

U.G. 5th Semester Examination - 2020
Molecular Biology & Biotechnology
[HONOURS]
Course Code : MBBT(H)/CCR-12/PR
[PRACTICAL]

(Recombinant and DNA Technology)

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

*Examinees are advised to answers in their own words
as far as practicable.*

1. Perform any **one** of the following experiments:

10×1=10

- a) Write down the principle, requirement and procedure of isolation of genomic DNA from plant cell or from *E. coli*. Interpret and pictorially represent your result imagining that the isolated genomic DNA got partially degraded. What precautions must be taken to prevent degradation. 2+2+3+2+1

OR

- b) Write down the principle, requirement and

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procedure of isolation of plasmid DNA from the supplied sample by alkaline lysis method. Interpret and pictorially represent your result imagining that you forgot to add RNase in the Resuspension buffer. 2+2+3+3

OR

- c) Write down the principle, requirement and procedure of restriction digestion of 5 kb plasmid DNA using restriction endonuclease EcoRI. The plasmid is having a single EcoRI restriction site. Interpret and pictorially represent your result by running the plasmid digested by EcoRI and the undigested plasmid in agarose gel. 2+2+3+3

OR

- d) Write down the principle, requirement and procedure of making competent cell of *E. coli* DH5 α and subsequent transformation of Plasmid pET 28-a(+) (with Kan^R – kanamycin resistance gene) into the host. Interpret and pictorially represent the final result showing the transformed bacterial colonies. 2+2+3+3

OR

- e) You have to amplify a gene from *E. coli* genomic

DNA (template DNA). The forward and reverse primers are of 18 nucleotides each and have T_m 57°C and 55°C, respectively. The size of the gene of interest is 897 kb. Write down the principle, requirement, procedure and design a PCR program for the aforementioned experiment. Interpret and pictorially represent your result. 2+2+3+3

2. Laboratory Notebook/ Practical based Home Assignment (online submission to the Examiner): 5
3. Viva-voce (to be conducted by the Examiner through any online platform): 5
