# 2018

# M.Sc.

## 1st Semester Examination

### HUMAN PHYSIOLOGY

### PAPER—PHY-101

*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—01 )

1. Answer any *two* questions :                    2×2

(a) What is domain in proteins ? What is its importance ?

(b) What is the driving force for tertiary structure of proteins ?

(c) What is meant by $K_{cat}$ ?

(d) Name two enzyme complexes participating in electron transport in oxidative phosphorylation.

*(Turn Over)*

2. Answer any *two* questions :  4×2

   (a) What is oxidative phosphorylation ? Why it is called a coupled reaction? Name one uncoupler.  2+1+1

   (b) Describe critically the regulation of protein kinases by Covalent modifications.  4

   (c) State the cataplerotic reactions of TCA cycle intermediates.  4

   (d) State the contributions of glucagon in carbohydrate metabolism.  4

3. Answer any *one* question :  1×8

   (a) (i) Write down the principles of protein folding ?

       (ii) What is meant by assisted floding ? Write a brief note on the functioning of Hsp70 as molecular Chaperone.

       (iii) What is molten globule ?  3+(2+2)+1

   (b) (i) Define N- and O-linked glycosylations.

       (ii) Elaborate the post-translational modification of protein by methylation and prenylation reactions.  (2+2)+(2+2)

( Unit—02 )

1. Answer any *two* questions :  2×2

   (a) Define co-dominance with one suitable example.

*(Continued)*

(b) What do you mean by '$C_3$ endo-puckering' ?

(c) What is a pleiotropy ?

(b) What is 'Pribnow Box' ?

2. Answer any *two* questions :                                    2×4

(a) What is cross-over frequency (COF) ? Construct a chromosome map using the following COFs.

$WX$ = 5, $XY$ = 2, $YW$ = 7, $ZW$ = 8 and $YZ$ = 1.

                                                                          2+2

(b) Citing an example discuss recessive epistasis with its molecular explanation.                      1½+1½+1

(c) Describe the structure and function of different subunits of RNA polymerase.                      4

(d) Mention which kind of pedigree we can found from the tree.                                                   4



*(Turn Over)*
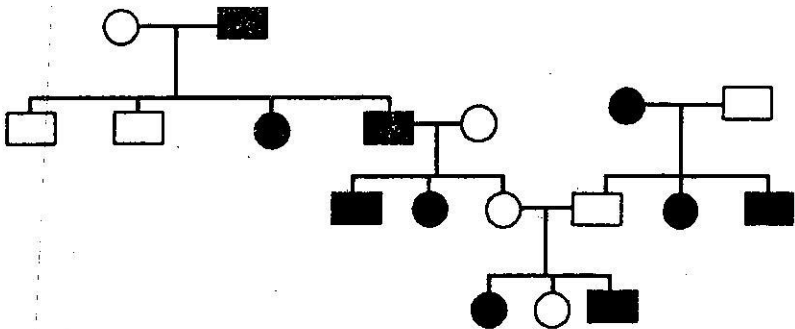
3. Answer any *one* question :                                    1×8

   (a)  (i) Discuss the differences between B-DNA and Z-DNA.

       (ii) Describe details about the rho-dependent and rho-independent termination of transcription process.

       (iii) Mention the functions of 'Protein Bridge'.

                                    (1½+1½)+(2+2)+1

   (b)  (i) Describe incomplete dominance with proper example. What is punnett square ?

       (ii) A cross between a blue blahblah bird and white blahblah bird produces offspring that are silver. The colour of blahblah birds is determined by just two alleles.

       Find out the genotype(s) and phenotype(s) from the P-square analysis.              (2+2+1)+3

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