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PG/IIS/PHY - 203/14

M.Sc. 2nd Semester Examination, 2014

HUMAN PHYSIOLOGY

PAPER— PHY - 203

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

UNIT – XVII

1. (a) What do you know about "Detritus food chain" ? Mention the significance of food chain.

(b) What is 'Food Web' ?

$$\left(1\frac{1}{2} + 1\frac{1}{2}\right) + 2$$

(Turn Over)

(2)

Or

- (a) What are the Ozone-depleting substances ?
"Chlorine atoms destroy ozone molecule effectively" – Justify it.
- (b) Mention the effects of ozone layer depletion on humans. 1 + 2 + 2
2. (a) "Carbon monoxide binds to haemoglobin and other heme-containing proteins" – state its consequences.
- (b) Mention the role of nitric oxide in the setting of CO poisoning. $2\frac{1}{2} + 2\frac{1}{2}$

Or

- (a) Describe the molecular mechanism of lead toxicity.
- (b) Discuss the clinical manifestation of lead toxicity. $2\frac{1}{2} + 2\frac{1}{2}$

(3)

3. (a) What is 'Acute radiation syndrome' ?

(b) Elaborate the possible carcinogenic mechanisms of ionizing radiation. 1 + 4

Or

(a) Describe the fate of pesticides in soil.

(b) How do sulfonylurea herbicides degrade in soil by bridge hydrolysis ? $2\frac{1}{2} + 2\frac{1}{2}$

4. (a) Describe the structure-activity relationships of organophosphates.

(b) Discuss briefly organophosphate-mediated acetylcholine esterase inhibition. 2 + 3

Or

(a) Discuss different methods for solid waste management.

(b) Describe the methods for primary, secondary and tertiary sewage treatment. $2\frac{1}{2} + 2\frac{1}{2}$

UNIT – XVIII

1. (a) Mention some causes of unsustainable development.
- (b) Why there is a need for sustainable development in the world ?
- (c) What do you understand by social sustainability? 2 + 2 + 1

Or

- (a) What are vulnerable species ? Give examples.
 - (b) Discuss In-situ and Ex-situ conservation of biodiversity.
 - (c) What is cryopreservation ? 1 + 3 + 1
2. (a) Discuss about the different forms of conventional energy.
 - (b) What is Ocean thermal energy conversion (OTEC)? 3 + 2

(5)

Or

Discuss the role of biofuel cells and biofilters in the control or monitoring of pollution.

5

3. (a) State the toxicokinetic factors that increase the exposure of xenobiotic.

(b) Discuss the mechanisms of statin-induced myotoxicity.

$1\frac{1}{2} + 3\frac{1}{2}$

Or

(a) Describe the phase I and phase II biotransformation reactions.

(b) Elaborate CYP2 family mediated bioactivation of paracetamol.

2 + 3

4. (a) Describe the hepatic metabolism of ethanol.

(b) Give a brief account on the pathogenesis of ethanol toxicity in liver.

3 + 2

(6)

Or

Discuss arsenic-mediated oxidative stress
and carcinogenesis.

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