

19 MAY 2015

2015

**BIOCHEMISTRY**

**Paper – BCO405**

**(Biochemical Toxicology)**

**Full Marks – 25**

*The figures in the margin indicate full marks*

*Candidates are required to give their answers in their own words as far as practicable*

1. Answer *any two* questions : 5×2
  - (a) Cr (+6) causes greater DNA damage in the presence of ascorbate in NER-deficient cell lines. — Explain.
  - (b) Arsenic causes changes in DNA methylation. How is this related to the toxicity of arsenic?
  - (c) Describe a bio-sensor that detects alkane(s). How sensitive is the sensor?
  - (d) Discuss the changes in gene expression when *Daphnia* are exposed to either Ag or AgNP.
  
2. (a) Induction of CYP450 often mandates change in the dosage of a drug. Justify the statement mentioning the name of a specific drug. 5
  - (b) Conjugation reaction is necessary for the excretion of certain xenobiotics. Explain with an example. 5

*Or*

3. (a) Design an experiment to assay antioxidant potency of one plant product. 5
  - (b) Compare the efficacy of tea polyphenol and nanoconjugate of the same polyphenol component as antioxidant by “reduction assay”. 5
  
4. There are 4 tonic plant root extracts that are very similar but not identical in terms of their protein content. Design an experiment by which one specific/signatory protein of one variety could be identified/purified. 5

*Or*

5. A toxic xenobiotic oligomerizes monomeric proteins. How could this be demonstrated *in vitro*? 5