

**2024/TDC (CBCS)/EVEN/SEM/  
BTCHCC-601T/009**

**TDC (CBCS) Even Semester Exam., 2024**

**BIOTECHNOLOGY**

**( 6th Semester )**

Course No. : BTCHCC-601T

**( Bioanalytical Tools )**

*Full Marks : 50*

*Pass Marks : 20*

*Time : 3 hours*

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

**UNIT—I**

**1.** Answer any *two* of the following questions :

2×2=4

- (a) Write down the applications of TEM.
- (b) Write a note on phase contrast microscopy.
- (c) What do you mean by magnification?

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2. Answer any *one* of the following questions : 6

- (a) Write a short note on emission spectroscopy. What is resolving power of a microscope? 5+1=6
- (b) Give a detailed account of absorption spectroscopy. 6

UNIT—II

3. Answer any *two* of the following questions : 2×2=4

- (a) What do you mean by spectrophotometry?
- (b) Write down the principle of colorimeter.
- (c) Write a note on infrared spectroscopy.

4. Answer any *one* of the following questions : 6

- (a) Give a detailed account of fluorescence microscopy. Add a note on the application of fluorescence microscopy in biological sciences. 5+1=6
- (b) Write a note on absorption fluorimetry.

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( Continued )

( 3 )

UNIT—III

5. Answer any *two* of the following questions : 2×2=4

- (a) What do you mean by density gradient centrifugation?
- (b) Write down the principle of centrifugation.
- (c) Write a note on sedimentation coefficient (S).

6. Answer any *one* of the following questions : 6

- (a) Write a note on isolation of sub-cellular organelles and particles. 6
- (b) Give a detailed account of cell fractionation techniques. 6

UNIT—IV

7. Answer any *two* of the following questions : 2×2=4

- (a) Write down the principle of paper chromatography.
- (b) Write a note on ion-exchange chromatography.
- (c) Write down the application of affinity chromatography.

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( Turn Over )

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8. Answer any *one* of the following questions : 6

(a) Write a note on HPLC. Add a note on its applications. 4+2=6

(b) Write down the principle and working of thin-layer chromatography. 2+4=6

UNIT—V

9. Answer any *two* of the following questions : 2×2=4

(a) What do you mean by biosensors?

(b) Write a note on nanotechnology.

(c) Write down the applications of Western blotting.

10. Answer any *one* of the following questions : 6

(a) Write a note on immuno-electrophoresis. 6

(b) Write down the principle of gas chromatography. Add a note on isoelectric focusing. 3+3=6

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