

SEM	SET	PAPER CODE	TITLE OF THE PAPER
IV	2013	12PBO4117	BIOTECHNOLOGY

SECTION – A**Answer all the questions:****20 x 1 = 20****Choose the correct answer:**

- Transformation of _____ possible by *A.tumefaciens*.
 - Tobacco
 - Banana
 - Rice
 - Maize
- P.putida* was developed to perform bioremediation of _____.
 - Biological weapons
 - oil spills
 - heavy metals
 - organic wastes
- Test tube babies are made by the technique _____.
 - Artificial insemination
 - IVF
 - cloning
 - stem cells
- Patients who received xenograft are put on _____ to manage rejection.
 - Corticosteroids
 - azathioprine
 - cyclosporine
 - myoinositol
- _____ is the author of shotgun DNA sequencing
 - Francis Collins
 - JD Watson
 - Craig Venter
 - Frederick Sanger

State True or False:

6. We do not spray herbicide in the field of herbicide tolerant rice.
7. Androgenic fish are females made from inactivated egg genome.
8. Vaccines and antigens are functionally similar in that both induce antibody production.
9. GURT is a form of technology protection system for patented organisms.
10. Minimal genome is a way of creating synthetic life by bottom-up model.

Fill in the blanks:

11. Kanamycin is an antibiotic that can kill _____ cells.
12. The first known human made by IVF was _____.
13. Pre-implantation Genetic Diagnosis is performed at the _____ stage of embryo.
14. Horizontal _____ transfer takes place between two unrelated species.
15. Genetically engineered human can be developed through synthetic _____.

Match the following:

- | | |
|-----------------------------------|---------------------------|
| 16. Crown gall | - a) Jay Keasling |
| 17. Stem cell technology | - b) Ingo Potrykus |
| 18. IVF | - c) Severino Antinori |
| 19. Golden rice | - d) Shinya Yamanaka |
| 20. Synthetic Artemisinin pathway | - e) <i>A.tumefaciens</i> |

SECTION – B

Answer all the questions:

5 x 4 = 20

21. a. Outline the method of making marker – free plants.

OR

b. Outline the mechanism of crown gall development.

22. a. Explain the features of some known bacteria that are exploited for bioremediation of oil.

OR

b. Outline the assisted reproductive technologies employed in improving farm animals.

23. a. How are mammals cloned? Explain the technique.

OR

b. Differentiate between reproductive cloning and therapeutic cloning.

24. a. Illustrate any one method of GURT. What are its repercussions?

OR

b. Explain the issues arising out of release of Bt brinjal.

25. a. What is minimal genome? How did Craig Venter achieve it?

OR

b. Discuss the major approaches to synthetic biology.

SECTION – C

Answer any FOUR questions:

4 x 15 = 60

26. Survey the recent advances made in the field of plant biotechnology.
27. How is biotechnology applied to improve fish?
28. Explain the hurdles faced in xenografting. How are these hurdles overcome?
29. Illustrate the issues of harm arising out of GMOs.
30. Give a summary of the achievements and potential risks arising from synthetic biology. .
