

(3 Hours)

19

[Total Marks : 80]

Notes:

- (1) Question No. 1 is compulsory.
- (2) Attempt any three questions from Q. Nos. 2 to 6
- (3) Draw neat labelled diagram wherever necessary.

Q.1 Write short notes on (5X4=20M)

- a) Morphogen Gradient
- b) Role of environment of an embryo in its development
- c) Positive feedback in development
- d) Apoptosis

Q.2 Explain briefly – (5X4=20M)

- a) Dermal Tissue
- b) Vascular tissue
- c) Ground tissue
- d) Cell signaling maintains the meristem

Q.3 a) Explain the process of angiogenesis? (10M)

b) Describe the process of formation of chondrocytes and osteocytes from myoblasts? (10M)

Q.4 a) Discuss the hematopoietic stem cell as multipotent stem cell? (10M)

b) Explain the three properties that all stem cells have in common? (5M)

c) Explain transit-amplifying cells? (5M)

Q.5 a) Discuss Genetically modified stem cells and gene therapy? (10M)

b) Describe the mechanism of cell proliferation and specialization? (10M)

Q.6 a) Explain epidermis and epidermal renewal by stem cells? (10M)

b) What are the similarities and differences between embryonic and adult stem cells? (5M)

c) Explain totipotent, multipotent, pluripotent and unipotent cells? (5M)
