

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: B.E.
BRANCH: BIOTECHNOLOGY**

**SEMESTER : V
SESSION : MO/19**

**SUBJECT: BT5025 FUNCTIONAL GENOMICS AND rDNA TECHNOLOGY
TIME: 3 HOURS**

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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| Q.1(a) Write the characteristic of a cloning vector. | [2] |
| Q.1(b) What are the important features of yeast artificial chromosome? | [4] |
| Q.1(c) Differentiate the features of prokaryotic and eukaryotic expression vectors. | [6] |
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| Q.2(a) Write about ribozyme. | [2] |
| Q.2(b) Describe about genomics and its applications. | [4] |
| Q.2(c) Evaluate the importance of reverse genetics in functional characterization of gene. | [6] |
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| Q.3(a) Write about the applications of Southern blot. | [2] |
| Q.3(b) Assess the role of Northern blot in gene expression study. | [4] |
| Q.3(c) Discuss about site directed mutagenesis as well as its applications. | [6] |
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| Q.4(a) What is Sanger's sequencing? | [2] |
| Q.4(b) Discuss about clone by clone approach in whole genome sequencing. | [4] |
| Q.4(c) Evaluate the role of NGS technology in genome sequencing. | [6] |
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| Q.5(a) What is application of post transcriptional gene silencing? | [2] |
| Q.5(b) Describe the role of siRNA in functional genomics. | [4] |
| Q.5(c) Evaluate the applications of antisense RNA technology in functional genomics. | [6] |
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| Q.6(a) What is a probe? | [2] |
| Q.6(b) Discuss about screening of libraries with DNA probes and antisera. | [4] |
| Q.6(c) Evaluate the applications of ESTs in functional genomics. | [6] |
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| Q.7(a) What is the application of rDNA technology? | [2] |
| Q.7(b) Justify that rDNA technology has played an important role in the development of transgenic plants. | [4] |
| Q.7(c) Evaluate the applications of rDNA technology in gene therapy. | [6] |

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