

2018

M.Sc.

2nd Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-201

Subject Code—30

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.

(Unit—13)

Answer all questions :

1. (a) What are non-communicable diseases.
(b) What are meant by 'risk factors' and 'risk group'?
(c) Explain with example the modifiable risk factors of NCDS.

1+(1+1)+2

(Turn Over)

Or

- (a) What are primary and secondary prevention of diseases ?
- (b) Discuss epidemic and endemic forms of diseases.
- (c) What is DALYS ? (1+1)+2+1

2. Write a brief note in :

(i) Genetic composition of population

(ii) Factors affecting population genetics. $2\frac{1}{2}+2\frac{1}{2}$

Or

- (a) Write down the differences between aneuploidy and polyploidy ?
- (b) What do you mean by reciprocal translocation ?
- (c) What are the causes of down syndrome ? Explain the meiotic disfunction process. $1+1+(1+2)$
3. (a) What are the anti-nutrients present in unprocessed legumes and pulses ?
- (b) Discuss briefly the nutritional attributes of milk and its byproducts.

(c) What are probiotics ? 2+2+1

Or

(a) Describe briefly the physiological changes in pregnancy during third trimester.

(b) How does maternal age affect pregnancy ?

(c) Describe the purging signs and symptoms of anorexia nervosa patients. 1½+2+1½

4. (a) Discuss the causative factors for PEM.

(b) Describe the nutritional requirements in diabetes mellitus.

(c) What is supplementary nutrition programme ?

2+2+1

Or

(a) Discuss the merits and limitations of bariatric surgery in obesity management.

(b) Explain the mode of action of sibutramine and orlistat.

(c) How does neuropeptide Y(NPY) affect food intake behaviour ? 2+2+1

(Unit—14)

Answer all questions:

1. (a) State the influence of abiotic factors on ecosystems.
 (b) Mention the key abiotic factors of terrestrial and aquatic ecosystems.

Describe the effects of human activity on them.

2½+(1+1½)

Or

- (a) What is ultrafine particulate matter (PM) ?
 (b) How do particulate matters affect mitochondria ?
 (c) State how PM structure and Toxicity-Redox activity are interrelated. 1+2+2
2. (a) Give a brief note on organic mercury.
 (b) How does methyl mercury exert its toxic effects in human body ?
 (c) How does DMPS chelate heavy metals ? 2+2+1

Or

(a) How do 'Rate of absorption' and 'Area of Exposure' determine the biological effects of radiation ?

(b) Describe the carcinogenic action of radiation.

(1+1)+3

3. (a) What is toxicological paradigm ?

(b) Mention the toxicokinetic factors on which xenobiotic-toxicity depends.

(c) What is bioavailability ? How it can be measured ?

1+1½+(1+1½)

Or

(a) Distinguish between bioactivation and bio-inactivation of Xenobiotics.

(b) State the importance of Phase I and Phase II biotransformation reactions.

(c) Describe the Phase II glucuronidation reaction.

1+1½+2½

4. (a) State the working principle of waste-to-energy (WTE) conversion unit.

- (b) What is co-composting ?
- (c) What is PAYT and EPR ? How do they help in source reduction ? 2+1+2

Or

- (a) Discuss the principle of ocean thermal energy conversion (OTEC) ?
- (b) Cite the in-situ methods of conservation of biodiversity.
- (c) What is a Vulnerable species ? 2+2+1
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