

(A-80)

SARDAR PATEL UNIVERSITY
M. Sc. -Integrated Biotechnology – Eighth Semester Examination
Saturday, 25th April 2015
Time: 02:30 pm to 05:30 pm
PS08CIGEB3: Environmental Toxicology

Total Marks – 70

Q.1 Mark the right answer of following questions. [08]

1. Cadherin plays important role in toxicant _____ for Cd toxicity.
 a. Modification b. Transformation c. Adhesion d. Both a & b
2. Toxic effect of aniline is due to _____.
 a. Oxidation b. Reduction c. Halogenation d. Sulphonation
3. Which is NOT a common example of replacement of Zn by Cd in inhibition of enzyme activity?
 a. Monooxygenase c. Alcohol dehydrogenase
 b. Adenosine triphosphate d. Carbonic anhydrase
4. Which aromatic compound is responsible for hyper pigmentation?
 a. Anthracene c. Polychlorinated compounds
 b. Phenol d. Aromatic carboxylic acid
5. Acrolein is an example of _____ toxin.
 a. Fungal b. Algal c. Bacterial d. Vascular
6. In which epigenetic pathway modification of CpG sites are targeted?
 a. Histone modification c. Histone and DNA modifications
 b. DNA methylation d. Nucleosome remodeling
7. From the following, Which one is true about bio-refractory compound?
 a. Accumulate in environment c. Not necessarily toxic to organism
 b. Resist metabolic attack d. All of these
8. Aflatoxin is produced by _____ fungi.
 a. *Trichoderma sp.* b. *Aspergillus sp.* c. *Fusarium sp.* d. *Penicillium sp.*

Q.2 Answer the following questions. (ANY SEVEN OUT OF NINE) [14]

1. Differentiate endogenous and xenobiotic substances.
2. Write the sources and effects of lead toxicity.
3. Write any four examples of biomarkers used in measurements of toxicity.
4. Define Acute toxicity, Forensic toxicology, Ecotoxicology and Toxicant.
5. Differentiate phase I and Phase II reactions.
6. Write different categories of toxic substances.
7. Define mycotoxin. Write the examples, mode of action and sources of any two mycotoxins.
8. Mention the mechanisms of organophosphorus pesticides toxicity.
9. Enlist organo-nitrogen compounds. Write the structure of any two organo-nitrogen compounds.

- Q.3 A. Define alcohol dehydrogenation. Summarize epoxidation of benzo(a)pyrene and metabolic oxidation of N, S and P in xenobiotic compounds. [06]
- B. Give any two examples of biochemical mechanisms of toxicity. Write any four examples of phase II reactions. [06]

OR

- B. Discuss modes of transfer of toxic substances in the environmental spheres. Write a brief note on bioconcentration and biotransfer factors. [06]
- Q.4 A. Mention the mechanisms of oncogene activation. Discuss various steps of carcinogenesis. [06]
- B. Write short notes on the following: [06]
1. Epigenetics and DNA methylation 2. UV radiation effects on DNA

OR

- B. What are the mechanisms of metals toxicity? Write detailed note on cadmium and lead toxicity. [06]
- Q.5 A. What is dose-response relationship? Explain the toxicity influencing factors in detail. [06]
- B. Describe various routes of exposure of toxicants in detail. [06]

OR

- B. Classify various toxic agents. Write important reactions of toxicants with targeted tissues. [06]
- Q.6 A. Define natural toxins. Write classification and explain each class of natural toxins with appropriate examples. [06]
- B. Outline ethers, esters and carboxylic acids as organooxygen toxicants. [06]

OR

- B. Draw the structure and write the toxic effects of nitriles, nitrosoamine, isocyanates and carbamates in detail. [06]