

**PSG COLLEGE OF ARTS & SCIENCE**  
**(AUTONOMOUS)**

**MSc DEGREE EXAMINATION DECEMBER 2025**  
(First Semester)

Branch – ENVIRONMENTAL SCIENCE

# ENVIRONMENTAL TOXICOLOGY AND HEALTH

Time: Three Hours

**Maximum: 75 Marks**

### SECTION-A (10 Marks)

**Answer ALL questions**

**ALL questions carry EQUAL marks**

 $(10 \times 1 = 10)$ 

1	All of the following are complications of urinary alkalisation except a Hypokalaemia                      b Dehydration c Hypocalcaemia                    d Alkalaemia	K2	CO1
2	Detoxification of some substances in the human organism is carried out by conjugation. Point the substance that is conjugated with benzoic acid to form hippuric acid a Valine                                  b Leucine c Glycine                                 d Methionine	K2	CO1
3	What is the term for the concentration of a substance that is lethal to 50% of the exposed population within a specified time? a Lethal dose ( $LD_{50}$ )                  b Lethal concentration ( $LC_{50}$ ) c Threshold Limit Value (TLV)      d Permissible Exposure Limit (PEL)	K1	CO2
4	Carcinogens that are ingested are most likely to affect which organ or system? a Brain                                    b Liver c Skin                                      d Lungs	K1	CO2
5	Which of the following is a potential health effect of polychlorinated biphenyls (PCBs)? a Respiratory diseases b Cardiovascular diseases c Reproductive and developmental disorders d Neurological disorders	K1	CO3
6	Which of the following following is/are correct with respect to phthalates? 1. Phthalates are a family of chemicals used to improve the plasticity of several consumer products 2. It is banned in the use of cosmetic products and toys in India. Select the correct options using the codes given below: a 1 only                                    b 2 only c Both 1 and 2                          d Neither 1 nor 2	K2	CO3
7	What is the primary route of exposure to mercury in humans? a Inhalation of mercury vapor b Injection c Ingestion of contaminated food or water d Dermal absorption	K1	CO4
8	Which of the following is a major health concern associated with asbestos exposure? a Gastrointestinal disorders          b Lung cancer c Cardiovascular diseases              d Neurological disorders	K1	CO4
9	Biomagnification is a well known phenomenon for a Mercury                                 b DDT c Silver                                      d Both a and b	K2	CO5
10	Which is known by the nickname "Monday fever" due to its classic pattern of symptoms? a Anthracosis                              b Silicosis c Byssinosis                                d Siderosis	K2	CO5

**Cont...**

**SECTION – B (35 Marks)**

Answer ALL Questions

ALL Questions carry EQUAL marks

(5 x 7 = 35)

11	a	Demonstrate the acute, sub-acute and chronic toxicities as per OECD guidelines.	K3	CO1
		OR		
	b	Illustrate the difference between teratogens and mutagens with examples.	K3	CO1
12	a	Distinguish the allergic and idiosyncratic reactions with examples.	K4	CO2
		OR		
	b	Why are most dose-response curves S-shaped (sigmoidal)?	K4	CO2
13	a	Explain the impacts of synthetic pyrethroids on human and animal health.	K5	CO3
		OR		
	b	Evaluate the impacts of hydrocarbons on marine environment.	K5	CO3
14	a	Analyse the existing scenario of fluoride contamination in India.	K4	CO4
		OR		
	b	Examine the mode of action of any one of the endocrine disruptor.	K4	CO4
15	a	Explain the mechanism of biomagnification with example.	K5	CO5
		OR		
	b	Determine the possible symptoms and treatment of anthracosis.	K5	CO5

**SECTION – C (30 Marks)**

Answer any THREE Questions

ALL Questions carry EQUAL marks

(3 x 10 = 30)

16	Explain the two phase process involved in the mechanism associated with toxins.	K5	CO1
17	Examine the factors influencing toxicity pertaining to substance, organism and exposure.	K3	CO2
18	Analyse the mechanism of action in organochlorine and organophosphate pesticides in human health with examples.	K4	CO3
19	Critically analyze the global scenario related to the impacts of heavy metals on agricultural soils and human health.	K4	CO4
20	Differentiate the phase I and phase II reactions of biotransformation.	K5	CO5

Z-Z-Z END