JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-Up Examination April 2018

B.Tech.-IInd Semester

COURSE CODE: 10B11BT411   MAX. MARKS:25

COURSE NAME: Genetics

COURSE CREDITS: 4   MAX. TIME 1.5Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q.1 a) Explain a dihybrid inheritance with suitable cross as an example. Show your work with all possible genotypic and phenotypic ratios.
b) A woman homozygous for blood type B marries a man who is heterozygous for blood type A. State the possible phenotypic ratios of the offsprings.   [3+2]

Q2: a) Assume the height in a plant is determined by two dominant genes, A and B, each allele contributes 10 cm. The base height of the plant aabb is 6 cm. A plant with AABB genotype is crossed with aabb and then F1 (AaBb) is selfed. Determine the height of P1 parents, F1 plant and all F2 plants after selfing.
b) The frequency of two alleles in a gene pool is 0.20 (A) and 0.80 (a). Assume that the population is in Hardy-Weinberg equilibrium; calculate the percentage of heterozygous individuals and homozygous recessives in the population.   [3+2]

Q3: a) What are the essential criteria must be met in order to execute a successful mapping cross?
b) What is the proposed basis of interference during crossing over?
c) What is the significance of crossing over?   [2+2+1]

Q4: Write note on the followings:-
a) The regions of the human Y chromosome
b) Origin of Turner Syndrome and its implications   [2.5+2.5]

Q5: a) Explain the concept of conditional mutations with the help of at least two examples.
b) What is the significance of chromosomal mapping?
c) Why Mendel did not get Linkage?   [2+2+1]