

Seat No : _____

No. of Printed Pages: 2

(23)

SARDAR PATEL UNIVERSITY
B. Sc. (Genetics) – Fifth Semester Examination (CBCS)
Friday, 22th November 2019
10:00 a.m. to 1:00 p.m.
US05CGEN06: Human Genetics

Total Marks: 70

Note: (1) Figures to the right indicate marks.
(2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [10]

- i. Constitutive heterochromatin always _____.
(a) Transcribed (b) Translated (c) Not transcribed (d) Both (a) and (b)
- ii. LINEs, LTR and SINEs elements are example of _____.
(a) Retro-transposons (b) RNA transposons (c) Transposable elements (d) All of these
- iii. _____ is a unit of Genetic map.
(a) Centi rays (b) Centi morgan (c) Base pairs (d) Kilo base pairs
- iv. Which one of this describes a contig?
(a) Library of overlapping clones (b) A complete mRNA library
(c) An ordered genomic library (d) None of these
- v. The first genetic map of _____ chromosome was constructed by Thomas Morgan.
(a) *C. elegans* (b) *D. melanogaster* (c) *E. coli* (d) *A. thaliana*
- vi. Which of the following blood clotting factor deficient/absent during Hemophilia "a" ?
(a) Factor V (b) Factor VI (c) Factor VII (d) Factor VIII
- vii. Tay Seah's disease inherited as _____ manner.
(a) Autosomal dominant (b) Autosomal Recessive (c) X linked (d) None of these
- viii. Galactosemia is caused by the lack of an enzyme _____.
(a) GALT (b) BALT (c) GABT (d) SALT
- ix. Inhibin 'A' is elevated in _____.
(a) Trisomy 13 (b) Trisomy 18 (c) Trisomy 21 (d) Neural tube defects
- x. Amniocentesis and Chorionic villus sampling are examples of _____ technique.
(a) Invasive (b) Non-invasive (c) Biochemical (d) Neonatal Screening

Q.2 Answer any TEN from the following:

[20]

- i. Write scope of human genetics.
- ii. Differentiate between minisatellites and microsatellites.
- iii. What are the examples of non-coding DNA sequences?

P.T.O.

- iv. What are contig maps?
- v. What is FISH? Write its application/s in the mapping of human genome.
- vi. Explain cytogenetic map in short.
- vii. What is PKU? How it is caused?
- viii. What is IEM? Write 2 examples of IEM.
- ix. What are multifactorial disorders? Write examples.
- x. Give an overview of SAGE.
- xi. What are predictive tests? Write examples.
- xii. Write composition and importance of quad test.

Q.3 Describe various features of human genome. [10]

OR

Q.3 Give an over view, significance and future challenges of human genome project. [10]

Q.4 Write notes on the following:

- (a) Genetic map [5]
- (b) Restriction map [5]

OR

Q.4 Write differences between the following:

- (a) Chromosome jumping and Chromosome walking [5]
- (b) BAC library and Shotgun library [5]

Q.5 Write notes on the following genetic diseases:

- (a) Sickle Cell Anemia [5]
- (b) Diabetes mellitus [5]

OR

Q.5 Write notes on the following genetic diseases:

- (a) Alzheimer's disease. [5]
- (b) Marfan syndrome [5]

Q.6 Write notes on the following:

- (a) Guthrie bacterial inhibition assay [5]
- (b) Maternal serum alpha fetoprotein [5]

OR

Q.6 Write notes on the following:

- (a) Ferric chloride test [5]
- (b) Fetal chromosome testing [5]

—X—

(2)