2013

M.Sc.

3rd Semester Examination

CLINICAL NUTRITION & DIETETICS, NUTRITIONAL GEMONICS, PROTEONICS & METABOLOMICS

PAPER—CND-301

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..

1. Answer any *ten* questions : 1×10

(a) What do you mean by metabolome ?

(b) Name two PCR additives.

(c) Which factors are responsible to affect Tm of DNA ?

(d) Write the name of a dye used in PAGE.

(e) What is nutrigenomics ?

(f) Write the full form of S/MAR.

(g) How RT-PCR is different from qPCR ?

(h) Mention the advantages to double helical structure of DNA.

(i) What is isoelectric focussing ?

(j) Write the name of an algorithm used for sequence alignment.

(k) What do you mean by renaration of DNA ?

(l) Name two restriction enzymes.

(m) How GC content of a thermophile differ from mesophile ?

(n) Mention the distance between two strands of a DNA double helix.

(o) Name a nutritional supplement regulating gene expression.

2. (a) Describe the parameters for epigenetic mechanism.

(b) How epigenetics can regulate nutrition and health ?

(c) Write the fundamental principle of genetic engineering.

(d) Describe the different techniques adopted in the study of metabolomics. 2+2+2+4

3. (a) How metabolomics can be used as a tool for assessment of nutritional status ?

(b) Briefly describe the steps of a PCR reaction.

(c) Design primers for the sequence given below :

5′ GGATTAGCTTCACAACCAGTAGGATTAGGACTAAGT TGACTCGTCGACCACGTTCCCTCGAGCAAGGTCCTGTC – 3′ 4+3+3

4. (a) Briefly describe the nutrigenomic role of vitamin A on the regulation of lipogesis.

(b) What is proteomics ? Describe different methods of protein quantification.

(c) How proteomics can be used for diagnosis of an illness ? 3+(2+3)+2

5. (a) Briefly describe the method of immunostaining.

(b) How SILAC is performed? Mention its applications.

(c) What is BLAST? Mention its use.

3+(2+3)+(1+1)

6. (a) Describe the major role of nutrients to alter the genetic function.

(b) Briefly describe the structure of DNA double helix.

(c) State the fundamental principle of DNA sequencing.

(d) Write the application of real time PCR.

3+3+2+2