

**2014**

**M.Sc.**

**4th Semester Examination**

**BIOCHEMISTRY**

**PAPER—BIC-402**

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

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

*Illustrate the answers wherever necessary.*

**Answer all questions.**

**Group — A**

1. Answer any *five* questions from the following : 5×2
  - (a) What is MBP ? Mention its association in degenerative diseases.
  - (b) How does hyperglycemia initiate metabolic stress ?

*(Turn Over)*

- (c) Why flavonoids are important in therapeutic chemistry? What is its structural speciality?
- (d) Briefly define 'Amyotrophic Lateral Sclerosis'.
- (e) Name two natural carcinogens with their sources.
- (f) What are the free radical products of the reactions between Superoxide dismutase and hydrogen peroxide?
- (g) What are the molecular basis of drug resistance?
- (h) Briefly describe 'Cushing's' syndrome and 'undernutrition related diabetes'.

**Group — B**

Answer any *two* questions from the following :    5×2

2. (a) Briefly describe the molecular mechanism of antioxidant role of Vitamin-E.
- (b) How does Vitamin-A play as an antioxidant?
- $3\frac{1}{2} + 1\frac{1}{2}$
3. (a) How does stress modulate the neuro-endocrine regulation and result in some disease condition.

(b) Mention two important plant derived toxin and their toxic role.  $3\frac{1}{2}+1\frac{1}{2}$

4. Describe briefly the use of nanotechnology in drug delivery. 5
5. What is 'Polyglutamine' (Poly Q) disease? Briefly explain lysosomal autophagy pathway related to neurodegeneration. 3+2

### Group — C

Answer any *two* questions from the following : 10×2

6. How ischemia is associated to oxidative stress and result in cardiovascular disease?

How does global heat stress may influence protein structure evolution towards thermophilicity? 6+4

7. Write in detail the molecular and biochemical basis of Parkinson's disease.

Describe its management procedures at different levels.

How does it differ from dementia associated syndrome?

8. What is bioactivation of xenobiotics? Write in detail on Phase-II drug metabolizing enzymes and their role in detoxification process.

Differentiate LD<sub>50</sub> and ED<sub>50</sub>. Which one is used in toxicity study in different circumstances? 7+2+1

9. (a) Discuss four different methods of characterizing a prepared nano particle.
- (b) How does hypotension initiate physiological stress?
- (c) How does atmospheric CO<sub>2</sub> affect ocean ecosystem?

4+3+3

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