**TDC (CBCS) Odd Semester Exam., 2020**
**held in March, 2021**

# BIOTECHNOLOGY

**( 5th Semester )**

Course No. : BTCHCC–502T

**( Recombinant DNA Technology )**

*Full Marks* : 50
*Pass Marks* : 20

*Time* : 3 hours

*The figures in the margin indicate full marks for the questions*

## SECTION—A

**1.** Answer any *ten* of the following questions : 2×10=20

*(a)* What are plasmids?

*(b)* What are cosmids?

*(c)* What is BAC?

*(d)* What is YAC?

(e) What is restriction mapping?

(f) What is reverse transcription?

(g) What is cDNA library?

(h) Define restriction modification system.

(i) What is genome mapping?

(j) What is DNA finger printing?

(k) What are ES cells?

(l) What is gene targeting?

(m) What is primer extension?

(n) What is a PCR-based method?

(o) What is random mutagenesis?

(p) What is gene shifting?

(q) What is T-DNA?

(r) What is $T_i$ plasmid?

(s) What is crown gall disease?

(t) What is hairy root disease?





SECTION—B

Answer *any* **five** questions

**2.** What are restriction enzymes? What are the major types of restriction enzymes? Describe briefly, the role of restriction endonucleases in recombinant DNA technology. 1+2+3=6

**3.** What is PCR? What is Taq polymerase? State briefly the different steps of PCR. Mention two important uses of PCR technology. 1+1+3+1=6

**4.** Write a note on northern hybridization technique. Mention the applications of the said technique. 4+2=6

**5.** Write a note on the methods of screening of recombinants (any two) and state their limitations. 4+2=6

**6.** Write a note on the application of genetic engineering. 6

**7.** What are vaccines? Write a note on the role of genetic engineering in production of vaccine. 2+4=6

**8.** What is site directed mutagenesis? Mention two uses of this technique in molecular biological research. Describe briefly PCR-based methods for site directed mutagenesis. 1+2+3=6

**9.** Write a note on the production of chimeric proteins. 6

**10.** Write a note on direct DNA transfer in plants. 6

**11.** Write a note on gene targeting in plants. 6

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