

KATHMANDU UNIVERSITY
End Semester Examination
August, 2018

Mark scored:

Level : B.Sc.
Year : III

Course : ENV5 303
Semester: II

Exam Roll No.:

Time: 30 mins.

F. M. : 20

Registration No.:

Date **AUG 15 2018**

SECTION "A"

[20 Q. × 1 = 20 marks]

Encircle the most appropriate answers from the given choices.

1. Economics is the study of
 - a. how to make money.
 - b. people making choices because of the problem of scarcity.
 - c. how to operate a business.
 - d. the government decision-making process.
2. The cost of material and labor used in a product or service are examples of:
 - a. Fixed cost
 - b. Variable cost
 - c. Overhead cost
 - d. Standard cost
3. The law of demand states that the quantity demanded of a good change, other things being equal, when
 - a. the price of the good changes.
 - b. consumer income changes.
 - c. the prices of other goods change.
 - d. a change occurs in the quantities of other goods purchased.
4. You are on a committee that is considering ways to raise money for your city's symphony program. You would recommend increasing the price of symphony tickets only if you thought the demand curve for these tickets was
 - a. inelastic.
 - b. elastic.
 - c. unitary elastic.
 - d. perfectly elastic.
5. Suppose the equilibrium price set by supply and demand is lower than the price ceiling set by the government. The eventual result will be
 - a. a shortage.
 - b. that quantity demanded is equal to quantity supplied.
 - c. a surplus.
 - d. a black market.
6. The cost that has occurred in the past and has no relevance to estimates of future costs and revenues related to an alternative course of action is referred to as
 - a. incremental cost
 - b. sunk cost
 - c. indirect cost
 - d. opportunity cost
7. The length of time required for money to quadruple in value at an interest rate of 6% per year is nearest to :
 - a. 12 years
 - b. 24 years
 - c. 18 years
 - d. 30 years
8. What is the decision rule of cost benefit analysis?
 - a. Select the project if the B/C ratio is greater than 1
 - b. Select the project if the B/C ratio is less than 1
 - c. Select the project if the B/C ratio is negative.
 - d. Select the project if the B/C ratio is 0

9. An example of a variable input is
 a. raw materials. b. energy. c. hourly labor. d. all of the above.
10. The Tragedy of the Commons is said to arise because:
 a. individuals will fish so long as the marginal private costs equal the marginal private benefits.
 b. individuals will fish so long as the marginal social costs equal the marginal private benefits.
 c. individuals will convert open access property into private property
 d. individuals will convert open access property into common property
11. Which of the following is not a resource?
 a. Land b. Labor c. Money d. Capital
12. Social costs are
 a. the full resource costs of an economic activity.
 b. usually less than private costs.
 c. the costs of an economic activity borne by the producer.
 d. all of the above.
13. As a general rule, if pollution costs are external, firms will produce
 a. too much of a polluting good.
 b. too little of a polluting good.
 c. an optimal amount of a polluting good.
 d. an amount that cannot be determined without additional information.
14. Pollution from cars is an example of
 a. a harmful opportunity cost. b. a negative externality.
 c. a production dislocation. d. none of the above.
15. A project has \$15,000 in annual worth of benefits, \$5,000 in annual worth of disbenefits and \$5,000 in annual worth in cost. What is the benefit cost ratio?
 a. 2 b. 1 c. 3 d. 0
16. Which of the following is the *best* example of a public good?
 a. Pencils b. Education c. Defense d. Trucks
17. A person cannot be excluded from consuming a public good, even when the person does not pay for the good. This characteristic of public good is called
 a. non rivalry b. rationality c. non excludability d. transitivity
18. What rate of interest compounded annually is the same as the rate of interest of 8% compounded quarterly?
 a. 8.07% b. 8.12% c. 8.16% d. 8.24%
19. A public good may be defined as any good or service that
 a. allows users to collectively consume benefits.
 b. must be distributed to all citizens in equal shares.
 c. is never produced by government.
 d. is described by answers (a) and (c) above
20. The estimated value of a property at the end of its useful life is
 a. Market value b. Salvage value c. Book value d. Original value

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Year : III
Time : 2 hrs. 30 mins.

Course : ENVS 303
Semester: II
F. M. : 55

SECTION "B"

Attempt *ANY FIVE* the questions. Missing parameters can be assumed suitably.

- 1.a. There is often litter along highways but rarely in people's yards. Provide an economic explanation for this fact. [2]
- b. Suppose that the price of basketball tickets at your college is determined by market forces. Currently, the demand and supply schedules are as follows: [5]

Price	\$4	\$8	\$12	\$16	\$20
Quantity Demanded tickets	1,000	8,000	6,000	4,000	2,000
Quantity Supplied tickets	8,000	8,000	8,000	8,000	8,000

- i. Draw the demand and supply curves. What is unusual about this supply curve? Why might this be true?
- ii. What are the equilibrium price and quantity of tickets?
- iii. Your college plans to increase total enrollment next year by 5,000 students. The additional students will have the following demand schedule:

Price	\$4	\$8	\$12	\$16	\$20
Quantity Demanded tickets	4,000	3,000	2,000	1,000	0

Now add the old demand and the additional demand for the new students to calculate the new demand schedule for the entire college. What will be the new equilibrium price and quantity demanded?

- c. How much money should be deposited each year for 12 years if you wish to withdraw \$309 each year for five years, beginning at the end of the 14th year? Let $i = 8\%$ per year. [4]
- 2.a. Define common resource with few examples. How do people use common resources when there is no government intervention? Explain. [3]
- b. A survey shows an increase in drug use by young people. In the scenario two hypotheses are proposed: [4]
- Reduced police efforts have increased the availability of drugs on the street.
 - Cutbacks in education efforts have decreased awareness of the dangers of drug addiction.
- i. Use supply-and-demand diagrams to show how each of these hypotheses could lead to an increase in quantity of drugs consumed.
- ii. How could information on what has happened to the price of drugs help us to distinguish between these explanations?
- c. The equilibrium price of coffee mugs rose sharply last month, but the equilibrium quantity was the same as ever. Three people tried to explain the situation. Which explanations could be right? Explain your logic with diagram. [4]
- Billy: Demand increased, but supply was totally inelastic.
Marian: Supply increased, but so did demand.
Valerie: Supply decreased, but demand was totally inelastic.

- 3.a. Many observers believe that the levels of pollution in our society are too high. [5]
- If society wishes to reduce overall pollution by a certain amount, why is it efficient to have different amounts of reduction at different firms?
 - Command-and-control approaches often rely on uniform reductions among firms. Why are these approaches generally unable to target the firms that should undertake bigger reductions?
 - Economists argue that appropriate corrective taxes or tradable pollution rights will result in efficient pollution reduction. How do these approaches target the firms that should undertake bigger reductions?

- b. Five mutually exclusive alternatives are being considered for providing a sewage-treatment facility. The annual equivalent costs and estimated benefits of the alternatives are as follows: [6]

Alternative	Annual Equivalent (in thousands)	
	Cost \$	Benefits \$
A	1,050	1,110
B	900	810
C	1,230	1,390
D	1,350	1,500
E	990	1,140

- Which plan(s) should be adopted, if any, if the Sewage Authority wishes to invest any amount required, provided that the B-C ratio on the required investment is at least 1.0?
 - Suppose that 10% of the costs of each plan are reclassified as disbenefits. What percentage change in the B-C ratio of each plan results from the reclassification?
 - Comment on why the rank-orderings in (i) are unaffected by the change in (ii).
 - What plan should be selected, if these projects are mutually exclusive?
- 4.a. Suppose your instructor gives eight homework assignments during the semester. She indicates that anyone who does not turn in all eight assignments will automatically fail the course. Is this an example of a command-and-control or an incentive-based regulation? Explain any inefficiencies of your instructor's approach. [3]
- b. You are considering whether to buy one house for \$100,000 or another identical house located near high-voltage electric power lines for \$90,000. Assume that it has been established that living near high-voltage lines increases the risk of cancer due to electromagnetic fields (EMFs). If you choose the \$90,000 house, is the radiation from EMFs an externality? Explain. [4]
- c. Charlie loves watching Situational Comedy on his local public TV station, but he never sends any money to support the station during its fundraising drives. [4]
- What name do economists have for people like Charlie?
 - How can the government solve the problem caused by people like Charlie?
 - Can you think of ways the private market can solve this problem? How does the existence of cable TV alter the situation?
- 5.a. Evaluate the following statement: "When products pollute, government solutions are more efficient than market solutions." [3]

- b. Provide an example of a market where you think the Coase Theorem applies. Explain why you think the market satisfies assumptions regarding transactions costs, income effects, and free riders. [3]
 - c. If we are to take action against global warming, we must reduce carbon emissions. Explain how to reduce carbon emissions by using [3]
 - i. command-and-control regulation.
 - ii. an effluent tax.
 - iii. emissions trading
 - d. Become a Millionaire by Saving \$1.00 a Day! "If you are 20 years of age and save \$1.00 each day for the rest of your life, you can become a millionaire." Verify the statement. [2]
- 6.a. There are three industrial firms in Happy Valley. [5]

Firm	Initial Pollution Level	Cost of Reducing Pollution by 1 Unit
A	70	20
B	80	25
C	50	10

The government wants to reduce pollution to 120 units, so it gives each firm 40 tradable pollution permits.

- i. Who sells permits and how many do they sell? Who buys permits and how many do they buy? Briefly explain why the sellers and buyers are each willing to do so. What is the total cost of pollution reduction in this situation?
 - ii. How much higher would the costs of pollution reduction be if the permits could not be traded?
- b. Write short notes (*ANY TWO*) [6]
- i. Behavioral Economics for environmental policy
 - ii. Emerging trends in Environmental Economics
 - iii. Fixed Cost and Variable Cost

Use following formulas if needed:

Uniform Series

$$(F/A, i, N) = \{(1 + i)^N - 1\}/i$$

$$(P/A, i, N) = \{(1 + i)^N - 1\}/\{i(1 + i)^N\}$$

Gradient Series

$$\left\{ \frac{1}{i} \left[\frac{(1+i)^N - 1}{(1+i)^N} - \frac{N}{(1+i)^N} \right] \right\}$$

