SEAT No._____ No. of Printed Pages: 2

(26)

SARDAR PATEL UNIVERSITY

B.Sc. (Genetics) – Sixth Semester Examination (CBCS)

Friday, 07th April, 2017

10:00 a.m. to 1:00 p.m.

US06CGEN06: Biomedical 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. **Current treatment for cancer does not include :**

(a) Chemotherapy (b) Radiotherapy

(c) Surgery (d) Physiotherapy

ii. **A cancer located in connective tissue is called:**

(a) Carcinoma (b) Sarcoma (c) Lymphoma (d) Leukemia

iii. **Which of the following component are essential for PCR.**

(a) Primer (b) DNA template (c) Taq-DNA polymerase (d) All of them

iv. **Heteroduplex analysis involves:**

(a) Denaturation (b) Fragmentation (c) Solublisation (d) None of these

v. **Test performed to know the mutagenic nature of a substance is called:**

(a) Ames Test (b) Biuret Test (c) ELISA (d) None of these

vi. **Candidate gene is likely to be a disease-associated gene if:**

(a) Loss-of-function mutation causes the phenotype

(b) It is a pseudogene

(c) Multiple different mutations cause the phenotype

(d) The pattern of expression of the gene is inconsistent with the phenotype

vii. **Germ-line therapy is:**

(a) Heritable (b) Not heritable (c) Sometimes heritable (d) Unrelated to heritability

viii. **Which cell type would not be a direct target for gene therapy?**

(a) Red blood (b) Muscle (c) Liver (d) Endothelium

ix. **Which of these stem cells are totipotent?**

(a) Dental (b) Amniotic (c) Cord cells (d) Embryonic

x. **_____ deficiency was the first disorder which researchers treated with gene therapy.**

(a) ADA (b) OTC (c) HH (d) DMD

P.T.O

Q.2 **Answer any TEN from the following:** **[20]**

i. Define cancer and mutations.
ii. What is the principle of SSCP?
iii. Enumerate various mechanisms of malignant transformation.
iv. What is the significance of sequencing in detection of mutations?
v. Define malign and benign tumors and give comparative account on them.
vi. What do you mean by PTA and DGGE?
vii. What do you mean by genetic mapping?
viii. Define candidate gene and its importance.
ix. Define chromosomal anomalies and methods to identify them.
x. Enumerate various strategies to manage genetic disease/disorders.
xi. Briefly mention various types of stem cells.
xii. Define genetic counseling and its significance.

Q.3 **(a)** What is chemotherapy? Explain in detail about various chemotherapeutic drugs studied by you. **[10]**

OR

Q.3 **(a)** Write a note on Proto-oncogenes and their classes with example. **[05]**

(b) Mention major differences between healthy and cancerous cells. **[05]**

Q.4 **(a)** Mention comparative account of positional and functional cloning. **[05]**

(b) Explain positional cloning in brief. **[05]**

OR

Q.4 **(a)** Give an account on physical mapping. **[05]**

(b) Explain in detail about candidate gene approach with suitable examples. **[05]**

Q.5 **(a)** Enumerate various strategies for detection of mutation or mutant gene. Explain any one in detail with diagram. **[10]**

OR

Q.5 **(a)** Briefly explain about heteroduplex analysis and its significance. **[05]**

(b) Write a detail note on multiplex PCR and its advantages. **[05]**

Q.6 **(a)** What is Genetic Counseling? Mention situations where it shows very significant. **[05]**

(b) Briefly explain about gene therapy and its types. **[05]**

OR

Q.6 **(a)** Enumerate various strategies to manage genetic disease/disorders. **[05]**

(b) What are the various applications of Stem cells? **[05]**

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