



Toxicology Exam. (4 pages)

All Questions are to be attempted

QUESTION # :1

(26 marks)

I-(A) - Give Name (s) for each of the following: (12.5 marks)

1. The characteristic behavioral changes that may be the first indication of damage to the nervous system. (1. 5 M.)
2. The condition of wasting of brain matter leading to expansion of fluid - filled brain cavities. (1M.)
3. **Two** side effects of **chronic** tobacco smoking. (2 M.)
4. The contaminant that is formed during the manufacture of chlorophenoxy herbicides. (1 M.)
5. **Four** side effects of Cocaine overdose. (2 M.)
6. **Two** causes of fatty liver. (2 M.)
7. **Three** drawbacks of tobacco smoke in **Women**. (1. 5 M.)
8. The mechanism of action of fluoroacetate (Compound 1080). (1. 5 M.)

I - (B) - Answer the following questions: (13.5 marks)

- 1- Give reason(s) of: hyperthermia that accompany overdose of amphetamine. (1M.)
- 2- Give three reasons of: Neurotoxicity. (3 M.)
- 3- Mention the effect of the enzyme inducer, 3-methylcholanthrene on hepatotoxicity induced with bromobenzene and with acetaminophen. (2 M.)
- 4- Give reason(s) of: the cellular damage that follow chronic use of large amounts of alcohol. (1 M.)
- 5- Why insecticides containing pyrethrins usually contain piperonyl butoxide. (1.5M.)
- 6- Give reason(s) of: the alcohol - induced hyperuricemia. (1 M.)
- 7- Mention the cause and main sign of organophosphate delayed polyneuropathy (OPDPN). (2 M.)
- 8- Give reason(s): many organochlorine insecticides have now been obsolete. (2M.)

QUESTION # :2

(36 marks)

A) Select the right answer(s). Wrong selection will cancel one from the right (12 marks)

1- Regarding to carbon monoxide (CO) toxicity:

- a) mannitol should be given promptly
- b) CO is a colorless, odorless and irritating gas
- c) At high altitude, oxygen tension is low
- d) The affinity of hemoglobin for CO is 20 times greater than for oxygen

2- Unintentional food additives is/are

- a) antibiotics
- b) microorganism
- c) labeling and stamping materials
- d) radioactive compounds
- e) all of the above

3- Ozone:

- a) produces dwarfing to vegetation
- b) stratospheric one located from 0-10 miles above earth's surface
- c) is a highly irritating gas
- d) can produce green house effect

4- All the following regarding to acute ethylene glycol poisoning is/are true except:

- a) it shares many of the characteristics of methanol poisoning
- b) the full clinical picture may take up to 72 hours to develop
- c) the three proposed metabolites were all more toxic than was ethylene glycol
- d) nystagmus occurred at the late phase

5-About preservatives:

- a) Sorbates are particularly effective against molds and yeasts
- b) benzoic acid and sod. Benzoate is most active in acidic medium
- c) Nitrates and nitrites are used in curing
- d) Sod. Benzoate is more active against bread mold than calcium propionates

6-In the treatment of Pet. Distillates poisoning:

- a) olive oil is safer than magnesium sulfate
- b) the patient should be made to vomit
- c) the complication of pneumonia is twice as high for the gastric lavage treated patients
- d) presence of gag reflex is essential to perform gastric lavage

7- Concerning nonnutritive sweeteners:

- a) Saccharin was banned in Canada due to its bitter aftertaste
- b) Aspartame is suitable for individuals less than 14 years old
- c) Nutra Sweet composed of 3 naturally occurring amino acids
- d) Cyclamate alone did not possess carcinogenic potential

8- In cyanide intoxication:

- a) It directly stimulates the chemoreceptors of the carotid and aortic bodies to produce a brief period of hyperpnea
- b) It has a high affinity for ferric iron
- c) Laetrile only produces cyanide toxicity by parenteral administration
- d) Nitrite followed by thiosulfate decreases the LD₅₀ of cyanide

B) A 5-year-old male reports to the Emergency Department with his mother, continuously crying and "doesn't want to play or eat" for the last few days. The mom also states that the baby has not had regular bowel movement, with mostly constipation and occasional diarrhea and frequently complains of abdominal pain. This baby now has an altered level of consciousness, is difficult to arouse and begins to seize. The clinician rules out infection and other medical causes. Upon questioning, the mother states that the house is an older neighborhood, that her house has not been remodeled or repainted since 1940s, and that the paint is chipping around the windows and doors. The child is breathing on his own and urinating normally. Suggest only one poison you expect to be causing such severe effects in this child? (3 Marks)

C) Fill in blanks, just write the number and in front the missed word(s) in your answer paper. (21 marks)

- a) Epinephrine should be avoided in the treatment of pet. Distillates because(1).....
- b) Botulinum toxins prevent the(2)..... of acetylcholine while Tubocurarine prevents its(3).....
- c) Mesothelioma could be produced by(4).....
- d)(5)..... is a solid particles (0.05-1.0 μm) result from incomplete combustion of fuels.
- e) The major mechanism of removing cyanide from the body is its enzymatic conversion by the mitochondrial(6)..... enzyme to(7)..... a non toxic compound.
- f) Any pollutant that results due to human activity is termed as(8)..... pollutant.
- g)(9)..... is an oil soluble coloring agent used to color butter and margarine.
- h)(10)..... is a toxio that present in Fugu.
- i) The most hazardous insecticides are(11)..... such as(12)..... and(13).....
- j) Hematemesis means(14)....., while.....(15)..... means edema of the optic disc.
- k) Strong acids flow the lesser curvature of the stomach to reach(16)..... to cause coagulative necrosis.
- l) Ingested nitrates can be converted to(17)..... by intestinal bacteria, then in the circulation.....(18)..... is formed which produce in children a disease called(19).....
- m) Caustic alkalis react with protein to form(20)....., while react with fat to produce(21).....

QUESTION # :3**(18 marks)**

A-Mark true (T) or false (F) in the front of the following sentences, Correct the false one:

ملحوظة: الخطا المطلوب اصلاحه يتمثل في كلمة واحدة فقط

- 1- In the initiation/promotion model of chemical carcinogenesis:
 - A) The initiating chemical is an electrophile that causes a rapid reversible alteration in the cell's genetic material.
 - B) Progression is an epigenetic process.
 - C) Repeated doses of the initiator may elicit tumors even in the absence of the promoter.
 - D) Tetrachlorodibenzodioxin is a promoter for liver, lung and skin tumors.
- 2- A cocarcinogen is an agent that is applied just before or after the carcinogen resulting in higher tumor yield.
- 3- Skin tumor isolated from DMBA-treated mice contain an activated ras oncogene with an A to T transition.
- 4- Both ras and GAPp120 proteins have intrinsic GTPase activity.
- 5- P53 gene controls G1/S and G2/M check points, regulate DNA repair and apoptosis.
- 6- Bloom's syndrome is a rare chromosomal disorder characterized by a high frequency of breaks and rearrangement.
- 7- One with turner's syndrome has 22 pair of somatic chromosomes plus XXY sex chromosomes.
- 8- Missense mutation is a type of point mutation that codes for the same or different amino acid without functional change in the protein created.
- 9- Trypan blue dye exclusion method is used to assay anticancer activity in vivo.

B-Complete the following statements:

- a) -----1----- is an example for direct-acting carcinogens while -----2----- is an example for indirect-acting ones.
- b) -----3----- is a disease due to unequal division of somatic chromosomes while -----4----- is due to unequal division of sex chromosomes.
- c) -----5----- is a numerical change in part of chromosome set while -----6----- is a numerical change in the whole set of chromosomes and can be induced by-----7-----.
- d) Swayback is a disease in pregnant sheep primarily due to -----8-----.
- e) The four major categories of manifestation of altered development are -----9-----, -----10-----, -----11----- and -----12-----.

***** Best Wishes *****

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