Marks scored:

KATHMANDU UNIVERSITY
End Semester Examination [C]
July, 2017

Level : B. Tech.
Year : IV
Course : BIOT 410
Semester : I

Exam Roll No. :
Time: 30 mins.
F. M. : 20

Registration No. :
Date : JUL 0 7 2017

SECTION "A"
[10 Q. × 1 = 10 marks]

Mark "X" in the most appropriate box.

1. Which of the following is not a gatekeeper gene?
[ ] APC [ ] CDKN2A [ ] ATM [ ] SMAD4

2. The protein that is activated by anaphase promoting complex.
[ ] Cohesin [ ] Mad [ ] Bub [ ] Separase

3. A synthetic glucocorticoid
[ ] Tamoxifen [ ] Prednisone [ ] Etoposide [ ] Topotecan

4. In the genome of Rous sarcoma virus the gene that codes for integrase enzyme is
[ ] Gag [ ] Pol [ ] Env [ ] v-src

5. The first example of human cancer known to be caused by occupational exposure to a specific chemical.
[ ] Stomach [ ] Lung [ ] Bladder [ ] Breast

6. Which of the following is an example of aromatic amines and aminoazo compounds?
[ ] 3-Methylcholanthrene [ ] Benzidine
[ ] Ethylene oxide [ ] Dimethylnitrosamine

7. The first widely used chemical sunscreen that was introduced in early 1970s.
[ ] Cinnamates [ ] Salicylates
[ ] Para-aminobenzoic acid [ ] Octocrylene

8. The unit used for the measurement of absorbed dose of a radiation is
[ ] Electronvolt [ ] Gray [ ] Rad [ ] Sieverts

9. Philadelphia chromosome is present in 90% of all individual with
[ ] Chronic myelogenous leukemia [ ] Burkitt's lymphoma
[ ] Neuroblastoma [ ] Multiple endocrine neoplasia type II

10. The anticancer drug that has been approved for the degradation of proteasome is

[ ] Iressa [ ] Velcade [ ] Erbitux [ ] Tarceva

SECTION "B"

[10 Q. × 1= 10 marks]

Fill in the blanks:

11. The term used to refer to any atom or molecule containing an unpaired electron is _____.

12. Multiple endocrine neoplasia type II is caused by inheriting a single mutant copy of _____.

13. The molecule that resembles folic acid in structure and can bind and inhibit the function of dihydrofolate reductase is _____.

14. The v-Src protein kinase is a member of a group of protein kinase called _____.

15. _____cancer was the most common cancer in young boys who were employed as chimney sweepers.

16. The U-shape of the hormetic model is called _____.

17. The cell phone emits and transmits _____ waves.

18. The protein that is present in the gap junction of a cell is called_____.

19. _____ does not stop cancer cells in G1 because of the absence of restriction point control and cancer cells proceed into the S phase.

20. _____ is a drug that binds to and inactivates a cell surface growth factor receptor called the ErbB2 receptor.

KATHMANDU UNIVERSITY
End Semester Examination [C]
July, 2017

Level : B. Tech. | Course : BIOT 410
Year : IV | Semester : I
Time : 2 hrs. 30 mins. | F. M. : 55

SECTION "C"
(Long answer questions)
[3 Q. × 7 = 21 marks]

Attempt *ANY THREE* questions:

1. What are the main classes of carcinogenic chemicals? Illustrate the mechanism showing how electrophilic molecules can cause cancer. [2+5]

2. How combination chemotherapy and stem cell transplant can improve the effectiveness of chemotherapy? Elaborate.

3. What are infectious agents? Describe briefly the three broad mechanisms by which infectious agents can cause cancer. [1+6]

4. Describe with the help of figure the Ras-MAPK pathway and the TGFβ-Smad signaling pathway. [3.5+3.5]

SECTION "D"
(Short answer questions)

5. Write short notes on (*ANY FOUR*): [4 Q. × 3.5 = 14]
   a. *Helicobacter pylori* and stomach cancer.
   b. p53 as guardian of genome.
   c. Dominant negative mutation.
   d. Hormone therapy.
   e. Background equivalent radiation time (BERT).

6. Write down **TWO** differences between (*ANY FOUR*): [4 Q. × 2 = 8]
   a. Lectins and E-cadherins.
   b. Ultraviolet radiation and Ionizing radiation.
   c. E-6 oncoprotein and E-7 oncoprotein.
   d. Li-Fraumeni syndrome and Bloom syndrome.
   e. Brachytherapy and Hyperthermia.

7. Give reasons why/ how? (*ANY FOUR*): [4 Q. × 3 =12]
   a. Replenishing telomeres make cancer cells immortal.
   b. Spreading of cancer cells by invasion and metastasis is a complex process.
   c. Infectious mononucleosis is also known as "kissing disease".
   d. Insertional mutagenesis allows viruses with no oncogenes to cause cancer.
   e. Pap smear test is not regarded as a definitive test for cervical cancer.