level III categories compatible with the USGS classification for a Bangladesh coastal region. | 05 |
| 4. | (a) | How does the rotation of the earth during image acquisition affect satellite image? | 07 |
| | (b) | Describe control point by localization method of image registration. | 03 |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. 0731 04 URP 3233

Full Title of Course: Remote Sensing and Photogrammetry

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

- Define "atmospheric window." Why is it significant for satellite-based remote sensing operations? [L2, CLO1] 02
 - Compare and contrast Near Infrared (NIR), Mid Infrared (MIR), and Far Infrared (FIR) radiation in terms of wavelength ranges, sources, and their respective uses in remote sensing. [L4, CLO1] 04
 - Explain Rayleigh scattering in detail. How does Rayleigh scattering explain the blue color of the daytime sky and the red/orange hues at sunset? [L4, CLO1] 04
- Define Ground Sampling Distance (GSD). How does GSD change as flying height increases, assuming focal length remains constant? [L1, CLO2] 02
 - Compare and contrast vertical and oblique aerial photographs with respect to: (i) geometric distortion characteristics, (ii) suitability for topographic mapping vs. 3D urban modelling, and (iii) challenges in processing. [L5, CLO2] 04
 - A tower appears on a vertical aerial photograph. Its top is imaged at a radial distance $r = 84.5$ mm from the principal point, and the relief displacement $d = 5.2$ mm is measured between the top and base images. The focal length $f = 153$ mm and the photo scale is 1:10,000. Calculate: (i) the flying height H above datum, and (ii) the height of the tower h . [L4, CLO2] 04
- Explain the difference between reflected infrared and emitted (thermal) infrared remote sensing. Why is this distinction important for land-surface studies? [L2, CLO1] 03
 - Differentiate between specular and diffuse (Lambertian) reflection using labeled diagrams. Give one real-world example of each type encountered in remote sensing. [L2, CLO1] 04
 - A camera with focal length $f = 15.323$ cm is flown at $H = 6,200$ m above MSL. Three ground points have terrain elevations of 0 m (sea level), 50 m, and 590 m respectively. Calculate the photographic scale at each of the three terrain elevations. Present your answers both as a ratio (1: n) and as a representative fraction (RF). [L3, CLO2] 03
- Explain how the Bayer pattern sensor array in a digital camera produces full-colour imagery. Why are green-sensitive photosites allocated double the proportion compared to red or blue? [L2, CLO1] 03
 - Critically evaluate the role of Ground Control Points (GCPs) in aerial photogrammetry. Discuss: (i) types of GCPs, (ii) criteria for selecting GCP locations, (iii) recommended distribution in a block of images, and (iv) consequences of using an insufficient number of poorly distributed GCPs. [L5, CLO2] 04
 - Analyze the differences between a Digital Surface Model (DSM) and a Digital Terrain Model (DTM). In what urban and hydrological scenarios would each be most appropriate? Discuss the processing challenges encountered when converting a DSM to a DTM in a densely forested or heavily built environment. [L4, CLO3] 03

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|---|----|
| 1. | (a) Emissivity is a useful measure of their effectiveness as radiators of electromagnetic energy. How does the emissivity is calculated? [L1, CLO2] | 02 |
| | (b) Following a severe flash flood in the Sylhet region, traditional ground-based surveying is impossible due to submerged roads. The government requires an immediate "Damage Assessment Map" and a "Volumetric Analysis" of siltation in the local riverbeds. Construct an end-to-end Drone Mapping workflow for this emergency disaster response. [L6, CLO2] | 08 |
| 2. | (a) Explain the application of remote sensing bands of Sentinel Harmonized for soil mapping. [L2, CLO3] | 05 |
| | (b) A satellite thermal sensor measures the radiant exitance of a city park's grass canopy as 450 W/m^2 . The emissivity of the grass is known to be 0.98. What is the actual surface temperature of the grass in degrees Celsius? [L3, CLO3] | 05 |
| 3. | (a) Explain why does effective display of an image is critical for effective practice of remote sensing? [L2, CLO3] | 03 |
| | (b) Ideally, one material would reflect a tremendous amount of energy in a certain wavelength and another material would reflect much less energy in the same wavelength. Unfortunately, different materials often reflect similar amounts of radiant flux throughout the visible, near infrared, and middle-infrared portions of the electromagnetic spectrum, resulting in relatively low-contrast imagery. In this case, present your opinion how digital enhancement techniques can correct the images with example. [L5, CLO3] | 07 |
| 4. | (a) Extend your understanding on LiDAR technology. [L2, CLO2] | 02 |
| | (b) You are about to map flood vulnerability and coastal change using remote sensing data. Conventional medium resolution images are barrier to this scoping study. Develop a methodology to complete the scoping study using modern technology such as LiDAR. [L3, CLO2] | 04 |
| | (c) Availability of high-resolution data and sensor capabilities, we propose different data analysis. Examine the data analysis methods of LiDAR technology to propose suitable technique for shore line detection in coastal Bangladesh. [L4, CLO2] | 04 |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. 0731 04 URP 3221

Full Title of Course: Urban Development Planning

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|--|----|
| 1. | (a) | Explain why urban land use involves the public interest, even when land is privately owned. [L2, CLO1] | 04 |
| | (b) | Assess why planning is both a technical and political activity, using examples of public interest, stakeholder conflict, and ethical dilemmas between client interests and community welfare. [L5, CLO1] | 06 |
| 2. | (a) | Identify the main features of rational-comprehensive planning, and incremental planning. [L2, CLO2] | 04 |
| | (b) | Examine which of the above approaches is more suitable for preparing an urban development plan when information is incomplete, political constraints are strong, and quick decisions are required. [L4, CLO2] | 06 |
| 3. | (a) | Explain the core principles of advocacy planning and collaborative or communicative planning. [L2, CLO2] | 04 |
| | (b) | Discuss whether collaborative planning is more useful for building consensus or for managing conflicts in difficult urban planning situations. In your answer, consider stakeholder participation, power imbalance, time, cost, and the feasibility of implementing the plan. [L5, CLO2] | 06 |
| 4. | (a) | Define a learning city and mention four major building blocks or features of a learning city. [L1, CLO3] | 01 |
| | (b) | Discuss four major building blocks or features of a learning city. [L2, CLO3] | 03 |
| | (c) | Apply the learning city concept to a middle-income neighbourhood in Dhaka or Khulna. Propose practical interventions to improve lifelong learning opportunities for children, youth, women, men, and low-income residents. [L3, CLO3] | 06 |

Section B

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|---|----|
| 1. | (a) | Define urban renewal. [L1, CLO2] | 02 |
| | (b) | Mention two stated goals of urban renewal programmes. [L1, CLO2] | 02 |
| | (c) | Explain why urban renewal was criticized despite its intention to improve housing and revitalize city economies. [L3, CLO3] | 06 |
| 2. | (a) | What is Transfer of Development Rights (TDR)? [L1, CLO2] | 02 |
| | (b) | Identify the meaning of "sending area" and "receiving area" in TDR [L1, CLO2] | 02 |
| | (c) | Explain how TDR can help protect farmland, open space or historic areas while still allowing urban development elsewhere. [L2, CLO3] | 06 |
| 3. | (a) | Mention three reasons why urban planning is considered political. [L2, CLO4] | 03 |
| | (b) | Explain why planning decisions often create conflict among citizens, planners, developers, and local government. [L3, CLO3] | 05 |
| | (c) | Define land banking. Mention one country or region where public land control has influenced planning. [L1, CLO2] | 02 |
| 4. | (a) | Define growth management in urban planning. [L1, CLO2] | 02 |
| | (b) | What is greenbelt? [L1, CLO2] | 02 |
| | (c) | A municipality is growing rapidly, and its roads, drainage and schools are under pressure. Apply two growth-management tools that could help guide development more effectively. [L3, CLO4] | 06 |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. URP 3221

Full Title of Course: Urban Development Planning

Full Marks: 60

Time: 3 hours

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- Use separate sheet for each section.

Section A

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| | (b) | Examine which of the above approaches is more suitable for preparing an urban development plan when information is incomplete, political constraints are strong, and quick decisions are required. [L4, CLO2] | 06 |
| 3. | (a) | Explain the core principles of advocacy planning and collaborative or communicative planning. [L2, CLO2] | 04 |
| | (b) | Discuss whether collaborative planning is more useful for building consensus or for managing conflicts in difficult urban planning situations. In your answer, consider stakeholder participation, power imbalance, time, cost, and the feasibility of implementing the plan. [L5, CLO2] | 06 |
| 4. | (a) | Define a learning city and mention four major building blocks or features of a learning city. [L1, CLO3] | 01 |
| | (b) | Discuss four major building blocks or features of a learning city. [L2, CLO3] | 03 |
| | (c) | Apply the learning city concept to a middle-income neighbourhood in Dhaka or Khulna. Propose practical interventions to improve lifelong learning opportunities for children, youth, women, men, and low-income residents. [L3, CLO3] | 06 |

Section B

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|---|----|
| 1. | (a) | Define urban renewal. [L1, CLO2] | 02 |
| | (b) | Mention two stated goals of urban renewal programmes. [L1, CLO2] | 02 |
| | (c) | Explain why urban renewal was criticized despite its intention to improve housing and revitalize city economies. [L3, CLO3] | 06 |
| 2. | (a) | What is Transfer of Development Rights (TDR)? [L1, CLO2] | 02 |
| | (b) | Identify the meaning of “sending area” and “receiving area” in TDR [L1, CLO2] | 02 |
| | (c) | Explain how TDR can help protect farmland, open space or historic areas while still allowing urban development elsewhere. [L2, CLO3] | 06 |
| 3. | (a) | Mention three reasons why urban planning is considered political. [L2, CLO4] | 03 |
| | (b) | Explain why planning decisions often create conflict among citizens, planners, developers, and local government. [L3, CLO3] | 05 |
| | (c) | Define land banking. Mention one country or region where public land control has influenced planning. [L1, CLO2] | 02 |
| 4. | (a) | Define growth management in urban planning. [L1, CLO2] | 02 |
| | (b) | What is greenbelt? [L1, CLO2] | 02 |
| | (c) | A municipality is growing rapidly, and its roads, drainage and schools are under pressure. Apply two growth-management tools that could help guide development more effectively. [L3, CLO4] | 06 |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. 0731 04 URP 3245

Full Title of Course: Housing

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|--|----|
| 1. | (a) | Define Shelter. Why the term 'house' is different from 'housing'? [L2, CLO1] | 03 |
| | (b) | Discuss the importance of housing considering the economic development of Bangladesh. [L5, CLO1] | 04 |
| | (c) | Housing is a basic need and its present situation is not in satisfactory level. As a planner what types of solution do you suggest to solve the housing problem of middle-income people of Bangladesh. [L3, CLO4] | 03 |
| 2. | (a) | "Apartment housing is an effective solution to the urban housing problem." Discuss and justify your opinion in the context of rapidly growing cities. [L5, CLO2] | 05 |
| | (b) | In 2026, the population of Khulna is 25 lakhs. The average household size is 5 persons, and the city has 4.6 lakh dwelling units. If the annual population growth rate is 2% and the housing obsolescence rate is 5%, forecast the housing demand of the city in 2035, assuming the household size remains unchanged. [L5, CLO3] | 05 |
| 3. | (a) | Describe the relevance of housing policy in context of Bangladesh. [L2, CLO1] | 04 |
| | (b) | Land Pooling or Land Readjustment may be a good approach to solve the housing problem of all income group. Do you agree with the statement? Give your own opinion. [L2, CLO3] | 04 |
| | (c) | Buyer market is always favorable for the buyers. Why? Explain. [L1, CLO3] | 02 |
| 4. | (a) | Identify the major sources of housing finance in Bangladesh. [L2, CLO2] | 03 |
| | (b) | Explain the existing challenges of housing finance for the poor people in Bangladesh. [L3, CLO2] | 03 |
| | (c) | Examine the role of REHAB (Real Estate and Housing Association of Bangladesh) for housing the urban poor in Bangladesh. [L5, CLO2] | 04 |

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|--|----|
| 1. | (a) | Group the major components of a residence for designing a residential unit. [L5, CLO3] | 02 |
| | (b) | Explain the process of obtaining No Objection Certificate. [L3, CLO3] | 03 |
| | (c) | Draw the process of developing an urban housing strategy. [L5, CLO4] | 02 |
| | (d) | Explain the importance of FAR and MGC in controlling residential density of urban areas. [L4, CLO3] | 03 |
| 2. | (a) | Why housing acts as a capital for securing the livelihood of the urban poor? Draw a conceptual framework in explaining your answer. [L5, CLO4] | 04 |
| | (b) | Illustrate the major modes of housing provision in developing countries. [L2, CLO4] | 03 |
| | (c) | Evaluate critically the role of the World Bank in aided self-help housing approach. [L5, CLO4] | 03 |
| 3. | (a) | Differentiate between community-led development and community-driven development. [L4, CLO4] | 03 |
| | (b) | Explore the elements of community-led housing approach from different case studies across the globe. [L4, CLO4] | 03 |
| | (c) | Justify your position regarding the financial sustainability of community-led housing programme. [L4, CLO4] | 04 |
| 4. | (a) | Describe the key aspects of informal housing development. [L2, CLO4] | 05 |
| | (b) | Why is on-site upgrading often the best option of all? [L5, CLO4] | 05 |

Khulna University, Khulna

Urban and Rural Planning Discipline

2nd Year, Term-II Examination, Session 2024-2025

Course No. URP 2261

Full Title of Course: Geographic Information Systems

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|---|----|
| 1. | (a) | Briefly discuss the components of Geographic Information Systems. | 05 |
| | (b) | What is attribute data management? Why is it necessary in spatial data analysis? | 05 |
| 2. | (a) | Show the application of GIS in transport planning. | 05 |
| | (b) | Differentiate between geographic feature and layer in GIS. | 02 |
| | (c) | Show different components of a hypothetical map. | 03 |
| 3. | (a) | Differentiate between GCS and PCS? | 03 |
| | (b) | Latitude and longitude are not efficient for measuring distances and areas - explain. | 03 |
| | (c) | Explain the difference between Local and Global Datum. | 04 |
| 4. | (a) | Distinguish between UTM and BUTM. | 04 |
| | (b) | Explain topology in GIS. How does it help in identifying spatial errors and maintaining data accuracy? Provide answer with examples | 06 |

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|--|--|--------------|
| 1. | (a) | Compare between raster and vector-based data analysis. | 04 |
| | (b) | Describe raster multiplication, raster reclassification and weighted overlay with illustrations. | 06 |
| 2. | (a) | Describe neighborhood operation with example. | 04 |
| | (b) | Illustrate the following neighborhood types:
(i) Rectangle (ii) Circle (iii) Annulus (iv) Wedge | 06 |
| 3. | (a) | Define spatial interpolation with an example. | 02 |
| | (b) | Differentiate between simple density and kernel density. | 04 |
| | (c) | Briefly discuss the planning implications of buffer analysis. | 04 |
| 4. | Write short notes on any 04 (four) of the following: | | 2.5 × 4 = 10 |
| | (a) | DSM | |
| | (b) | Terrain | |
| | (c) | Line of sight | |
| | (d) | Watershed analysis | |
| | (e) | Viewshed analysis | |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. 0731 04 URP 3235

Full Title of Course: Disaster Planning and Management

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

- | | | | |
|----|-----|---|----|
| 1. | (a) | How would you interpret a disaster in terms of its impact on changes in culture, society, and international relations? [L3, CLO1] | 05 |
| | (b) | What changes would you make in analyzing the disaster risk of the extreme poor if you adopt the constructionist perspective of risk as a conceptual framework? [L4, CLO1] | 05 |
| 2. | (a) | Why are complex disasters difficult to manage using traditional disaster management approaches? [L2, CLO1] | 03 |
| | (b) | To what extent do cascading disasters challenge conventional disaster management frameworks? [L4, CLO1] | 03 |
| | (c) | Develop a conceptual framework illustrating the progression of cascading disasters from primary hazards to secondary systemic impacts. [L6, CLO2] | 04 |
| 3. | (a) | To what extent can existing master planning approaches of the Rajdhani Unnayan Kartripakkha effectively address flood resilience through Disaster Risk Reduction (DRR) strategies? Critically discuss. [L5, CLO5] | 04 |
| | (b) | Critically assess the key components required for developing an effective disaster resilience plan at the city level. [L4, CLO5] | 03 |
| | (c) | To what extent do the Standing Orders on Disaster (SOD) address gender issues in planning disaster preparedness? [L3, CLO5] | 03 |
| 4. | (a) | Design a conceptual framework for an integrated climate and disaster risk-sensitive urban development plan for Khulna City. What are its core components, and how do they interact to support resilient urban development? [L6, CLO5] | 10 |

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|---|----|
| 1. | (a) | Why are disasters considered socially constructed, not purely natural? [L2, CLO3] | 03 |
| | (b) | Explain the four dimensions of the City Resilience Framework (CRF). [L2, CLO3] | 02 |
| | (c) | Briefly discuss the seven qualities of a resilient system with examples. [L2, CLO3] | 05 |
| 2. | (a) | What is indexing? Why is it important? [L1, CLO2] | 02 |
| | (b) | Briefly explain the integrated Hahn and AHP method for Livelihood Vulnerability Index (LVI) calculation with necessary equations. [L2, CLO2] | 04 |
| | (c) | A researcher wants to assess livelihood vulnerability among 3,000 households in a flood-prone village of Bangladesh. Using a 95% confidence level and 5% margin of error, calculate the required sample size and suggest a suitable sampling technique for data collection with justification. [L6, CLO2] | 04 |
| 3. | (a) | Discuss the origin of the pressure and release model. [L1, CLO2] | 02 |
| | (b) | Describe the pressure and release (PAR) model with a necessary sketch. [L2, CLO2] | 04 |
| | (c) | Propose a progression of the safety model to counter the pressure-and-release (PAR) model. [L6, CLO2] | 04 |
| 4. | (a) | What is an emergency plan? [L1, CLO4] | 02 |
| | (b) | Describe the major features of humanitarian intervention. [L2, CLO4] | 03 |
| | (c) | Briefly discuss the activation procedure of an emergency plan with example. [L2, CLO4] | 05 |

Khulna University, Khulna

Urban and Rural Planning Discipline

3rd Year, Term-II Examination, Session 2024-2025

Course No. URP 3233

Full Title of Course: Climate Change and Disaster Studies

Full Marks: 60

Time: 3 hours

- The figures in the margin indicate full marks.
- Use separate sheet for each section.

Section A

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|---|----|
| 1. | (a) | How would you interpret a disaster in terms of its impact on changes in culture, society, and international relations? [L3, CLO1] | 05 |
| | (b) | What changes would you make in analyzing the disaster risk of the extreme poor if you adopt the constructionist perspective of risk as a conceptual framework? [L4, CLO1] | 05 |
| 2. | (a) | Why are complex disasters difficult to manage using traditional disaster management approaches? [L2, CLO1] | 03 |
| | (b) | To what extent do cascading disasters challenge conventional disaster management frameworks? [L4, CLO1] | 03 |
| | (c) | Develop a conceptual framework illustrating the progression of cascading disasters from primary hazards to secondary systemic impacts. [L6, CLO2] | 04 |
| 3. | (a) | To what extent can existing master planning approaches of the Rajdhani Unnayan Kartripakkha effectively address flood resilience through Disaster Risk Reduction (DRR) strategies? Critically discuss. [L5, CLO5] | 04 |
| | (b) | Critically assess the key components required for developing an effective disaster resilience plan at the city level. [L4, CLO5] | 03 |
| | (c) | To what extent do the Standing Orders on Disaster (SOD) address gender issues in planning disaster preparedness? [L3, CLO5] | 03 |
| 4. | (a) | Design a conceptual framework for an integrated climate and disaster risk-sensitive urban development plan for Khulna City. What are its core components, and how do they interact to support resilient urban development? [L6, CLO5] | 10 |

Section B

There are **four** questions in this section. Answer any **three** questions.

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|----|-----|---|----|
| 1. | (a) | Why are disasters considered socially constructed, not purely natural? [L2, CLO3] | 03 |
| | (b) | Explain the four dimensions of the City Resilience Framework (CRF). [L2, CLO3] | 02 |
| | (c) | Briefly discuss the seven qualities of a resilient system with examples. [L2, CLO3] | 05 |
| 2. | (a) | What is indexing? Why is it important? [L1, CLO2] | 02 |
| | (b) | Briefly explain the integrated Hahn and AHP method for Livelihood Vulnerability Index (LVI) calculation with necessary equations. [L2, CLO2] | 04 |
| | (c) | A researcher wants to assess livelihood vulnerability among 3,000 households in a flood-prone village of Bangladesh. Using a 95% confidence level and 5% margin of error, calculate the required sample size and suggest a suitable sampling technique for data collection with justification. [L6, CLO2] | 04 |
| 3. | (a) | Discuss the origin of the pressure and release model. [L1, CLO2] | 02 |
| | (b) | Describe the pressure and release (PAR) model with a necessary sketch. [L2, CLO2] | 04 |
| | (c) | Propose a progression of the safety model to counter the pressure-and-release (PAR) model. [L6, CLO2] | 04 |
| 4. | (a) | What is an emergency plan? [L1, CLO4] | 02 |
| | (b) | Describe the major features of humanitarian intervention. [L2, CLO4] | 03 |
| | (c) | Briefly discuss the activation procedure of an emergency plan with example. [L2, CLO4] | 05 |