

VIVEKANANDA GOVERNMENT DEGREE COLLEGE

VIDYANAGAR, HYDERABAD

DEPARTMENT OF MATHEMATICS

CERTIFICATE COURSE

PROBLEM SOLVING TECHNIQUE

Number of Hours: 30

SYLLABUS

UNIT –I (15HRS)

Matrices up to solving of simultaneous equations in two variables, Basic concepts and simple formulae of Differentiation

UNIT-II(15HRS)

Maxima and Minima. Basics of Integration.

Reference Books: 1.Quantitative aptitude by R.S.Aggarwal

2.Mathematics for C.A. Foundation by B.M. Aggarwal

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Evaluation Process

Total Marks:50

Internal Assessment : 10Marks

Internal Assessment through given assignment carrying 10 Marks.

External Exam: 40Marks

Section-A: MCQ's

12× 2 = 24 Marks

Section-B:

4X 4 = 16 Marks

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Max Marks:50M

Invigilator's signature

SEMESTER-II Name of the student: _____

RollNo: _____

Class: _____

Date: _____

SECTION-A

Choose the Correct Answer

Marks: 12× 2 = 24.

1. $\frac{d}{dx}(x^n)$ is . []
a) x^n b) nx^{n-1} c) $\frac{x^{n+1}}{n+1}$ d)None
2. $\frac{d}{dx}(\sqrt{x})$ is []
a) $\frac{1}{2\sqrt{x}}$ b) $2\sqrt{x}$ c) $\frac{-1}{2\sqrt{x}}$ d)None
3. $\frac{d}{dx}(\log x)$ is []
a) x b) $\frac{1}{x}$ c) x^2 d)None
4. $\frac{d}{dx}(\sin 2x)$ is []
a) $2 \sin 2x$ b) $2\cos 2x$ c) $\cos 2x$ d)None
5. $\frac{d}{dx}(e^{ax})$ is []
a) e^{ax} b) ae^{ax} c) $\frac{e^{ax}}{a}$ d)None
6. $\frac{d}{dx}(uv)$ is []
a) $u'v - uv'$ b) $u'v + uv'$ c) $\frac{u'v - uv'}{v^2}$ d)None
7. If $A = \begin{bmatrix} x & 9 \\ 4 & x \end{bmatrix}$ is non invertible then values of x are []
a) 6 b) -6 c) +6 d)None
8. $\frac{d}{dx}(xe^x)$ is []
a) xe^x b) $x + e^x$ c) $e^x(x + 1)$ d)None
9. If $A = \begin{bmatrix} 1 & x \\ 2 & 3 \end{bmatrix}$ is symmetric then x is []
a) 1 b) 3 c) 2 d)None
10. A is Anti-symmetric if []
a) $A^T = A$ b) $A^T = -A$ c) $A=0$ d)None
11. $(AB)^T$ is []
a) $A^T \cdot B^T$ b) $B^T A^T$ c) A.B d)None
12. Order of $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ is []

- a) 3×2 b) 2×3 c) 2×2 d) None

SECTION-B

Solve the following

Marks : $4 \times 4 = 16$.

1. Find the values of x, y, z, w if $\begin{bmatrix} x-3 & 2y+x \\ z-1 & 4w-6 \end{bmatrix} = \begin{bmatrix} 0 & -7 \\ 3 & 2w \end{bmatrix}$.
2. If $P = \begin{bmatrix} 9 & 1 \\ 4 & 3 \end{bmatrix}$, $Q = \begin{bmatrix} 1 & 5 \\ 7 & 12 \end{bmatrix}$ Find matrix R such that $5P + 3Q + 2R$ is a null matrix.
3. If $A = \begin{bmatrix} 2 & -1 & 0 \\ 3 & 2 & 5 \\ -4 & 1 & 5 \end{bmatrix}$ is a unit matrix and $A+B=6$ then find B .
4. Find $\frac{d}{dx}(x \sin x)$.
5. Find $\frac{d}{dx}(e^x \cos x)$.
6. Find $\frac{d}{dx}\left(\frac{2x+3}{3x+4}\right)$.