

KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Marks scored: _____

Level : B.Sc.

Year : III

Exam Roll No. :

Time: 30 mins.

Course : ENVS 336

Semester : II

F.M. : 20

Registration No.:

Date :

SECTION "A"
[10Q × 0.5 = 5 marks]

Mark [X] in the most appropriate option.

- An increase concentration of toxin in tissues or internal organs of living organisms as it moves up through the successive levels of food chain is
 Bioaccumulation Biomagnification
 Bioremediation Biotransformation
- Rachael Louise Carson, who is also considered as a mother of environmental toxicology published a ground-breaking book, entitled "Silent Spring" in 1962. Which environmental issue was mainly covered by this book?
 Deteriorating air quality Marine pollution
 Microplastic trash Uncontrolled pesticide use
- According to WHO datasheet updated in 2016, environmentally attributed diseases hold considerable percentage of share in overall global burden of disease. What is the shared percentage?
 13% 23% 33% 43%
- International Agency for Research on Cancer (IARC) has classified Particulate Matter, under Group 1 in IARC monographs. What does it indicate in terms of carcinogenicity?
 Carcinogenic to human Probably carcinogenic to human
 Possibly carcinogenic to human Probably not carcinogenic to human
- Teratogenic have the _____
 Ability to disturb embryo development Capacity to cause still birth
 Ability to disturb genetic coding Potential to cause cancer
- The final step of health risk assessment process is _____
 Hazard Identification Hazard Characterization
 Exposure Assessment Risk Characterization
- Percival Pott was the pioneer to establish a correlation between a particular cancer among chimney sweeps due to their nature of work. Which cancer is it?
 blood cancer lung cancer prostate cancer scrotal cancer

20. TLV-Time Weighted Average takes into account working schedule of _____ hours per week.
21. Short Term Exposure Limit refers to the maximum concentration of toxic vapors that a person can be subjected to for the duration of _____ without any adverse health hazard.
22. Ceiling Limit is the concentration of harmful substances that should _____ during any part of the work day.
23. Absorption occurs at _____ rate until it reaches the equilibrium.
24. Nephrotoxin, have the potential to damage _____.
25. _____ can broadly be categorized into observational studies and experimental studies.
26. The ratio between the incidence of disease among exposed and non-exposed is called as _____.
27. In _____ study, disease distribution in a population is described in terms of time, place and person.
28. If $OR > 1$, it indicates that the chances of exposure to a particular risk factor is _____ among cases than among controls.

SECTION "C"
[5 Q × 1 = 5 marks]

Define in *ONE* sentence.

29. Hazard
30. Biologically active dose
31. Hand Arm Vibration Syndrome
32. Randomized Control Trial
33. LD₅₀



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Level : B.Sc.
Year : III
Time : 2 hrs. 30 mins.

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Semester : II
F. M. : 55

SECTION "D"
[3Q. × 7= 21 marks]

1. An employee is exposed to a compound "X" as per the following exposure profile. If 8-hour TWA limit of the compound is 120 ppm. calculate its TWA and determine if the workplace exposure acceptable. Also, elaborate the various forms of TLVs.

Time	Average exposure
8:00 – 9:00 am	400 ppm
9:00 – 11:00 am	600 ppm
1:00 – 3:00 pm	10 ppm
3:00 – 4:00 pm	100 ppm
4:00 – 6:00 pm	300 ppm

2. What are the various types of hazards in occupational settings? Explain with suitable examples. Also, highlight the major prevention and control measures.
3. Define environmental epidemiology. Elaborate different epidemiological studies with suitable examples.

OR

In a study 4,000 smokers and 12,000 non smokers were followed for over a period of 15 years to find out the incidence of lung cancer. Among the smokers, 60 developed lung cancer compared to non smokers of which 30 developed lung cancer. What type of study is this? Draw 2×2 table, calculate the relative risk and interpret the result.

SECTION "E"

4. Write short notes on: [4 Q × 3 =12]
- Risk assessment matrix
 - Routes of exposure
 - Migrant workers as occupational work forces
 - Occupational musculoskeletal disorders
5. Differentiate between: [4 Q × 1.5 = 6]
- Primary and secondary prevention
 - NOAEL VS LOAEL
 - Toxicokinetics and toxicodynamics
 - Ionizing and non-ionizing radiation

6. List the factors for evaluating the following: [3 Q × 2 = 6]
 a. Grades of sprain
 b. Evaluating workers exposure
 c. Epidemiological triad model of disease causation

7. Give reasons: [2 Q × 2 = 4]
 a. Risk communication is crucial in risk management
 b. Exposure standards are not the fine lines between the safe and unsafe

8. Solve the following: [2 Q × 3 = 6]
 a. Calculate the odd ratio based on the following information and interpret it.

Cluster	Risk Factor	
	Present	Absent
Case	60	440
Control	15	130

- b. Complete the following health hazard pathway and interpret briefly.

