Prasad Belamkar.

B.Sc. Third Year (Semester –V)

Practice Test-1

MAT 504 (ODE-I)

Note: Tick (√) the correct option

1) If $a = 4 + 3i, b = 2 - i$ and $f(x) = (a+b)x$ then $(Ref)(x)$ is …………

     a) -2   b) 2   c) 6   d) -6

2) If $a = 4 - i, b = 2 + i$ and $f(x) = (a + 2b)x$ then $(Imf)(x)$ is …………

     a) -1 b) 1   c) i d) $-i$

3) If $p(z) = (z - r)^3(z^2 + 1)$ then the root r has multiplicity…….

     a) 0   b) 1   c) 2   d) 3

4) If $p(z) = (z - r)^3$, where r is complex number then $p''(r) = $……..

     a) 0   b) 3   c) 6   d) 2

5) If $\emptyset(x) = e^{iax}$ where a is real constant then …………

     a) $\emptyset'(x) + ia\emptyset(x) = 0$ b) $\emptyset'(x) - ia\emptyset(x) = 0$

     c) $\emptyset'(x) + a\emptyset(x) = 0$ d) $\emptyset'(x) - a\emptyset(x) = 0$

6) The series $\sum_{k=0}^{\infty} z^k$, z is complex , converges absolutely for………

     a) $z = 1$ b) $|z| = 1$ c) $|z| < 1$ d) $|z| > 1$

7) The solution of initial value problem $y' = ky$ and $y(0) = 2$ is………
     a) $2e^{kx}$ b) $2e^{-kx}$ c) ke^{2x} d) ke^{-2x}

8) The solution of homogeneous linear differential equation of first order is …………

     a) ce^{kx} b) ce^{-kx} c) ae^{cx} d) ae^{-cx}

9) The equation $y' + ay = 0$ is…………………

     a) *Homogeneous linear equation of first order*

     b) *Nonhomogeous linear equation of first order*

     c) *Homogeneous linear equation of second order*

d) *Nonhomogeous linear equation of second order*

10) If $\emptyset_1(x)$ *and* $\emptyset_2(x)$ are two solutions of $y'' + a_1 y' + a_2 y = 0$ then so is .... also
solution

a) $c_1 \emptyset_1(x) + c_2 \emptyset_2(x)$ b) $c_1 \emptyset'_1(x) + c_2 \emptyset'_2(x)$

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11) The characteristic equation for the equation $y'' + a_1 y' + a_2 y = 0$ is ....

a) $r^2 + a_1 r + a_2$ b) $r^2 - a_1 r - a_2$

c) $r^2 + a_2 r + a_1$ d) $r^2 - a_1 r + a_2$

12) The two solutions $\emptyset_1(x) = e^{2x}$ *and* $\emptyset_2(x) = e^{3x}$ are ......

a) *Linearly dependent*   b) *Linearly independent*

c)Both (a) and (b)   d) None of the above

13) The Wronskian of solutions $\emptyset_1(x) = e^{2x}$ *and* $\emptyset_2(x) = e^{-3x}$ is ... ...

a) $5e^x$ b) $5e^{-x}$ c)) $-5e^x$ d) $-5e^{-x}$

14) Are two solutions $\emptyset_1(x) = sinx$ *and* $\emptyset_2(x) = e^{ix}$ linearly independent?

a) Yes b) No   c) Both (a) &(b)   d) None of these

15) Solutions of nonhomogeneous second order differential equation $y'' + a_1 y' + a_2 y = b(x)$ is

a) $\emptyset(x) = c_1 \emptyset_1(x) + c_2 \emptyset_2(x) + \varphi_p$ b) $\emptyset(x) = c_1 \emptyset'_1(x) + c_2 \emptyset'_2(x) + \varphi_p$

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16) The characteristic polynomial for linear differential equation of order n has degree........

a) 1   b) 2   c) 3   d) n

Swati Ashok Dudhbhate

B.Sc. Third Year (Semester –V)

Practice Test-1

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Rakhelkar Gautami Avinash

Dr.J.A.Nanware, Dept of Mathematics, SKM Gunjoti (March 4,2021)

B.Sc. Third Year (Semester –V)

Practice Test-1

MAT 504 (ODE-I)

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Potdar Tejaswini Bhagvant

Dr.J.A.Nanware, Dept of Mathematics, SKM Gunjoti (March 4,2021)

B.Sc. Third Year (Semester –V)

Practice Test-1

MAT 504 (ODE-I)

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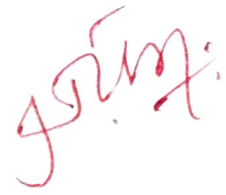
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B.Sc. Third Year (Semester –V)

Practice Test-1

MAT 504 (ODE-I)

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