

UNIT F: CANCER

Use the following information to answer question 1

1. Promotion
2. Metastasis
3. Anaplasia
4. Initiation

1. Which of the following is the correct sequence for the development of cancer?

- A. 1, 4, 3, 2
- B. 3, 4, 2, 1
- C. 4, 1, 3, 2
- D. 4, 3, 2, 1

2. Which of the following might indicate the presence of a developing skin cancer?

- A. Persistent coughing.
- B. Change in bowel habits.
- C. Difficulty in swallowing.
- D. A sore that does not heal.

3. Which of the following is capable of changing a proto-oncogene into an oncogene?

- A. virus
- B. antibody
- C. bacterium
- D. lymphocyte

4. An experiment was carried out to study the carcinogenic effects of certain chemicals on mice. Similar amounts of these chemicals were applied to their skins over a 6-month period. The results are shown below.

CHEMICAL X	CHEMICAL Y	CHEMICALS X AND Y	CONTROL (NO TREATMENT)
18% developed skin tumours	0% developed skin tumours	84% developed skin tumours	1% developed skin tumours

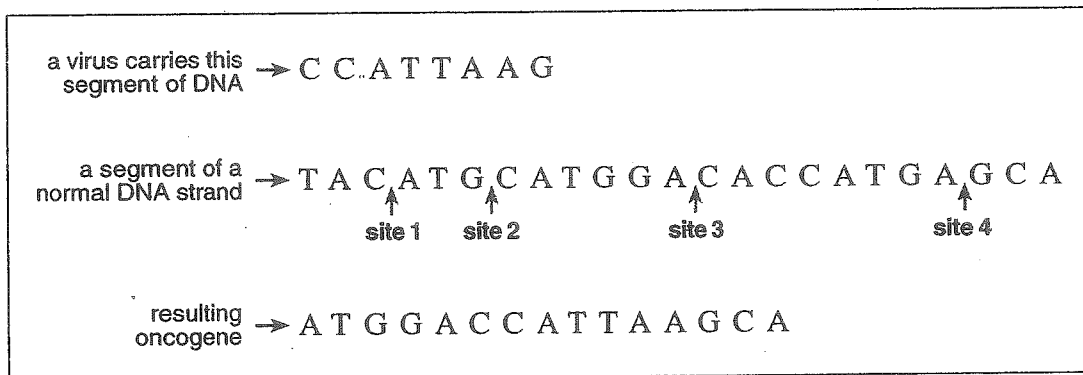
Given the results, which of the following statements is correct?

- A. Chemical Y is a promoter.
- B. Chemical X can act only as a promoter.
- C. Chemical Y can act only as an initiator.
- D. Neither X nor Y is an initiator or a promoter.

5. Which term refers to cells which grow and reproduce in a disorganized and uncontrolled manner?
- A. anaplasia
 - B. metastasis
 - C. promotion
 - D. vascularization

6. A portion of DNA which has been changed by an initiator becomes
- A. vascularized.
 - B. an oncogene.
 - C. undifferentiated.
 - D. a proto-oncogene.

Use the following information to answer question 7.



7. At which site in the normal DNA strand can the viral strand be inserted to initiate carcinogenesis?
- A. site 1
 - B. site 2
 - C. site 3
 - D. site 4
8. Vascularization is the process in the development of a tumour whereby
- A. capillaries are stimulated to grow.
 - B. viruses implant initiators into the cell.
 - C. cells begin to spread throughout the body.
 - D. proto-oncogenes are changed into oncogenes.

9 Movement of cancer cells to a new site where a secondary tumour begins is called

- A. anaplasia.
- B. metastasis.
- C. promotion.
- D. vascularization.

10 Which of the following is a characteristic of cancer cells?

- A. Differentiated.
- B. Contact inhibition.
- C. Poor blood supply.
- D. Disorganized growth.

11. One difference between proto-oncogenes and oncogenes is that oncogenes have the potential to

- A. infect viruses.
 - B. inhibit cancer cells.
 - C. produce more hormones.
 - D. induce cancerous transformations.
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12. Which of the following is **not** a characteristic of benign tumours?

- A. metastasis
- B. loss of contact inhibition
- C. increased vascularization
- D. disorganized and uncontrolled growth (anaplasia)

13. The process by which new blood vessels supply a growing tumour is

- A. metastasis.
- B. promotion.
- C. malignancy.
- D. vascularization.

14. Which of the following is a characteristic of cancer cells?

- A. Cellular differentiation.
- B. Loss of contact inhibition.
- C. Decreased oxygen uptake.
- D. Inability to actively transport molecules.

15. A characteristic that identifies metastasizing cells is that they
- A. contain steroid hormones.
 - B. make hydrolytic enzymes that digest fats.
 - C. stop growing when they touch other cells.
 - D. grow in a disorganized, uncontrolled manner.

Use the following symptoms to answer question 16.

- a high fever
- a change in bowel or bladder habits
- an obvious change in a wart or mole
- persistent indigestion or difficulty swallowing
- a lump or thickening in the breast or elsewhere

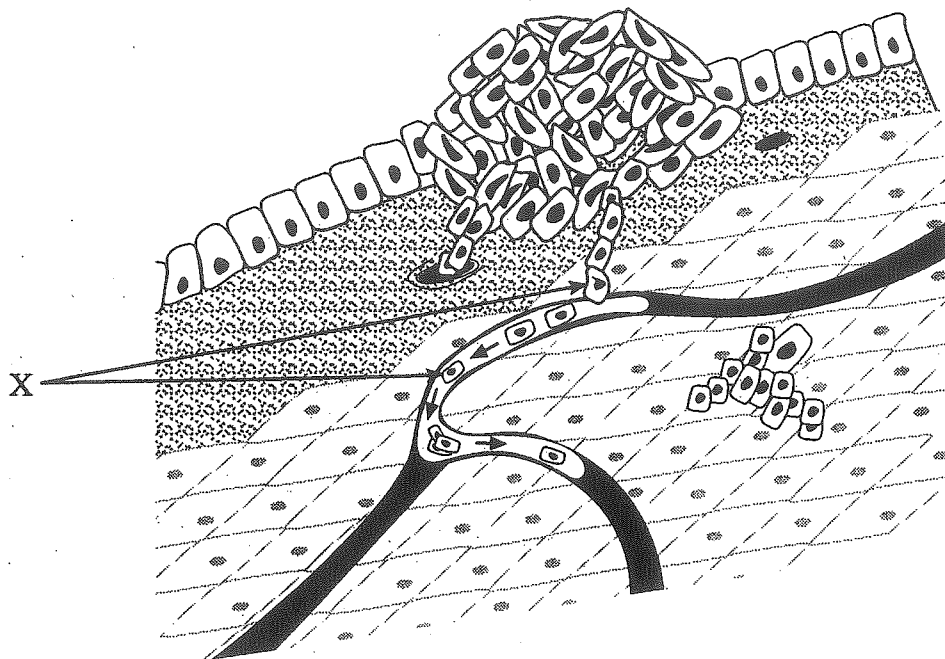
16. How many of the symptoms above are found among the seven commonly recognized cancer danger signals?
- A. two
 - B. three
 - C. four
 - D. five

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17. An oncogene can be introduced into a cell by
- A. a virus.
 - B. thyroxin.
 - C. a bacterium.
 - D. ultraviolet radiation.

18. The process whereby cancer cells cause new tumours to form away from the primary tumour is called
- A. initiation.
 - B. anaplasia.
 - C. metastasis.
 - D. contact inhibition.

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19. When a wart or mole changes into a skin cancer, it is usually the result of
- A. ultraviolet radiation destroying an oncogene.
 - B. a bacterium introducing an oncogene into a cell.
 - C. ultraviolet radiation changing a proto-oncogene.
 - D. a bacterium introducing a proto-oncogene into a cell.

Use the following diagram to answer question 20.



20. Which stage in the development of cancer is indicated by the cells at location X?

- A. anaplasia
- B. metastasis
- C. vascularization
- D. loss of contact inhibition

21. Which of the following is a recognized danger signal that indicates cancer may be present?

- A. a sore fails to heal
- B. an infection occurs
- C. a high fever develops
- D. the heart beats erratically

22. A carcinogen is a substance that

- A. prevents anaplasia.
- B. prevents mutations.
- C. denatures enzymes.
- D. transforms a proto-oncogene.

23. Metastasis is the process whereby

- A. blood vessels grow into a tumour.
- B. cell growth in a tumour becomes disorganized.
- C. a proto-oncogene is converted into an oncogene.
- D. cancer cells detach from a tumour and spread to a new site.

24. An initiator is a factor that causes

- A. metastasis.
- B. vascularization.
- C. oncogene expression.
- D. gene or chromosome mutations.

25. A recognized danger signal that may indicate the presence of colon cancer would be

- A. a shortness of breath.
- B. difficulty swallowing.
- C. a change in bowel habits.
- D. persistent hoarseness or coughing.

26. A malignant tumour is characterized by cells that

- A. are differentiated.
- B. divide a maximum of 50 times.
- C. have a large nucleus when compared to the amount of cytoplasm.
- D. stop growing once they come into contact with neighbouring cells.

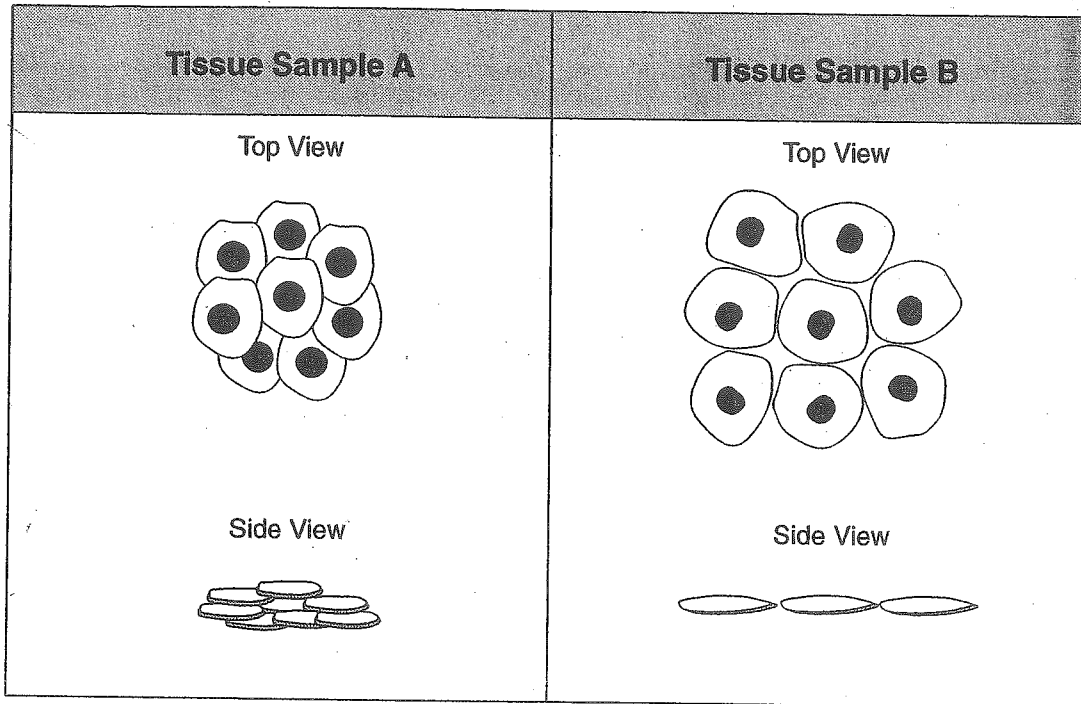
27. Which of the following could change the order of bases in a DNA molecule causing a proto-oncogene to be converted into an oncogene?

- A. ATP
- B. viruses
- C. mRNA
- D. competitive inhibitors

28. Disorganized and uncontrolled growth of cells is called

- A. anaplasia.
- B. metastasis.
- C. vascularization.
- D. loss of contact inhibition.

Use the following diagrams to answer question 29



29 a) The diagrams above were made from samples of epithelial cells taken from healthy tissue and cancerous tissue. Which tissue sample is from the cancerous tissue? (1 mark)

b) Give two reasons for your answer in a) above. (2 marks)

i) _____

ii) _____

30. Describe the development of cancer in the body.
(5 marks which includes 1 mark for correct sequence)

31. Describe the process of carcinogenesis.

(4 marks)

