[93/125] SEAT No._____ No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

M.Sc Biochemistry/ Zoology, II Semester Examination (CBCS)

Monday, 20 - 03 -2019, 2.00 p.m. to 5.00 p.m.

Subject: PS 02 CBIC 22/ PS02 CZOO 22, Toxicology

Max Marks : 70

Q.1 Choose the most correct answer for the following questions. **(08 marks)**

1. The gut bacteria and conditions in the gastrointestinal tract convert the naturally occurring compound cycasin, methylazoxymethanol glycoside, into methylazoxymethanol, which one of these compound toxic?
   (a) Methylazoxy methanol
   (b) Both, cycasin and methylazoxy methanol
   (c) methylazoxy methanol glycoside
   (d) none of the above

2. CYP enzymes are _____ specific toward their substrates
   (a) Absolutely (b) Broadly (c) Stereospecific (d) None of the above

3. Which of the following parameters are NOT considered in Dose –response relation?
   (a) Concentration of toxicant (b) Route of exposure (c) Frequency of exposure(d) both b & c

4. Which insecticide is present in Chrysenthemum?
   (a) Pyrethrum (b) Malathion (c) Pheromones (d) Carbaryl

5. Which of the following is an important gasoline additive?
   (a) Mercury chloride (b) Tetraethyl lead (c) Arsenic tetroxide (d) Cadmium

6. Ames test is used to check _____ of the substances
   (a) toxicity
   (b) teratogenicity
   (c) mutgenicity
   (d) carcinogenicity

7. Plumbism occurs due to
   (a) Chronic lead poisoning
   (b) arsenic poisoning
   (c) cadmium poisoning
   (d) mercury poisoning.

8. Living organisms can show many kinds of toxic or adverse response to exposure of toxicant, which of the following can serve as a biomarker of response
   (a) increase in enzyme activity
   (b) subcellular pathogenic changes
   (c) metabolic dysfunction
   (d) all of the above

Q.2 Answer **ANY SEVEN** of the following questions in brief: (7x2=14)

1. Define toxicant and state the factors influencing toxicity of toxicants.
2. What is the necessity of toxicity testing?
3. What is first pass metabolism? Is it a part of pharmacokinetics or pharmacodynamics?
4. Give examples and explain, a toxic effect may be direct or indirect or systemic or local.
5. Write a brief note on artificial sweetners.

C.P.T.O.

6. Explain the toxic effect caused by Reactive Oxygen Species (ROS) in cells.
7. Differentiate between toxicokinetics and toxicodynamics.
8. How pheromones can be used to control insects?
9. Name a few antidotes of mercury poisoning.

Q.3 (a) What is LD_{50}? How can we determine LD_{50}? Discuss in brief why a traditional LD_{50} determination is obsolete? (06)

(b) Explain the metabolism of paracetamol and toxicity that occur due to it's over dosage. (06)

OR

(b) Explain the metabolism of methanol and its toxicity and antidote. (06)

Q.4 (a) Classify the following enzymes as Phase I or Phase II reaction enzymes and narrate their importance in brief. (06)

(i) Cytochrome P 450 oxidase (iii) Flavin monooxygenase (v) Glutathione transferase
(ii) Epoxide hydrolase (iv) UDP glucuronosyl transferase (vi) Alcohol dehydrogenase

(b) Explain the effects of simultaneous exposure of two substances in each of the following case: (06)

i. Carbon tetrachloride and ethanol together are more toxic to the liver than each separately
ii. A drug Disulphiram, which in non-toxic, causes toxicity due to intake of alcohol
iii. Vanillin, a flavor in ice-cream is non-toxic, but when paracetamol is also consumed in high dose, it causes liver damage

OR

(b) What is Ames test? Explain. (06)

Q.5 (a) Write a brief note on anticholinesterase insecticides. (06)

(b) Explain the mode of action of herbicides and fungicides. (06)

OR

(b) Explain the additives used in food industries. (06)

Q.6 (a) Explain the source and toxicity of Cadmium. (06)

(b) What are environmental effects of Sulfur oxide pollution (06)

OR

(b) Explain the Green house effects and its implications. (06)

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