

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MOOC End Term Examination- 2025

B.Tech-VII Semester (BT/BI)

COURSE CODE(CREDITS): 25M2WBT601 (3)

MAX. MARKS: 70

COURSE NAME: Regeneration Biology

MAX. TIME: 3 Hours

COURSE INSTRUCTORS/Examiner: Prof.R.Ramachandran/Dr.Udayabanu

**Note:** (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q1	Justify that Hydra can provide broader insights into the fundamental principles of regeneration? Provide insights on hydra as an animal model for regeneration.	10
Q2	Demonstrate the general principles of organ regeneration and illustrate them with suitable examples.	10
Q3	Provide brief accounts of zebrafish regeneration properties, highlighting the key events and factors that enable fin/heart/retina tissue to regenerate effectively.	10
Q4	Write an overview on different cellular signaling during regeneration. Explain any one signaling pathway related to regeneration.	10
Q5	Differentiate embryonic and adult stem cells. Discuss on the ethics involved in stem cell research and regenerative medicine.	10
Q6	Assess the Importance of scaffolds in tissue engineering and briefly discuss tissue 3D printing and organ culture.	10
Q7	Explain the following with example: a) Totipotency, b) Pluripotency, c) Multipotency and d) Unipotency	2.5 * 4 = 10