L-4/T-1/URP **Date: 23/04/2024**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1 B. Sc. Engineering Examinations 2022-2023

Sub: **PLAN 403** (Legal Basis of Planning)

Full Marks: 210 Time: 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

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

1. (a) Policies are not laws, yet they can serve as influential guides in the formulation of any law- explain the statement with relevant examples. **(8)**

   (b) Identify different planning laws under the Ministry of Road Transport and Bridges and discuss the roles of different institutions under this ministry in accordance to those laws. **(12)**

   (c) Evaluate the guidelines of "open space and wetland conservation Act 2000", while ensuring its purpose of conservation, protection and sustainability of natural open spaces and water bodies. **(15)**

2. (a) There are some new definitions introduced in the "Acquisition and Requisition Act 2017". Identify those and discuss the context of bringing such changes. **(12)**

   (b) The guidelines and space standards for residential development by "Private Residential Land Development Rule 2004" need modifications on several ground. Do you agree? – Justify your answer. **(15)**

   (c) According to "open space and wetland conservation Act 2000", land use change is determined based on some criteria. Outline those criteria. **(8)**

3. (a) A complete set of guidelines was necessitated due to the increasing real estate development activities and associated issues. Evaluate the guidelines of "Real Estate Development and Management Act 2016", while addressing those issues. **(17)**

   (b) According to "Bangladesh Building Construction Act 1952", hill cut is considered as a serious offence. Still, permission for hill cut is granted on some special cases. Identify those. **(5)**

   (c) Discuss the fire safety related guidelines by "Dhaka Imarat Nirman Bidhimala 2008" with regards to the fire incidents of Dhaka City. **(13)**

4. (a) A city corporation is empowered to prepare master plan for the city corporation area and undertake different land development schemes- explain this statement with examples in the context of any city corporation in Bangladesh. **(18)**

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(b) "Associated authority" is an important stakeholder in case of any real estate development activity. However, the role of associated authority is limited to approval stages only according to "Real Estate Development and Management Act 2010". Do you agree? - Justify your opinion. **(10)**

(c) Criticize the "Town Improvement Act 1953" on the ground of stakeholder engagement. **(7)**

SECTION – B

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

5. (a) Sort different types of laws with respect to the process or origin of their formulation., ease to amend them and importance of one over others during application. **(10)**

(b) Describe the necessity of planning laws with necessary example. **(10)**

(c) Associate different examples of land use and transport planning decisions with different concepts of justice. **(15)**

6. (a) Arrange the progress in the history towards making modern town planning laws. **(12)**

(b) Examine the issue of "Procedural Fairness" in the court case by brick kiln owners against Department of Environment (DoE). **(9)**

(c) How planners can synthesize their knowledge of GIS and land record systems? **(8)**

(d) Recall an example of "socio historical approach" of law making. **(6)**

7. (a) List out the documents required to prove ownership of a parcel of land in Bangladesh. **(8)**

(b) Describe different types of land surveys done in the existing area of Bangladesh since the British period. **(12)**

(c) Summarize the ideas of 'Environmental Justice', 'Spatial Justice', 'Just sustainabilities' and 'Just nobilities'. **(15)**

8. (a) Examine the common arguments put forward by the defendants in the court cases regarding conservation of environment, hills and wet lands. **(10)**

(b) Recall the articles of the constitution of Bangladesh frequently mentioned in planning related court cases. **(10)**

(c) Investigate the court case regarding the restriction on rickshaw movement with respect to different concepts of justice. **(15)**

L-4/T-1/URP Date: ~~28/04/2024~~ 19/05/2024

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1 BURP Examinations 2022-2023

Sub: **PLAN 451** (Environmental Planning and Management)

Full Marks: 210 Time: 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

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

1. (a) "Some of each person's ecological footprint is dependent upon choices they make in their own life" – explain this statement and the concept of ecological footprint. **(10)**

   (b) Explain the concept of extended producers' responsibility. **(7)**

   (c) Name five criteria listed in Environmental Conservation Rules 1997 to identify ecologically critical areas in Bangladesh. **(5)**

   (d) Appraise the market based environmental policy instruments with necessary examples. **(13)**

2. (a) Draw the sequential steps followed in attaining environmental clearance certificate for Red category industries in Bangladesh, according to Environmental Conservation Rules' 1997. **(15)**

   (b) Differentiate between technical standards and performance standards as regulatory instruments of environmental planning and management. **(8)**

   (c) We can accept the limitation of our human lens and still make choice about where we find value in the world – explain this perspective of Anthropocentrism. **(12)**

3. (a) List the contents of an environmental management plan (EMP). **(5)**

   (b) Breakdown the steps of risk assessment. **(25)**

   (c) Differentiate between Environmental impact Assessment (EIA) and Strategic Environmental Assessment (SEA). **(5)**

4. (a) List two examples each for the tools used in assessing economic, environmental and social dimensions of sustainability assessment. **(5)**

   (b) Appraise four methods used in the scoping process of EIA. **(20)**

   (c) Sketch to show how IEE and EIA can be embedded in project cycle. **(10)**

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SECTION – B

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

5. (a) Define the terms 'environment' and 'ecosystem'. **(15)**

   (b) Analyze the sustainable development goals relevant to the environment. **(20)**

6. (a) Draw the diagram of different types of environment. **(15)**

   (b) Explain the air and noise pollution problems in Dhaka city. **(20)**

7. (a) Synthesize the following environmental problems: **(15)**

   (i) Global warming

   (ii) Acid rain

   (iii) Ozone Layer depletion

   (b) Define the biotic and abiotic environment. **(20)**

8. Analyze the following topics:

   (a) Environmental management **(10)**

   (b) Critical environmental issues **(20)**

   (c) Goal of sustainable development **(5)**

L-4/T-1/URP **Date: 25/03/2024**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-4/T-1 B. URP Examinations 2022-2023

Sub: **CE 471 (Basic Environmental Engineering)**

Full Marks: 210 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

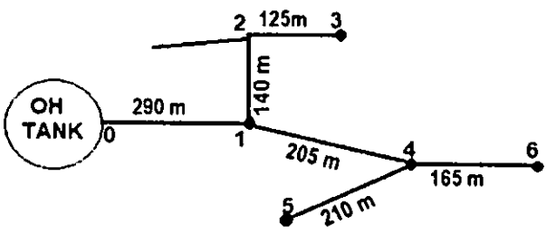
SECTION – A

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

Assume any reasonable value (if needed).

1. (a) Following information are obtained during calculation of a water distribution network for a residential zone. Calculate the diameter of the water distribution pipes using dead-end method. Do necessary checks for selecting correct size of the pipes. Given, available pressure at OH tank = 50 psi and minimum required pressure at end of each branch is 30 psi. Length of each pipe is marked in the figure below. Consider flow velocity, V = 3 fps and friction factor = 0.01. Assume any reasonable value, if needed. **(20)**

Pipe line	Supply (m^3/ d)
1-2	275
2-3	195.5
4-5	135.5
4-6	205



(b) discuss the following options of water treatment plant residuals (sludge) management - i) sludge thickening & ii) sludge dewatering **(10)**

(c) Write down the names of surface water and groundwater collection methods for the water supply system. **(5)**

2. (a) Classify and define the types of water bearing ground formation on the basis of water transmitting and water storage capacity. **(10)**

(b) Name the major factors affecting the water consumption. Write down the typical steps of water demand calculation for fire hydrants. **(5+7)**

(c) Differentiate between RSF and SSF. Define super chlorination in water treatment process. **(8+5)**

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3. (a) Write short notes on the following water quality parameters - i) solids in water & ii) hardness in water. **(10)**

   (b) What is the present condition of water supply system in Dhaka city - discuss briefly. **(10)**

   (c) Make comparison of the three methods of water distribution using looped network of pipes. What are the four main functions of service reservoir used in water distribution system? **(10+5)**

4. (a) i. Explain briefly how the population is calculated in comparative graphical method.

   ii. Using the given population data below, forecast the population for 2028 and 2032 for that city by using geometric progression method. **(5+12)**

Year	2002	2007	2012	2017	2023
Population: (Thousands)	21.45	24.18	23.55	24.67	26.32

   (b) What are the major objectives of aeration in the water treatment? Write down how water can be aerated using pressure aerator. **(7+5)**

   (c) How the new environmental challenges differ from traditional challenges? **(6)**

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SECTION – B

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

Assume reasonable values for missing data, if any.

5. (a) In a sub-urban area, as a part of the fecal sludge management system, septic tanks need to be designed. Each septic tank will be connected with two household units. Using the following data, design a septic tank serving two households: **(18)**

Number of members in each household unit = 6 person

Wastewater flow rate, q = 110 lpcd

Desludging interval, N = 2 years

Assume an average temperature of 25^0C

Solids Accumulation Rate = 0.06 m^3/person/year for desludging period < 5 years

Also draw a section of the septic tank showing all elements of the designed septic tank.

(b) Diagrammatically show the hierarchy of waste minimization processes including example(s) of each option. **(10)**

(c) Discuss the importance of BOD & COD in measurement of the strength of oxygen demanding wastes. **(7)**

6. (a) Define sound pressure level and pitch of sound. Using neat sketch show that - higher sound pressures are more acceptable at lower and higher frequencies than in the mid-range. **(10)**

(b) Write down the merits and demerits of combined sewerage system and partially separated sewerage system. Also write the technical benefits of SBS System. **(16)**

(c) Describe the three major types of radiations emitted by the radioactive particles. **(9)**

7. (a) Write down some significant health impacts of the following air pollutants: **(9)**

i. SO_x

ii. Ground level ozone

iii. Carbon monoxide

(b) Name some strategies for mitigating roadway noise in urban areas. **(6)**

(c) Describe how on-site storage and handling of solid wastes can enhance the solid waste management system. Illustrate with neat sketch: **(20)**

i. Hauled Container System

ii. Stationary Container System of solid waste collection.

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8. (a) On March 20, 2024, the following air quality data have been recorded at the Darus Salam continuous air monitoring station (CAMS) in Dhaka Calculate AQI for that area on that day using the following concentrations of the pollutants: **(12)**

$PM_{2.5}$ = 178 μg/m^3 (24-hr)

PM_{10} = 141 μg/m^3 (24-hr)

CO = 9.6 ppm (8-hr)

NO_2 = 58 μg/m^3 (annual)

SO_2 = 17 μg/m^3 (24-hr)

AQI number for a particular pollutant I_p is given by:

$$I_P = \frac{I_{Hi} - I_{Lo}}{BP_{Hi} - BP_{Lo}}(C_P - BP_{Lo}) + I_{Lo}$$

(The symbols have their usual meaning. Use the tables attached in Appendix A)

(b) Write sown the adverse impacts of oil pollution. Briefly discuss the water pollution scenario in Bangladesh. **(12)**

(c) Write a short note on alternating twin offset pit pour-flash latrine. What are the thumb rules to be followed to prevent groundwater pollution from pit and pour-flush latrines? **(11)**

Appendix A

Table -1 [for Q 8(a)]: Air Pollutant Breakpoint concentrations

Breakpoints									
O_3 (ppm) 8-hr	O_3 (ppm) 1-hr(i)	$PM_{2.5}$ ($\mu g/m^3$) 24-hr	PM_{10} ($\mu g/m^3$) 24-hr	CO (ppm) 8-hr	SO_2 (ppm) 24-hr	NO_2 (ppm) Annual	AQI	Category	Color Code
0.000-0.064	—	0.0-15.4	0-54	0.0-4.4	0.000-0.034	0.000.0.053	0-50	Good	Green
0.065-0.084	—	15.5-40.4	55-154	4.5-9.4	0.035-0.144	0.054-0.100	51-100	Moderate	Yellow-Green
0.085-0.104	0.125-0.164	40.5-65.4	155-254	9.5-12.4	0.145-0.224	0.101-0.360	101-150	Unhealthy for Sensitive Groups	Yellow
0.105-0.124	0.165-0.204	65.5-150.4	255-354	12.5-15.4	0.225-0.304	0.361-0.649	151 -200	Unhealthy	Orange
0.125-0.374	0.205-0.404	150.5-250.4	355-424	15.5-0.4	0.305-0.604	0.65-1.24	201-300	Very Unhealthy	Red
(i)	0.405-0.504	250.5-350.4	425-504	30.5-40.4	0.605-0.804	1.25-1.64	301-400	Hazardous	Purple
(i)	0.505-0.604	350.5-500.4	505-604	40.5-50.4	0.805-1.004	1.65-2.04	401-500	Hazardous	Purple

(i) 8-hr O_3 values do not define higher AQI values (>301) AQI values of 301 or higher are calculated with 1-hr O_3 concentrations

Table-2 [for Q 8(a)]: Pollutant specific sensitive groups

When pollutant has an index value > 100	Report these sensitive groups
Ozone	Children and the people with asthma are the groups most at risk
PM-2.5	People with respiratory or heart disease, the elderly and children are the groups most at risk
PM-10	People with respiratory disease are the group most at risk
CO	People with heart disease are the group most at risk
SO_2	People with asthma are the group most at risk