

**Chittagong Veterinary and Animal Sciences University**  
**One Health Institute**  
**Masters in Public Health (MPH)**  
**July-December Semester Final Examination 2021**  
**Course title: Ecology**  
**Code: ECO-602**  
**Full marks: 20, Time: 2 hours**

**(Answer any FOUR of the following questions)**

1. a) Compare and contrast among the following concepts: planetary health, ecological public health, eco-health, one health. 2
- b) Is studying ecology important in the field of one health? Why? 3
2. a) Illustrate the concepts of nutrient and energy flow in an ecosystem using a neat sketch showing ecosystem structure? 3
- b) How temperature and rainfall dictate the distribution of global ecosystem? 2
3. a) Describe carbon cycle in relation to climate change. 2
- b) Explain the trophic levels in an ecosystem showing the quantitative flow of energy. 1+2
4. a) Explain the concept of holocoenotic environment. 2
- b) Compare between tropical rainforest and mangrove ecosystems. 3
5. a) Can we be sure that the climate is changing due to human interferences? Give some evidence. 2
- b) Illustrate the critical drivers affecting changes to human health public health? 3
6. a) What are zoonotic diseases? Mention few examples. 2+1=3
- b) List climate sensitive infectious diseases. 2
7. a) Link ecosystem services to health. 2
- b) Show the relationship among historical range of variation, impairment, remediation and restoration of ecosystem and human health with time. 3

**One Health Institute**  
**Chittagong Veterinary and Animal Sciences University**  
**Masters in Public Health. Semester Final**  
**Environmental and Occupational Health**  
**Course code: EOH- 602. June-2022<sup>1</sup>**

**Time: 2 hours**

**Marks: 5 x8 = 40**

**Group-A: Environmental Health. (Answer any four questions ) 5x4=20**

1. a. What are the problems faced by the modern society due to urbanization?  
b. Discuss the beneficial effects regarding this. 3+2=5
2. a. Narrate the sources of medical wastes.  
b. As a clinic manager, what steps you can take for waste management? 2+3=5
3. a. Illustrate the causes of air pollution in Chattogram city.  
b. Enumerate the health impacts of air pollution in our life. 2+3=5
4. a. Mention the important vector borne diseases of Bangladesh.  
b. How the diseases transmitted by the vectors? 2+3=5
5. a. What is public health?  
b. Explain the role of public health specialists to control disease outbreak highlighting covid situation. 2+3=5
6. Write short notes [any two].  
a. Water borne diseases b. Arsenic contamination of drinking water in Bangladesh.  
c. Pesticides. d. Heat and cold effects. 2.5x2=5

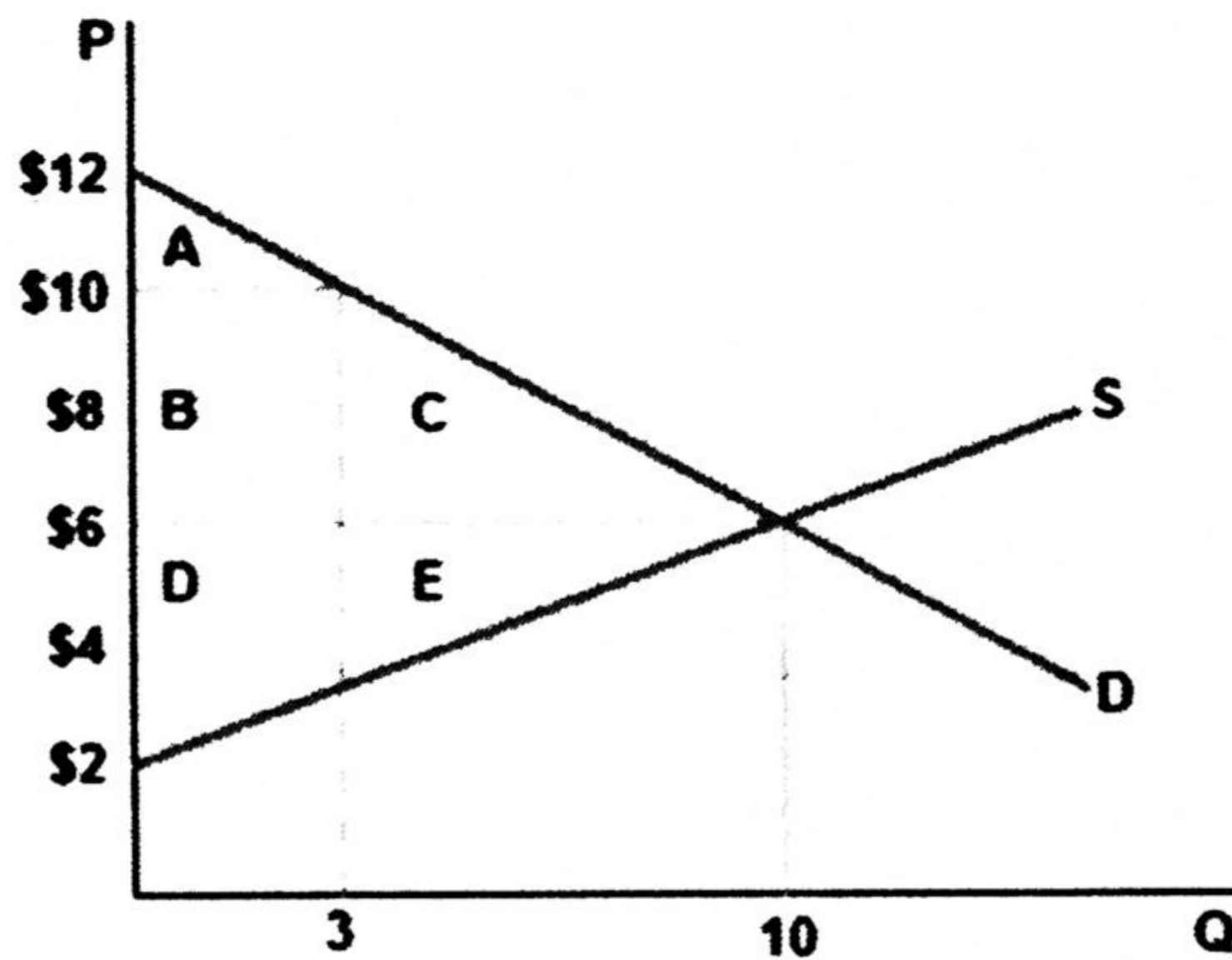
**Group -B: Occupational Health (Answer any four questions) 5x4=20**

1. a. Mention the occupational accidents according to OSHA.  
b. Health professionals are the second victims – justify. 2+3=5
2. a. Define occupational health.  
b. What are the objectives of occupational health? 2+3=5
3. a. What is gender equity?  
b. Establishment of gender equity is a dilemma, a failure- sketch it. 2+3=5
4. a. Enumerate cancer situation in different occupations.  
b. Illustrate the special features of occupational cancers. 2+3=5
5. a. Narrate the stress and strain exist among the employees in different Occupations.  
b. How this can be reduced to develop a congenial atmosphere? 2+3=5
6. Write short notes [ any two].  
a. WHMIS. b. Sickness absenteeism. c Pneumoconiosis. d. First aid. 2.5 x2=05

XXXXXX

- Calculate the QALY for each treatment.
- Calculate the Cost: QALY for each treatment.
- Based on QALY only, which treatment would be most effective.
- Based on Cost: QALY, which treatment would be most effective.

4. The market of H2 blocker in the given figure is in equilibrium at \$6.



- Using the letters provided in the graph which area represent Consumer surplus? Producer surplus? Total surplus?
  - What is the dollar value of Consumer surplus? Producer surplus? Total surplus?
  - Now suppose the price changes to \$10 – using the letter provided indicate the area of deadweight loss (DWL).
5. Write short notes on any two of the following:
- Health economic evaluation
  - Scarcity
  - Cost of illness calculation

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**(Answer any FOUR of the following questions)**

1. a) How the concept of one health differs from environmental health and eco-health? 2  
b) Give few instances of public health issues faced in Bangladesh which are linked to anthropogenic changes to ecosystem. 3
2. a) Define ecosystem. Name the components of ecosystem. What are the ecosystem types of the world and Bangladesh? 2  
b) Show relationship between trophic level and biomass productivity. 3
3. a) Describe nitrogen cycle and its importance in brief. 2  
b) What is food pyramid? Compare mass and energy flow through the food pyramid. 1+2
4. a) Explain the concept of biodiversity. Relate biodiversity with one health. 1+2  
b) Name few zoonotic diseases linked to altered food-web which are going to be major health concern in the future 2
5. a) What is climate change? Why we consider the climate change that we face now as anthropogenic? 2  
b) List main environmental pollutions in Bangladesh. How they affect public health? 3
6. a) What are zoonotic diseases? Mention few examples. 2+1=3  
b) Why do we need to take care of livestock health and health of wild animals? 2
7. a) Name the categories of ecosystem services with examples. How disruption in ecosystem services affect human health? 3  
b) What COVID pandemic taught us about the relevance of one health? 2

**Chittagong Veterinary and Animal Sciences University**  
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**Masters in Public Health (MPH)**  
**July-December Semester Final Examination 2021**  
**Course title: Health Economics, Policy Planning and Ethics (Theory)**  
**Code: HEP-602**  
**Full marks: 40, Time: 2 hours**

(Figures in the right margin indicates full marks. Answer any 5 questions from the following)

- |    |   |   |
|----|---|---|
| 1. | a. Define health economics.   | 2 |
|    | b. Write its importance.  | 2 |
|    | c. Briefly describe different types of economic evaluation.                           | 4 |
| 2. | a. What is opportunity cost?  | 3 |
|    | b. Hernia operation in government hospital is not cost effective now a day – justify. | 5 |
| 3. | a. Define ethics.   | 1 |
|    | b. Briefly describe principals of research ethics.                                    | 3 |
|    | c. Write very important 4 articles of Helsinki declaration.                           | 4 |
| 4. | a. Briefly describe research ethics related to environment.                           | 4 |
|    | b. Briefly describe 4 issues of publication ethics.                                   | 4 |
| 5. | a. Write 4 strategies of national health policy.                                      | 4 |
|    | b. What are the common problems of our health care delivery system?                   | 4 |
| 6. | a. Draw planning cycle.   | 3 |
|    | b. Describe different types of planning process.                                      | 5 |
| 7. | Briefly describe 8 modern professional misconducts.                                   | 8 |

**Chittagong Veterinary and Animal Sciences University**  
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**Masters in Public Health (MPH)**  
**July-December Semester Final Examination 2021**  
**Course title: Anthropology (Practical)**  
**Code: ANP-602**  
**Full marks: 20, Time: 1 hour**

(Figures in the right margin indicate full marks. Answer any 4 questions from the following)

You have been given a context of health care-associated infections (HCAI). Based on the given context below develop a research question, objectives, propose data collection method, select participants, develop data collection guidelines, and data analysis plan for an exploratory (anthropological) research in the hospital setting of a low-resource country like Bangladesh.

**Context:**

Caring for a sick family member in a hospital is a part of the culture in many Asian countries such as Korea, China, Bangladesh, Indonesia, India, and Thailand. Nearly all hospitals in these countries let a family member accompany their loved one and stay in the patient's room and assist with basic care. Health care-associated infections (HCAI) contribute an additional strain on healthcare systems by increasing patients' morbidity and mortality. Crude estimates from the World Health Organization suggest that 1 in 10 patients admitted to hospitals are affected by a HCAI. More specifically, approximately 7 in 100 patients hospitalized in high-resource countries will suffer from a HCAI, whereas 10 to 15 in 100 patients in low resource countries will experience a HCAI. In high-resource countries, the overall HCAI prevalence is 7.6% (range: 3.5-12%) . While the data from low resource countries is incomplete and fragmented, it consistently suggests significantly higher rates exceeding 25%.

1. Based on the given context, develop research questions. 5
2. What will be the objectives of this study? 5
3. Who will be your potential participants conducting this study and why will you select them? 2+3
4. Select appropriate data collection methods that would be suitable to meet your research question and why will you select these methods? 2+3
5. Develop data collection guidelines for one category of participants/methods. 5
6. What type of qualitative data analysis method will you follow for this study? How would it be related to the study data? 2+3

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**Code: ANP-602**  
**Full marks: 40, Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any 4 questions from the following)

- 1 What is anthropology? What are the main branches of anthropology? Discuss the importance of anthropology in public health. 2+2+6
- 2 Define culture. Write five characteristics of culture with examples in the context of Bangladesh. 2+8
- 3 What is biological anthropology? What are the main areas of biological anthropology? Discuss diseases of hunter-gatherer society, including epidemic situations. 2+2+6
- 4 Define 'medical anthropology,' veterinary anthropology' and 'anthropology of infectious disease'. Give two examples of anthropological contributions to infectious disease control strategy in the context of Bangladesh. 2+2+2+4
- 5 Write two anthropological perspectives of one health approach. Discuss social and behavioral aspects of public health in Bangladesh 4+6

Chattogram Veterinary and Animal Sciences University

MPH (One Health)

July-December 2021

Subject: Molecular Epidemiology

Course code: MOE 602

Total marks: 40

Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

- 1 a Define DNA. Explain its double helical structure 5.0  
Explain transcription process. What is the difference eukaryotic mRNA with prokaryotic mRNA 5.0
- 2 a What is transgenic animal and mention the benefits of it? Explain in diagram by what are ways to produce a transgenic mice. 10.0
- 3 a What do you mean by genomic library? How can you identify right clone from a genomic library, describe it with a diagram. 5.0  
b Explain how can you extract and purify nucleic acids from the cell. 5.0
- 4 a Explain gene knock out process 10.0
- 5 a What is gene sequence? Explain Sanger sequencing method with diagram. 10.0



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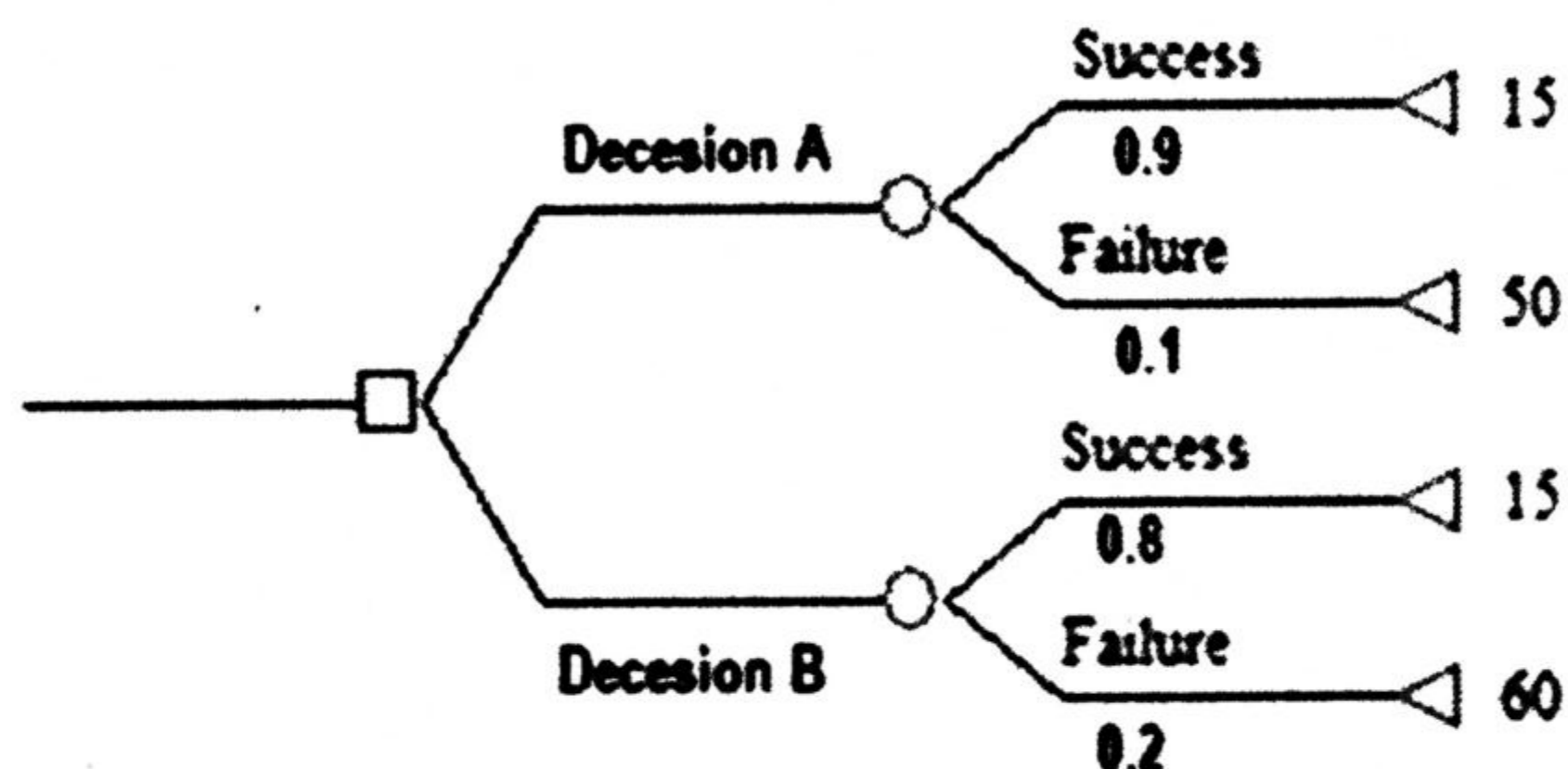
**Course title: Health Economics, Policy Planning and Ethics (Practical)**

**Code: HEP-602**

**Full marks: 20, Time: 1 hour**

(Answer any 4 questions from the following. Each question contains equal mark (4X5))

1. A manufacturer produces two Models of ophthalmoscope - Model X and Model Y. Model X takes 6 man-hours to make per unit, while Model Y takes 10 man-hours per unit. There is a total of 450 man-hour available per week. Handling and Marketing costs are USD 20 and USD 10 per unit for Models X and Y respectively. The total funds available for these purposes are USD 800 per week. Profits per unit for Models X and Y are USD 10 and USD 5, respectively. How many ophthalmoscope of each model should the manufacturer produce so as to yield a maximum profit? Find the maximum profit using the linear programming method.
2. Calculate the expected monetary value for decisions A and B. The values in terminal nodes are the cost of the natural state of the decision in US\$. The probability of the natural states to occur could be found beneath the respective line. What option will you choose?



3. The following table gives the cost increase in life years and rating of the quality of life for four different treatments.

Treatment	Cost	Increase in life years	Rating of quality of life	QUALY	Cost: QUALY
A	500	13	0.30		
B	750	20	0.34		
C	600	15	0.32		
D	800	21	0.36		