



KH-406

Seat No. _____

B. Sc. (Sem. III) Examination

October / November - 2017

Biotechnology : Paper - IV
(Genetics & Analytical Techniques)

Time : 3 Hours]

[Total Marks : 70

1 Attempt the entire question.

(A) MCQ

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- (1) Of both normal parents, the chances of a male child becoming colour blind are
 - (A) No
 - (B) Possible only when all four grand parents had normal vision
 - (C) Possible only when father's mother was colour blind
 - (D) Possible only when mother's father was colour blind
- (2) When two dominant independently assorting genes react with each other, they are called
 - (A) Collaborative genes
 - (B) Complementary genes
 - (C) Duplicate genes
 - (D) Supplementary genes
- (3) Which of the following is a physical mutagen ?
 - (A) Mustard gas
 - (B) X-rays
 - (C) Nitrous acid
 - (D) None of these

- (4) In gas chromatography, the basis for separation of the components is the difference in
- (A) Partition coefficients
 - (B) Conductivity
 - (C) Molecular weight
 - (D) Molarity
- (5) Chromatography is based on the
- (A) Different rates of movement of the solute in a column
 - (B) Separation of one solute from other constituents by being captured on the absorbent
 - (C) Different rate of movement of the solvent in the column
- (6) Physical adsorption is a _____ process.
- (A) Reversible
 - (B) Irreversible
 - (C) Exothermic
 - (D) None of these
 - (E) Ion exchange
- (7) Chromatography is based on the
- (A) Electrostatic attraction
 - (B) Electrical mobility of ionic species
 - (C) Adsorption chromatography
 - (D) Partition chromatography
- (8) Multiple alleles control inheritance of
- (A) Phenylketonuria
 - (B) Colour blindness
 - (C) Sickle cell anaemia
 - (D) Blood groups

- (9) Segregation of Mendelian factors (no linkage, no crossing over) occurs during
- (A) Anaphase I (B) Anaphase II
(C) Diplotene (D) Metaphase I
- (10) Which of the following is a well known autosomal abnormality at birth ?
- (A) Klinefelter syndrome
(B) Patau syndrome
(C) Down syndrome
(D) Turner syndrome

(B) Do as directed :

5

- (1) Define Mutation.
- (2) Give full name of GC-MS and HPLC
- (3) Colour Blindness is an example of which type of genetically disease _____
- (4) What is pleiotrophic gene ?
- (5) Which disease occurs when 47 chromosomes are present in person ?

2 Write in detail : (any **five**)

25

- (1) Explain the Di hybrid Crossing with their phenotypic and genotypic result.
- (2) Explain Morgan contribution in Genetics.
- (3) Write a note on visible spectroscopy.
- (4) Write a note on Pedigree Analysis of Victoria Queen.
- (5) Write a note on GC with application.
- (6) What is epistasis ? Give one example.
- (7) Write in detail Gel Chromatography with example.

3 Write brief answers : (any three)

30

- (1) What is gene interaction ? Write in detail types of gene interaction with example.
- (2) Explain Chromosomal abbreviation in human
- (3) Write a note on HPLC with its applications and mechanism.
- (4) Write a note on Ion Exchange Chromatography with its application.
- (5) Write a note on GC with application.