

University of Asia Pacific
Department of Civil Engineering
Final Examination, Spring 2012
Program: B.Sc Engineering (Civil)

Course #: **CE 107 (A)**
 Full Marks: 100

Course Title: Introduction to Civil and Environmental Engg.
 Time: 2.0 hours

SECTION- I

Answer any **THREE** questions:

1. A. What is Global Warming? What are the main factors considered to determine the temperature?
 B. What is Greenhouse Effect? What are the greenhouse gasses?
 C. How Photochemical Smog develops. (4+2+4)
2. A. What is Acid Rain? What are the effects of acid rain? (4+6)
 B. Draw the idealize diagram of acid rain formation and path.
3. A. Describe the sources of Air Pollution. (5+5)
 B. what are the types of air pollutants? Write short note about any one pollutant.
4. Briefly discuss the important urban environmental issues in Bangladesh. Define renewable and non-renewable energy with examples. (10)

SECTION- II

Answer any **SIX** questions including **QUESTION NO. 1:**

1. A five-storied residential building is to be constructed. Estimate the total construction cost as per the following particulars and specifications of the building. Use PWD schedule and other relevant information provided in the attached appendix. (20)

Sl No	Particulars	Specification
01	Land Size	20m x 30m
02	Building type	Residential (Standard)
03	Allowable Bearing Capacity (q_a)	2 ksf
04	Floor Level	Five
05	Plinth Area	300 Square meter
06	Construction Material	19-21 MPa, RCC Structure 1:1.5:3 (Brick Chips)
07	Ground Floor	Car Parking
08	Roof top RCC water tank including beams and supports etc	2000 Gallons
09	Structure type	RCC Frame Structure
10	Underground water reservoir, distribution line, water pump, pump house, WASA charge	6000 gallons
11	Boundary wall	RCC frame

2. Discuss, in brief, on science, engineering and technology. (10)
3. A. Mention some (six) very important roles of civil engineers in the development of infrastructure.
B. What are the major foci of any civil engineering project? (8+2)
4. A. Define civil engineering according to ASCE. Mention few names of infrastructures that civil engineers are generally involved in developing.
B. What are the major sub-disciplines of civil engineering? Mention the names of some other sub-disciplines that are always inevitably participatory in any civil engineering project. (6+ 4)
5. A. Discuss, in brief, "civil engineering" as a career.
B. Give the names in details of the following codes with their related fields.
(i) BNBC (ii) ASTM (iii) ACI (iv) AASHTO
C. Categorize building based on type of occupancy. (5+ 2+3)
6. A. Categorize building/construction materials based on specific property of material. What are the major factors for choice of materials?
B. Mention (names only) few types of loads to be considered in design.
C. Mention (names only) major components of a building. (4+2+4)
7. A. What is plane surveying and geodetic surveying?
B. Classify surveying based on object of survey and instruments used.
C. Mention few names of instruments used in survey work. (3+5+2)
8. For the following conditions, find the total floor area and the number of stories that can be built for a residential building. (10)
- Plot size: 15 m x 20 m
 - Road width = 6 m
 - FAR = 3.5
 - MGC = 62.5%
 - Minimum back setback: 2.0 m
 - Minimum side setback: 1.25 m

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SECTION- I

Answer any **SEVEN** questions including **QUESTION NO. 1:**

1. Describe the following (any three): (10)
 - a. Meteorological and hydrological drought.
 - b. Values knowledge and social justice as an environmental issue.
 - c. Ecosystem and Bio-diversity.
 - d. Age Structure with figure.
2. Define water pollution? Write any four different categories of water pollutant along with their sources and impact. (10)
3. Assume that a population follows a simple logistic growth curve. Find the maximum sustainable yield as a function of carrying capacity, the current population size and current growth rate. (10)
4. A. What is Acid Rain? What are the effects of acid rain? (4+6)
B. Draw the idealize diagram of acid rain formation and path.
5. A. Describe the sources of Air Pollution.
B. what are the types of air pollutants? Write short note about any one pollutant. (5+5)
6. Describe different uses OR issues of water. (10)
7. Describe basic environmental issues. (10)
8. A. What is Global Warming? What are the main factors considered to determine the temperature?
B. What is Greenhouse Effect? What are the greenhouse gasses?
C. How Photochemical Smog develops? (4+2+4)
9. A. Population of a city was 30 million at a time and after 20 years, population of that city was supposed to be 50 million with a growth rate of 2.55%. But, after 20 years actually population reached at 42 million, so what was the growth rate? (5)

B. Prove that the time required for population to be double is $70/r$, where r is the growth rate expressed in percentage. Population of a country was 100 million in 1990, when will it reach 160 million if it doubles in 2050? (5)

SECTION- II

Answer any **THREE** questions including **QUESTION NO. 1**:

1. For the following conditions, find the total floor area and the number of stories that can be built for a residential building. (10)
 - a. Plot size: 15 m x 20 m
 - b. Road width = 6 m
 - c. FAR = 3.5
 - d. MGC = 62.5%
 - e. Minimum back setback: 2.0 m
 - f. Minimum side setback: 1.25 m
2. A. Mention some (six) very important roles of civil engineers in the development of infrastructure.
B. What are the major foci of any civil engineering project? (8+2)
3. A. Define civil engineering according to ASCE. Mention few names of infrastructures that civil engineers are generally involved in developing.
B. What are the major sub-disciplines of civil engineering? Mention the names of some other sub-disciplines that are always inevitably participatory in any civil engineering project. (6+ 4)
4. A. Categorize building/construction materials based on specific property of material. What are the major factors for choice of materials?
B. Mention (names only) few types of loads to be considered in design.
C. Mention (names only) major components of a building. (4+2+4)
5. A. What is plane surveying and geodetic surveying?
B. Classify surveying based on object of survey and instruments used.
C. Mention few names of instruments used in survey work. (3+5+2)