Sample Question Paper
for the online entrance examination for M.Sc. in 'Human Disease Genetics'
(Degree to be awarded by the University of Mysore)

Please note: While a small number of questions are shown as examples here, the **final test** will have about 120 questions. You will be given 105 minutes to answer as many as you can.

The division of questions across domains, in the final exam, will be as follows:

BIOLOGY	40%
ENGLISH	5%
MATHS & GENERAL APTITUDE	25%
PHYSICS	15%
CHEMISTRY	15%

Don't worry if you don't know the answers to all questions. Since the questions come from diverse subjects, it is expected most students may not answer all of them.

You may not have encountered our unique online test system until now. To avoid confusion at the last minute, please take a trial online test before the final test to become acquainted with the test format and online procedure.

Applicants must send an email to: mscet@chg.res.in with their application number, requesting a user login and password. You will receive more instructions from mscet@chg.res.in. If you have questions about the online entrance test, please email to mscet@chg.res.in.

Sample questions

1. The process of removal of introns from pre-mRNA is called
   a. Transcription
   b. Translation
   c. Transposition
   d. Splicing

   [Answer: d]

2. In which of the following organelles does cellular respiration take place
   a. Chloroplast
   b. Mitochondrion
   c. Endoplasmic reticulum
   d. Lysosome

   [Answer: b]

3. Which of the following microbes is beneficial to humans
   a. *Mycobacterium leprae*
   b. *Plasmodium falciparum*
   c. *Lactobacillus acidophilus*
   d. *Entamoeba histolytica*

   [Answer: c]

4. Bilirubin and biliverdin are:
   a. Bile salts
   b. Enzymes
   c. Bile pigments
   d. None of the above

   [Answer: c]

5. Consider the following points on a plane: (1,5), (2, 7), (5,13)
   Which of the following statements is true?
   a. All three points lie on a straight line
   b. They do not lie on a straight line
   c. They lie on a straight line passing through the origin.
   d. None of the above

   [Answer: a]

6. Assume that a bacterium is a sphere of radius 1μm. A tightly packed
   suspension of bacteria will have a density of about
   a. 2.5×10^{13} cells/ml;
   b. 2.5×10^{11} cells/ml;
   c. 2.5×10^9 cells/ml;
   d. 2.5×10^7 cells/ml.

   [Answer: b]

7. Members of a large, ideal random-mating diploid plant species are homozygous
   for the allele A at a particular locus. A mutates to a different allele, B, in some
   individual. A/A individuals are short; A/B and B/B individuals are both tall.
   There is no selection pressure favouring the tall trait. If one waits sufficiently
   long, the species will most likely consist of
   a. mostly tall plants;
   b. mostly short plants ;
   c. a 1:1 mix of tall and short plants;
   d. a 1:2 mix of tall and short plants.

[Answer: b]

8. A sheet of plate glass reflects 10% of the light incident on it and transmits the rest. What is the least number of sheets required for the intensity of the transmitted light to drop to below 50%?
    a. 7;
    b. 6;
    c. 5;
    d. 4.

    [Answer: a]

9. A mirage is an example of:
    a. Black body radiation
    b. Light dispersion
    c. Total Internal Reflection
    d. None of the above

    [Answer: c]

10. If the pH of a solution is 5, what is the pOH of the solution?
    a. 7
    b. 9
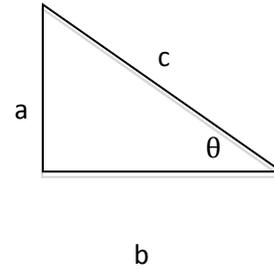   c. 2
    d. cannot be determined

    [Answer: b]

11. If the mass of an electron is X, the mass of a proton is Y and the mass of a hydrogen atom is Z,
    a. Z=X+Y
    b. Z>X+Y
    c. Z<X+Y
    d. Z is independent of X and Y.

    [Answer: c]

12. Look at the figure given below. Cot θ equals

   a. a/b
   b. a/c
   c. b/c
   d. b/a

   [Answer: d]

13. All children born from a marriage have only O or A blood groups. Of the genotypes given below, the possible genotypes of the parents would be
   a. $I^O I^O$ and $I^O I^O$
   b. $I^A I^A$ and $I^O I^O$
   c. $I^A I^O$ and $I^O I^O$
   d. $I^A I^A$ and $I^A I^O$

   [Answer: c]

14. Which one of the following triplet codons is a chain termination codon?
   a. UGU
   b. AAU
   c. UUG
   d. UAG

   [Answer: d]

15. The probability of obtaining a total value of 6 from rolling 2 dice:
   a. 1/6
   b. 1/9
   c. 5/36
   d.   6/36

   [Answer: c]

16. What is the Oxidation number of Manganese in $KMnO_4$?

   (a) 3
   (b) 5
   (c) 6
   (d) 7

   [Answer: d]