

SECTION – AThere are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Demonstrate how would you calculate doubling period of your investment in case of project evaluation. (8)
- (b) Categorize different risk analysis techniques project planning. Briefly discuss the advantages and disadvantages of sensitivity analysis in this regard. (12)
- (c) Alexa Company borrows 5,00,000 Tk. at an interest rate of 14 percent. The loan is to be repaid in 4 (four) equal annual installments, payable at the end of each of the next 4 years. Prepare the loan amortization schedule. (15)
2. (a) Briefly explain how break-even analysis help to avoid risk of a project. (07)
- (b) The expected cash flows of two mutually exclusive projects, P and Q are: (7×4=28)
- | Year | 0 | 1 | 2 | 3 | 4 | 5 |
|------|--------|--------|-------|-------|------|------|
| P | (1000) | (1200) | (600) | (250) | 2000 | 4000 |
| Q | (1600) | 200 | 400 | 600 | 800 | 100 |
- (i) Construct the NPV profiles for projects P and Q.
- (ii) What is the IRR of each project?
- (iii) Which project would you choose if the cost of capital is 10 percent? 20 percent?
- (iv) What is each project's MIRR if the cost of capital is 12 percent?
3. Write short notes on any two of the following: (17.5×2=35)
- (a) Shadow pricing method in project evaluation.
- (b) Scenario Analysis of Risk Assessment
- (c) Principal sources of discrepancy in social cost benefit analysis.
4. (a) Discuss the adjustment procedure of merit and demerit goods in UNIDO Approach of Social Cost. Benefit Analysis. (7)

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(b) A project consists of 12 activities and their time estimates are shown below: (7×4=28)

| Activity | Time (in weeks) | | |
|----------|-----------------|-------|-------|
| | t_o | t_m | t_p |
| (1-2) | 4 | 6 | 10 |
| (1-3) | 3 | 7 | 12 |
| (1-4) | 5 | 6 | 9 |
| (1-7) | 2 | 4 | 6 |
| (2-4) | 6 | 10 | 20 |
| (2-6) | 3 | 4 | 7 |
| (2-7) | 5 | 9 | 15 |
| (3-4) | 3 | 7 | 12 |
| (4-5) | 2 | 4 | 5 |
| (5-6) | 1 | 3 | 6 |
| (3-7) | 2 | 5 | 8 |
| (6-7) | 1 | 2 | 6 |

- (i) Draw the Network Diagram.
- (ii) Determine the critical path.
- (iii) Calculate event slacks and activity floats.
- (iv) Find the standard deviation of the critical path duration.

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.
 Terms and abbreviations have their usual meanings.

- 5. (a) You are working for developing a project proposal. You are asked by your superior officer to set the criteria for developing the objectives for the project. What are the characteristics you would consider for the objectives? (10)
- (b) In the same project, later on you are assigned to develop the evaluation criteria for the proposed project. Elaborate the aspects you would consider for developing the criteria. (15)
- (c) One of the tasks of the project planner is to manage risks of the project. Recommend the framework of risk management for the project planner. (7)
- (d) You are asked to develop an RFP for an ongoing project. Summarize the contents of the RFP. (3)

- 6. (a) You are conducting a stakeholder analysis for designing a project. Discuss the questions that you are needed to ask for the identification of interests of the stakeholders. (15)
- (b) For the above mentioned project you are asked to develop a concept note which would be sent to the higher ranking officials and development partners. Explain the concept note and construct it's content. (7)

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- (c) Illustrate the steps followed by government of Bangladesh during project evaluation using a flow chart. (5)
- (d) "Though there are advantages to select project on the basis of numeric methods, non-numeric methods are widely used for selection of projects." Compare the different types of non-numeric methods for project selection. (8)
7. (a) You are working in Bangladesh Civil Service. The minister of your organization asks you to provide him a list of tools for implementing the policies pursued by his ministry. Recommend the tools that the minister can use to implement the policies. (10)
- (b) You are working as a Deputy Chief in Physical Infrastructure division of Bangladesh Planning Commission. Based on output how many types of projects you have to evaluate. Provide example of each types of projects. (3)
- (c) One of the major tasks in project design is to develop 'Problem tree' and 'Objective tree'. Elaborate how they are connected with each other with examples and diagrams. (12)
- (d) Explain the issues you need to consider while evaluating the impact assessment of a project. (10)
8. (a) As a transport planner you are asked to conduct a technical feasibility of a Light Rapid Transit (LRT) project. Compile the issues you need to consider for the project. (7)
- (b) You are working as a project director for an urban regeneration project of RAJUK. Describe the general and basic project management functions you have to perform. (7)
- (c) Clarify the different types of policies government develop with example. (3)
- (d) You are asked by your superior officer to develop work packages of the project you are working. Elaborate the issues you would consider for the task. (10)
- (e) Why does one need to conduct mid-term review? (4)
- (f) What are the goals for public procurement in Bangladesh? (4)
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SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) The “Acquisition and Requisition of Immovable Property Act 2017” came into force replacing the “Acquisition and Requisition of Immovable property Ordinance 1982” with the purpose to overcome previous faulty measures. – Explain the statement. (25)
(b) Criticize the rules and standards related to layout plan formation in the “Private Residential Land Development Rule 2004”. (10)
2. (a) What are the conditions required to be fulfilled for the approval of a private residential project? (12)
(b) The “Local Government (City Corporation) Act 2009” applies to all the city corporations in Bangladesh which empowered city corporations to maintain public health in urban areas. – Explain the statement. (15)
(c) Do you think, there is any loophole in the definitions of parks, open spaces. and natural wetlands in the “Open Space and Wetland Conservation Act 2000”? Briefly explain your opinion. (8)
3. (a) Write a short note on “betterment fee”. (5)
(b) Discuss the limitations and challenges of the “Town Improvement Act 1953”. (15)
(c) According to the “Open Space and Wetland Conservation Act 2000”, describe the procedure for land use class change. (15)
4. (a) Identify the public agencies responsible for master plan preparation in Bangladesh. Differentiate between their roles and activities. (12)
(b) According to the “Real Estate Development and Management Act 2010”, What are the offenses related to real estate development and management? (8)
(c) Describe the stages of land acquisition process in Bangladesh by drawing a flow chart. (15)

PLAN 403

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Name five laws, acts and rules which are usually referred to for protecting rivers and wet lands in Bangladesh. (8)
- (b) Interpret from legal perspective the importance of plot layout in a housing scheme. (7)
- (c) Give one example each for addressing 'basic need', 'need as demand' and 'wider need' of mobility or housing requirements of citizens in our cities. (12)
- (d) "In case of public interest litigations related to brick kiln, lakes at Uttara, Mahakhali and Gulshan etc. court has defined 'Legal Expectation' of petitions". Describe such an example. (8)
6. (a) Summarize the story of ownership transfer of the disputed land where BGMEA building was constructed and later on demolished as per verdict of the court case in this regard. (8)
- (b) Compare the evolution of modern town planning laws with the approaches used to explain the origin of laws. (17)
- (c) "Sometimes judgments of public interest litigations result in more, in positive and/or planning sense than what is expected?" Do you agree with the statement? Justify your answer with examples. (10)
7. (a) State the articles of the constitution of Bangladesh which are usually referred to for protection of personal and collective rights and social justice. (8)
- (b) List out the things a buyer should check and do before purchasing a parcel of land or flat in Bangladesh. (10)
- (c) Act, ordinance and rules are different form of laws. Discuss briefly why rules are formulated and what is the advantage of formulating rules separately from the act? (3+4=7)
- (d) Analyze the issues (of conflict) from rights perspectives for which petitioners receiving plots along the lake or near the airport in Dhaka city have gone to the court. (10)
8. (a) While demarcating the actual area of river and identifying the extent of illegal encroachment, records of a particular land survey is considered more authentic. What is the name and time line of the survey? Why other survey records are not taken into confidence? (3+4=7)
- (b) Do you think the arguments of loss of employment and income due to closure of activities, harming environment or obtaining water flows, are usually taken into account by the courts? Justify your answer. (10)
- (c) Define the followings: (3×6=18)
- (i) Mouza; (ii) Daag number; (iii) Naal land; (iv) Mutation/Nam jari, (v) Khaas land and (vi) Jol Mohal.
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SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) How the existence of positive feedback loop can influence the environmental system?
Explain with appropriate examples. (09)
- (b) Which ethical point of view could be more reliable in environmental management and planning? Justify your answer. (12)
- (c) “Use of renewable energies, growing sense of place among population and promotion of green infrastructure can help to integrate the green and brown agenda” – Justify the statement with appropriate examples. (14)
2. (a) Suppose you are working as a planner in a dam construction project. How could you evaluate the sustainability of the project? (12)
- (b) How the concept of sustainable development varies from neo-classical economist to ecologist? (8)
- (c) “Although sustainable development is widely practised to bring a trade-off between environment and economy, there are some limitations in defining the sustainability” – Justify this statement. (10)
- (d) How cross cutting areas of “National strategy of Sustainable Development” can address the urban environmental challenges? (5)
3. (a) How does the performance of ‘Green space factor’ vary from Bio-tope Area Factor’? (10)
- (b) “Adhoc approach to environmental issues is fragmentary, expensive and inefficient” – Explain this statement. (10)
- (c) “Environmental profiling and rapid ecological footprint assessment could be effective tools to integrate environment in city planning” – Justify this statement with examples. (15)
4. (a) Differentiate between the application of EIA and SEA. (10)
- (b) “Rooftop gardening, small scale gardening and agriculture in controlled environment can provide as alternative solution of urban agriculture” – Justify the statement. (15)
- (c) Mention the advantages of using green factor as performance standard to address environmental issues in land use planning. (10)

PLAN 451

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Which major challenges would you face while working as an environmental planner in Bangladesh? Justify your opinion. (15)
- (b) Differentiate among different types of environmental planning with relevant examples. (10)
- (c) In which contexts, an area can be declared as “Ecologically Critical Area” under “Environment Conservation Rules, 1997”? (10)
6. (a) Discuss about the roles and responsibilities of different stakeholders according to National 3R Strategy for Waste Management in Bangladesh. (15)
- (b) Describe the difference between the Environmental Clearance Certificate (ECC) issuance processes for “Green” and “Red” category projects with schematic diagrams. (15)
- (c) Mention different ways of hazardous waste management. (5)
7. (a) Discuss why it is necessary for urban planners to understand Environmental Impact Assessment (EIA). (5)
- (b) Differentiate between “Screening” and “Scoping” in an EIA process. Describe the mechanisms through which scoping can be done. (15)
- (c) Describe “Tragedy of Commons” and “Prisoner’s Dilemma” from the perspective of environmental planning. (15)
8. Write short notes on the followings: (7×5=35)
- (a) Initial environmental examination
- (b) Carbon sequestration
- (c) Environment Management Plan
- (d) Water Quality Index
- (c) Common Pool Resource
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SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) What are the major factors affecting the suitability of sanitation system? Explain with respect to Bangladesh. (18)
 (b) What are the sectors demanding water in Bangladesh? Explain with examples. What are the factors governing water requirement in the industrial sector? (17)

2. (a) In a diagram show protected (surface water) intake structure and label the different components. What are the factors governing the location of an intake? What are the considerations for design of an intake? (18)
 (b) Explain the functionality of each of the components of pour flush latrines. Describe the advantages and disadvantages of pour flash latrines. (17)

3. (a) Write a short note on WASH. (7)
 (b) What is a hygienic latrine? Explain. (7)
 (c) Explain the steps of water distribution system design. (7)
 (d) List the methods of water distribution system. With diagrams, explain the salient features of each method. (14)

4. Design a latrine for a family of 8 members in a village, where tubewell-based water supply is available. However, facilities for mechanical desludging is not available in the area. The average wastewater flow rate is about 10 lpcd. The soil is “porous silty loam”, with long-term infiltration rate of 20 L/m².day. The pit is to be constructed with concrete rings with diameter of 1.2 m and depth 0.3 m. Groundwater table is at sufficient depth, such that groundwater pollution is not a concern at the site. (35)
 What kind of latrine would you suggest?
 Design the latrine, estimate its design life, and draw a neat sketch showing all elements of the designed latrine.

CE 471(URP)

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.

5. (a) Design a septic tank to serve a household of 10 persons, who produce 90 lpcd of wastewater. The tank is to be desludged every 2.5 years (assume an average temperature of 25°C) Draw the plan view and a section showing depths of different zones of the designed septic tank. Consider a single chamber tank. Assume reasonable values for parameters not given. (20)
- (b) Explain the design considerations of the followings for the design of a septic tank: (9)
- (i) Shape and dimensions
 - (ii) Compartments
 - (iii) Inlet device
- (c) List the major processes that take place in a septic tank. Explain each of the processes briefly. (6)
6. (a) Write the definition and purposes of Air Quality Index (AQI). What do you understand by “primary pollutions”? List the processes leading to the emission of primary pollutants. (20)
- (b) Write short notes on: (9)
- (i) Criteria Pollutants
 - (ii) Air Toxins
 - (iii) Short Lived Climate Pollutants
- (c) Explain how do indoor and outdoor air pollution impact human health. (6)
7. (a) What are the considerations for siting of Sanitary Landfills? List the specific siting requirements for a landfill. (20)
- (b) Show the functional elements of Solid Waste Management in a flow diagram. (10)
- (c) List the physical and chemical properties used to characterize solid waste. (5)
8. (a) What is FSM system? Show the common treatment processes employed for FS in a flow diagram. (15)
- (b) What are the factors influencing solid waste generation? Birefly explain each one. (8)
- (c) Explain how leachate is managed in a sanitary landfill site. (6)
- (d) What is noise pollution? What are the common sources of noise pollution? (6)
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