

- (iii) Find $\frac{dy}{dx}$, if $y = \cot^{-1} (\operatorname{cosec} x + \cot x)$ 4
- (iv) Find $\frac{dy}{dx}$, if $y = \tan^{-1} \left(\frac{\sqrt{1+x^2} + 1}{x} \right)$ 4
7. (i) Find $\frac{dy}{dx}$, if $y = x^x + (\log x)^x$ 8
- (ii) Differentiate $\cos^{-1} \left(\frac{1-x^2}{1+x^2} \right)$ w.r.t. $\tan^{-1} x$. 8

Unit-IV

8. Evaluate the following integral
- (i) $\int \frac{\tan x}{\sec x + \tan x} dx$ 8
- (ii) $\int \tan^{-1} x dx$ 8
9. Evaluate the following integral
- (i) $\int \frac{3x+2}{(x+2)(x+3)} dx$ 8
- (ii) $\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx$ 8

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B.C.A. Ist Semester Examination,

February-2022

MATHEMATICS

(Paper : BCA-103)

Time allowed : 3 hours]

[Maximum marks : 80

Note : Attempt five questions in all. Question No. 1 is compulsory and attempt four more questions by selecting one question from each unit. All questions carry equal marks.

1. (i) Write down all the subsets of - 8 \times 2 = 16
{3, 0, π }
- (ii) If $\begin{bmatrix} x+3 & x+2y \\ 2-1 & 4u-6 \end{bmatrix} = \begin{bmatrix} 0 & -7 \\ 3 & 2u \end{bmatrix}$, find the values
x, y, z and u.
- (iii) Evaluate $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2}$
- (iv) Find the domain of $y = \sqrt{x+5}$
- (v) Find dy/dx , when $y = \frac{x^2+x+1}{x+5}$
- (vi) Find dy/dx , when $y = a^{3x-10}$
- (vii) Evaluate $\int \left(x + \frac{1}{x} \right)^2 dx$
- (viii) Evaluate $\int \cos^2 x dx$

97663-P-4-Q-9 (22)

[P.T.O.]

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B.C.A. 1st Semester Examination,
February-2022
PC SOFTWARE
(BCA-102)

Time allowed : 3 hours Maximum marks : 80

Note : Attempt five questions in all, selecting one question from each write Question No.-1 compulsory.

1. Write short note on following : 16
- (i) Control Panel
 - (ii) File Management
 - (iii) Cell Address
 - (iv) Word Art

Unit - 1

2. Define MS-Windows. Explain basic components of windows. 16
3. Explain the following : 16
- (i) Icons and its types
 - (ii) Windows Accessories