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SARDAR PATEL UNIVERSITY
M. Sc. -Integrated Biotechnology – Eighth Semester Examination
Saturday, 02nd April 2016
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. _____ UV absorbing pigment is present in lichens.
a. Flavanoids b. Mycosporine c. Scytonemin d. Parietin e. Melanin
2. β -Propioacetone is an example of _____ carcinogen.
a. Naturally occurring b. Synthetic c. Primary d. Proximate e. Procarcinogen
3. Nucleophilic cyanide binds with Fe^{+3} in _____ enzyme preventing the utilization of O_2 in respiration.
a. Ferricytochrome reductase c. Ferricytochrome deacetylase
b. Ferricytochrome synthtase d. Ferricytochrome oxidase
4. Carbon monoxide is an example of _____ category of toxic substance.
a. Oxidizing species b. Binding species c. Chemical species d. Lipid soluble compounds
5. Methanol has been responsible for the deaths of many humans, due to _____.
a. Lipid peroxidation b. Acidosis c. Acidemia d. Calcium oxalate formation in kidney
6. From the following _____ neurotransmission system is affected by lead (Pb) leads to mental retardation.
a. Dopaminergic b. Cholinergic c. Glutamatergic d. All of these e. None of these
7. Which property of toxic substance is greatly influence toxicity of substance.
a. pH b. Temperature c. Concentration d. a & c both e. All of these
8. _____ non-aromatic amines are used as intermediates in the manufacture of rubber, plastic and textiles.
a. Lower aliphatic amines b. Fatty amines c. Alkyl polyamines d. Cyclic amines

Q.2

Answer the following questions. (ANY SEVEN OUT OF NINE)

[14]

1. What are the major toxicological effects of ethanol?
2. Explain conjugation by amino acids of phase II reactions.
3. Write sources and any four adverse effects of lead (Pb) on living beings.
4. Explain epoxidation and hydroxylation of Benzo(a)pyrene.
5. Define environmental toxicology and Dose & Response.
6. What are genotoxins? Give names of any two tests to confirm genotoxicity.
7. What is the reaction $R_3N + H_2O \rightarrow R_3NH^+ + OH^-$ show about the toxicity of amines? Explain.
8. Write DNA methylation and histone modification in brief.
9. Enlist carcinogenic agents with appropriate examples.

- Q.3 A. Illustrate various mechanisms of oncogene activation. Explain the process of carcinogenesis in detail. [06]
B. Discuss the types of UV radiation and the factors responsible for variation in UV level. [06]
Write a note on mutagenic effects induced by UV radiation.

OR

- B. What are the sources of Cd? Write the metabolism and adverse effects of Cd in humans. [06]

- Q.4 A. Write short notes on: [06]
1. Bioconcentration factor, Biotransfer factor and Bioconcentration by vegetation
2. Biomarkers of ecotoxicology

- B. Outline biochemical mechanisms of toxicity and interference with enzyme action. [06]

OR

- B. Explain methylation, conjugation by sulfate and glutathione conjugation. [06]

- Q.5 A. Summarize the toxicological effects of phenol, ether and carboxylic acids. [06]
B. Write the general formula of isocyanate. Discuss the toxicological effects of isocyanates and carbamates. [06]

OR

- B. Write the examples of toxins produced by molds. Give various examples of toxic substances produced by plants with its appropriate toxicological mode of action. [06]

- Q.6 A. Enlist and discuss various routes and sites of exposure and distribution of toxicant in the body. [06]

- B. Discuss risk assessment methodologies of toxic agents with appropriate examples [06]

OR

- B. Classify various toxic agents. Write important reaction of toxicant with targeted tissues. [06]

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