0505E390

Candidate's Seat No:

M.Sc. (Sem.-II) Examination

408

CB Cellular and Molecular Basis of Cancer

Time: 3 Hours

May-2017

[Max. Marks: 70

Instructions:

All Questions are compulsory

Draw neat and labelled diagram wherever necessary

1

a Describe the differences between Apoptosis and Necrosis.

Or

a Write a note on Genomic instability.

b Explain Lipid metabolism in cancer cells.

Or

b Explain in detail the crabtree effect.

2

a Describe different types of cellular stress response.

Or

a Write a note on Apoptotic pathways.

b Write a note on molecular basis of Warburg phenomenon.

Or

b Explain briefly glutamine metabolism in cancer cells.

Describe in detail about Tumor blood vessel and highlight how they differ from normal blood

vessel.

4

Or

a Name all the six modes of tumor blood vessels formation? Describe in detail all steps of sprouting angiogenesis

b Explain in detail about the pre-metastatic, micrometastatic to macrometastatic transition.

Or

b State all the models for metastasis progression and discuss in detail any two.

.

(P.T. 0.)

14

| a | Write short note on <u>any two</u> with figures of 1. Angiostatin 2. thrombospondin-1 (TSP-1), 3. Intussusceptive angiogenesis | f fol | lowing: | | | |
|--------|---|-------------|---|--|--|--|
| | Hypoxia as mediator Tumor Angiogenesis Or | | | | | |
| a | Describe brief all about classification of Tumors Blood Vessels and write in detail about Mother Vessels (MVs). | | | | | |
| b | Write a note on role of miRNA in invasion and metastasis. | | | | | |
| | Or | | | | | |
| b | Explain in detail about the inflammation and its role in invasion and metastasis. | | | | | |
| 5 | Multiple Choice Questions | امما | 14 | | | |
| | (Mark ($$) the correct answer of the multiple | ie cn | oice questions) | | | |
| 1 | Bax is a Bcl 2 family protein involves in | | activity. | | | |
| a | Anti apoptotic | þ | Pro apoptotic | | | |
| c | Regulation | d | None of above | | | |
| 2 | AKT has isoforms | L. | Two | | | |
| a c | One Three | b d | Four | | | |
| _ | | 1 -1 | d accords that a man from the swinting | | | |
| 3 | The first new type of tumor angiogenic blood vessels that appear from pre-existing venules and, to a lesser extent, from capillaries is | | | | | |
| a | Mother vessels | b | Vasculogenesis | | | |
| c | Glomeruloid microvascular proliferations | d | Sprouting angiogenesis | | | |
| 4 | Altered expression of these genes would be rare or absent in the primary tumor and apparent only in the metastatic lesion. | | | | | |
| a | Macrometastatic-colonization genes | b | Metastasis Initiation genes | | | |
| c | Metastasis-progression genes | d | Both b and c | | | |
| 5 | Major conjugation system for Autophagosome formation requires conjugation of | | | | | |
| a | Atg12-Atg5 conjugation | b | | | | |
| c | Atg12-Atg4 conjugation | d | Atg12-Atg10 conjugation | | | |
| 6 | The small molecule that inhibits S6K and Akt and has shown anti neoplastic activity in | | | | | |
| | pre clinical studies is | | | | | |
| a | X1418 | b | X1419 | | | |
| c | X1518 | d | X1519 | | | |
| 7 | Continuous type of capillaries have all lay abundant in the | ers g | good developed, virtually no gaps and | | | |
| a | Skin, muscles and brain | b | intestinal lining, kidneys & endocrine organs | | | |
| c | liver, bone marrow, lymphoid tissue | d | Oesophagus, heart, spleen | | | |

| 8 | miR-200 family members act as metastasis suppressors because | | | | | |
|----|---|--------|---|--|--|--|
| a | It inhibits hypoxia | | It inhibits EMT | | | |
| c | It inhibits premetastasis niche formation | d | It inhibits angiogenesis | | | |
| 9 | Which type of celluar stress response is o | bserve | d in case of glucose starvation | | | |
| a | Heat shock response | b | Unfolded protein response | | | |
| c | ER response | d | Oxidative stress | | | |
| 10 | During PET FDG-6 phosphate accumulates in cell and radioactive isotope that enables | | | | | |
| | imaging before decay is | | | | | |
| a | Radium -18 | b | Fluorine-18 | | | |
| c | Titaium-18 | d | Polonium-18 | | | |
| 11 | vessels are structurally and functionally abnormal | | | | | |
| a | Tumor | b | Normal | | | |
| c | Pericytes | ď | None above | | | |
| 12 | 2 Which gene has brain-restricted expression pattern | | | | | |
| a | ST6GALNAC5 | b | STAT3 | | | |
| c | COX2 | d | HBEGF | | | |
| 13 | Caspase is type ofprotease | | | | | |
| a | Threonine | b | Serine | | | |
| c | Cysteine | d | Aspartic | | | |
| 14 | Highest density ofare found in | the c | erebral cortex, myocardium, kidney etc. | | | |
| a | Arteries | b | Veins | | | |
| c | Capillaries | d | Venules | | | |
| | | | | | | |