

Date:02/02/2022

Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Sc. I Sem. I Mathematics
Theory Internal Examination 2021-22

All the students of B.Sc. I Mathematics (A and C) are hereby informed that their theory Internal Examination of Mathematics will be conducted on **11th February, 2022 at 3.15 pm to 4.15 pm**. The examination will be conducted only one time, students are directed to attend the examination without fail. Syllabus for examination will be as mentioned in following table.

Sr. No.	Name of Paper	Syllabus
1	DSC-1003A: Section I-Calculus	$\epsilon - \delta$ definition of limit of a real valued function, Limit at infinity and infinite limits; Continuity of a real valued function, Properties of continuous functions, Intermediate value theorem, Geometrical interpretation of continuity, Types of discontinuity; Uniform continuity
2	DSC-1003A - Section-II: Algebra and Geometry	Elementary theorems on the roots of an equations including Cardan's method, The remainder and factor theorems, Synthetic division, Factored form of a polynomial, The Fundamental theorem of algebra, Relations between the roots and the coefficients of polynomial equations, Imaginary roots, Integral and rational roots; Polar representation of complex numbers , The nth roots of unity, De Moivre's theorem for integer and rational indices and its applications.


***Nature of question paper:-**

Q.1) Multiple Choice Questions (04 marks)

Q.2) Attempt any two (16 marks)

Q.3) Attempt any two (10 marks)




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VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

B.SC. Part- I (Mathematics) (Sem-I)

Internal Examination

Course code : DSC-1003 A

Q. 1. Select the correct alternative for each of the following: [04]

1) Let $A = \{a, b\}$ and $B = \{1, 2, 3\}$ then number of elements in $A \times B$ is...

- A) 1 B) 2 C) 3 D) 6

2) $x^5 - 3x^2 + 2x - 2 = 0$ has at most Positive roots.

- A) 1 B) 3 C) 2 D) 5

Q.2] Attempt any two of the following [16]

1) State and prove De-Moivre's theorem for positive and negative integers.

2) Solve the equation by Cardan's method $x^3 + x^2 - 16x + 20 = 0$

3) State and prove Lagrange's mean value theorem.

Q.3] Attempt any four of the following [16]

1) If $y = \sin^4 x$ then find y_n

2) State and prove the Factor theorem.

3) If w is 5th root of unity, then show that $(1 - w)(1 - w^2)(1 - w^3)(1 - w^4) = 5$

4) If $y = \frac{1}{1-5x+6x^2}$ then find y_n

5) Verify Rolle's theorem for $f(x) = x^2 - 4x + 10$ on the interval $[0, 4]$.

6) Let $A, B, C,$ and D be sets. Let $R: A \rightarrow B, S: B \rightarrow C, T: C \rightarrow D$ be relation

then prove that $R. (S. T) = (R. S). T$


Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Sc. II Sem. III
Internal Examination 2021-22

Second year students are hereby informed that in view of Covid-19 pandemic the Third semester internal examination, June 2020 will be conducted in online mode through Google Forms. The google form link will be communicated on WhatsApp group 10 min prior to examination time. Syllabus and timetable of examination is given below:

Sr. No.	Paper	Units	Date	Time
1	Section-I	Unit II and III	11/01/2022	1.00 -
2	Section-II	Unit I and II		2.00

***Nature of question paper: - 10 MCQs two mark each (20 Marks)**




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 Vivekanand College, Kolhapur

Date:01/01/2022

Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Sc. III Sem. V
Internal Examination 2021-22

All the students of B.Sc. III are hereby informed that their Internal Examination of Mathematics will be conducted from 10th January 2022 to 13th January 2022 at time 3.00- 4.00. The examination will be conducted only one time, students are directed to attend the examination without fail. Syllabus, timetable and nature of question paper of examination is given below:

Sr. No.	Name of Paper	Units	Date
1	Real Analysis	UNIT I, II	10/01/2022
2	Modern Algebra	UNIT I, II	11/01/2022
3	Matrix Algebra	UNIT I, II	12/01/2022
4	Numerical Methods I	UNIT I, II	13/01/2022

*** Nature of question paper:**

Time: 1hour

Total Marks: 25

Q.1 Select the most correct alternative for each of the following: [05]

Five questions


Q.2 Attempt any four

[20]

Five questions

Venue: Roome No. 39




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Q.2 Attempt any four of the following

[20]

i) show that the sequence

$$S_n = \frac{1}{n+1} + \frac{1}{n+2} + \dots + \frac{1}{2n} \quad \forall n \in \mathbb{N} \text{ is convergent.}$$

ii) Prove that Cauchy sequence of real number is bounded.

iii) Show that series $\sum_{n=1}^{\infty} \frac{1}{n}$ diverges.

iv) Show that $[0, 1]$ is an uncountable set.

v) If f is bounded function on $[a, b]$ and P is partition of $[a, b]$ and P^* is refinement of P , then prove that $L(P^*, f) \geq L(P, f)$.

Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-V Internal Examination 2021-22

MATHEMATICS

Modern Algebra

Subject Code: DSC-1003E1

Date: 11/01/2022

Total Marks: 25

Time: 3.00 - 4.00

Q. 1 Select the most correct alternative for each of the following: [05]

i) If characteristic of a ring R is 15 then characteristic of any of its subring is

- _____.
- A) 14 B) 5 C) 15 D) 3

ii) There cannot be a finite integral domain of order _____.

- A) 2 B) 5 C) 7 D) 10

iii) A commutative division ring is called _____.

- A) a Field B) Semi-prime ring
C) Simple ring D) an Integral domain

iv) If G is a group and $g \in G$ then the subset $\{x \in G \mid xg = gx\}$ is called

- _____.
- A) centre of g B) normalizer of g
C) centre of G D) left coset

v) If G is a finite group and H is a normal subgroup of G then number of distinct left cosets of H in G is equal to _____.

- A) $\frac{O(H)}{O(G)}$ B) $\frac{O(G)}{O(H)}$ C) $O(G)$ D) $O(H)$

Q.2 Attempt any four of the following [20]

i) Define Order of Cycle. Find the order of cycle $(1\ 2\ 4\ 5)$ from S_5 defined on $S = \{1,2,3,4,5\}$

ii) Show that intersection of two normal subgroups is again a normal subgroup.

iii) Prove that every finite integral domain is field

iv) Define sum of two ideals and Show that Sum of two ideal is again a ideal.

v) $F : R \rightarrow R'$ is ring homomorphism then show that $\ker F$ is ideal of R

Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-V Internal Examination 2021-22

MATHEMATICS

Matrix Algebra

Subject Code: DSC-1003E2

Date: 12/01/2022

Total Marks: 25

Time: 3.00 - 4.00

Q. 1 Select the most correct alternative for each of the following: [05]

1) The eigen values of matrix $\begin{bmatrix} 3 & 2 & 2 \\ 2 & 2 & 0 \\ 2 & 0 & 4 \end{bmatrix}$ are -----

- A) 1, 2, 6 B) 1, -2, 6 C) 0, 3, -6 D) 0, 3, 6

2) The matrix describes the reflection of a point A (x, y) in the y - axis

- A) $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$ B) $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ C) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ D) $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$

3) Rank of $\begin{bmatrix} 1 & 3 & 4 & 3 \\ 3 & 9 & 12 & 3 \\ 1 & 3 & 4 & 0 \end{bmatrix}$ is _____.

- A) 1 B) 2 C) 3 D) None of these

4) For the system of equations $3x + y + z = 8, -x + y - 2z = -5$

$2x + 2y + 2z = 12, -2x + 2y - 3z = -7$, if $x = 1, y = m, z = n$ then

$m =$ _____ and $n =$ _____.

- A) -1, 1 B) 2, 3 C) 1, -2 D) -2, -3

5) In system $AX = B$ it has unique solution if

- A) $\rho(A) = \rho(AB) < n$ B) $\rho(A) = \rho(AB) = n$
C) $\rho(A) \neq \rho(AB)$ D) $\rho(A) = n < \rho(AB)$

Q.2. Attempt any four of the following:

[20]

i) Find the rank of the Matrix $\begin{bmatrix} 6 & 1 & 3 & 8 \\ 4 & 2 & 6 & -1 \\ 10 & 3 & 9 & 7 \\ 16 & 4 & 12 & 15 \end{bmatrix}$

ii) Find the image of the point (4, -8) under the transformation

$$(x, y) \rightarrow \left(\frac{x}{4} + \frac{4y}{3}, \frac{y}{3} - \frac{x}{4} \right).$$

iii) For what value of λ the simultaneous equations $x + y + z = 1$,

$$x + 2y + 4z = \lambda, \quad x + 4y + 10z = \lambda^2$$
 have a solution and solve them in each case

iv) Find the rank of the matrix, where $A = \begin{bmatrix} 1 & 3 & 4 & 5 \\ 1 & 2 & 6 & 7 \\ 1 & 5 & 0 & 10 \end{bmatrix}$

v) Find the reflection matrix of a point A (x, y) passing through origin.

Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-V Internal Examination 2021-22

MATHEMATICS

Numerical Methods I

Subject Code: DSC-1003E2

Date: 13/01/2022

Total Marks: 25

Time: 3.00 - 4.00

Q. 1 Select the most correct alternative for each of the following: [05]

i) In Bisection method, the new interval length is -----

- A) $\frac{a+b}{2}$ B) $\frac{a+b}{2^n}$ C) $\frac{|b-a|}{2}$ D) $\frac{|b-a|}{2^n}$

ii) For the system of equations, $6x_1 + 3x_2 + x_3 = 12$, $x_1 + 5x_2 + 2x_3 = 3$,
 $2x_1 + 4x_2 + 7x_3 = 21$, the values of x_1, x_2, x_3 by Gauss-Jordan method are --

- A) -2, -1, 3 B) 2, 1, -3 C) 2, -1, -3 D) 2, -1, 3

iii) The root of the equation $\cos x - xe^x = 0$ in the interval (0, 1) by
Secant method in second iteration is -----

- A) 0.5168 B) 0.5318 C) 0.3167 D) 0.4467

iv) In ----- method, elements above and below diagonal are simultaneously
made zero.

- A) Gauss-Elimination B) Gauss-Jordan
C) Jacobi's method D) Gauss-Seidel

v) The largest eigen values of matrix $\begin{bmatrix} 1 & 4 & 16 \\ 4 & 16 & 1 \\ 16 & 1 & 4 \end{bmatrix}$ is -----

- A) 16 B) 21 C) 48 D) 64

Q.2 Attempt any four of the following

[20]

i) Explain Newton -Raphson method.

ii) Explain Regula - Falsi method.

iii) Solve the following equation by Jacobi method (Do three iterations).

$$27x + 6y - z = 85, 6x + 15y + 2z = 72, x + y + 54z = 110$$

(Initial value $x = 0, y = 0, z = 0$).

iv) Determine the largest eigen value and the corresponding eigen vector of the

matrix $A = \begin{bmatrix} 4 & 1 & 0 \\ 1 & 20 & 1 \\ 0 & 1 & 4 \end{bmatrix}$ by using power method. (Initial vector $X = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$)

v) Find the approximate root of the equation $x^3 - 2x - 5 = 0$ by the method of Regula falsi method upto three places of decimal.

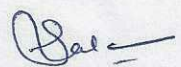
Date: 10/01/2022

Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Com. I Sem. I
Internal Examination 2021-22

Internal Examination of Business Mathematics-II will be conducted in offline manner on **15th January, 2022 from 10.00 am to 11.00 pm**. The Exam will be conducted in room no 57. All students must wear mask and bring their own bottle of sanitizer.

Sr. No.	Name of Paper	Topics
1	Business Mathematics-I GEC-1045A	Unit 1 Arithmetic Progression And Geometric Progression Unit 2 Compound Interest, Ratio, Percentage, Proportion and Partnership Unit 3: Matrix




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Nature of question paper

Time: 1 Hr.

Total Marks: 30

Q.1) Attempt any One of the following [10]

1)

2)

Q.2) Attempt any four questions [20]

1)

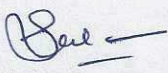
2)

3)

4)

5)




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15/01/2022

Vivekanand College, Kolhapur (Autonomous)
B.Com. (Part-I) Semester-I
Internal Examination
Business Mathematics Paper- I

Time: 1 hr.

Total Marks: 30

Q.1) Attempt any One of the following

[10]

- 1) (a) A sum of money double itself in 6 years. Find the rate of simple interest
- (b) Find the amount of Rs.5000 at 12 % p.a. in 4 years compound quarterly.

2) If $A = \begin{bmatrix} 2 & 3 & 4 \\ 1 & 5 & 7 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 2 & 5 \\ 4 & -3 & 7 \\ 3 & 6 & 0 \end{bmatrix}$, Find matrix X such that

$$AB + X = \begin{bmatrix} 5 & 10 & 15 \\ 0 & -17 & 30 \end{bmatrix}.$$

Q.2) Attempt any four questions

[20]

- 1) Find three numbers in geometric progression(G.P.) such that their sum is 35 and their product is 1000.
- 2) The monthly salaries of two persons are in the ratio 3:5. If each receives an increase of Rs. 200 in monthly salary is 13:21 find their original salaries.
- 3) A students finishes the book by reading 30 pages per day in 16 days. If he wants to finish the book in 12 days, how many pages should be read everyday?

4) Compute $\left\{ (-2) \begin{bmatrix} 1 & -3 \\ 7 & 9 \\ 8 & 0 \end{bmatrix} + (3) \begin{bmatrix} 6 & 0 \\ 9 & 5 \\ 1 & 2 \end{bmatrix} \right\} \begin{bmatrix} 3 \\ -2 \end{bmatrix}$.

5) Find the inverse of the matrix $A = \begin{bmatrix} 2 & 5 \\ -1 & 4 \end{bmatrix}$.



Ses
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Date-07/06/2022

Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Sc. I Sem. II Mathematics
Theory Internal Examination 2021-22

All the students of B.Sc. I Mathematics (A and C) are hereby informed that their theory Internal Examination of Mathematics will be conducted on **13th June, 2022 at 2.15 pm to 3.15 pm**. The examination will be conducted only one time, students are directed to attend the examination without fail. Syllabus for examination will be as mentioned in following table.

Sr. No.	Name of Paper	Syllabus
1	DSC-1003B: Section I-Multivariable Calculus	Functions of several variables, Level curves and surfaces, Limits and continuity, Partial differentiation, Tangent planes, Chain rule, Directional derivatives, Tangent planes and normal lines.
2	DSC-1003B: Section II-Ordinary Differential Equation	Differential equations of first order and first degree, Linear differential equations and equations reducible to linear form, Exact differential equations, Integrating factor, First order higher degree equations solvable for x, y and p. Clairaut's form and singular solutions. Picard's method of successive approximations and the statement of Picard's theorem for the existence and uniqueness of the solutions of the first order differential equations.


***Nature of question paper:-**

Q.1) Multiple Choice Questions (04 marks)

Q.2) Attempt any two (16 marks)

Q.3) Attempt any two (10 marks)




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VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

B.SC. Part- I (Mathematics) (Sem-II)

Internal Examination

Course code : DSC-1003 B

Q. 1. Select the correct alternative for each of the following: [04]

1) The value of $\lim_{(x,y) \rightarrow (0,0)} f(x,y)$ is along path $x = y^3$ where, $f(x,y) = \frac{xy^3}{x^2+y^6}$.

- A) $\frac{1}{6}$ B) $\frac{1}{4}$ C) $\frac{1}{2}$ D) $\frac{1}{8}$

2) If $f(x) = 3x^3 + 2xy^2 + y^3$ then value of f_{xx} i.e. $\frac{\partial}{\partial x} \left(\frac{df}{dx} \right) = \dots$ at point (4,6)

- A) 108 B) 72 C) 80 D) 92

3) If $\frac{\left(\frac{\partial M}{\partial y} - \frac{\partial N}{\partial x} \right)}{N}$ is a function of x say f(x) then.....is an integrating factor

- A) $e^{\int f(y)dy}$ B) $e^{\int f(x)dx}$ C) e^x D) e^y

4) The equation $(x^2 - ay)dx + (y^2 - ax)dy = 0$ is ...

- A) Homogeneous B) Variable separable C) Exact D) Linear

Q.2] Attempt any two of the following [16]

1) Evaluate repeated and simultaneous limit of the following function if exist.

$$f(x,y) = \frac{2xy^2}{x^2+y^4}, x^2 + y^4 \neq 0, f(0,0) = 0.$$

2) Define Clairaut's equation and explain the method of solving it. Hence solve

$$(y - px)^2 = a^2(1 + p^2)$$

3) By using chain rule Show that, $\frac{\partial z}{\partial u} + \frac{\partial z}{\partial v} = \frac{u-v}{u^2+v^2}$ if $z = \tan^{-1} \left(\frac{x}{y} \right)$ and $x = u + v, y = u - v$.

Q.3] Attempt any four of the following [16]

1) Solve $(x^2 - 4xy - 2y^2)dx + (y^2 - 4xy - 2x^2)dy = 0$

2) Solve $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 2e^{3x}$

3) If $f(x) = 3x^3 + 2xy^2 + y^3$ then find value of f_{xx}

4) Solve $(2xy + y - \tan y)dx + (x^2 - x \tan^2 y + \sec^2 y)dy = 0$

5) Find the value of $\lim_{(x,y) \rightarrow (0,0)} f(x,y)$ along path $x = y^3$ where, $f(x,y) = \frac{xy^3}{x^2}$

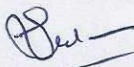
Date:01/06/2022

Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Sc. II Sem. IV
Internal Examination 2021-22

All the students of B.Sc. II Mathematics are hereby informed that their Internal Examination of Mathematics will be conducted on 7th June, 2022 from 3.00 am to 4.00 am. Syllabus and timetable of examination is given below:

Sr.	Paper	Units	Room No.
1	Section I- Discrete Mathematics	Unit I- Relations	41
2	Section II- Integral Transform	Unit I Laplace Transform Unit II Inverse Laplace Transform	




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Nature of Question Paper:

Time: 1 Hr.

Total Marks: 30

Section-I

Q.1 Select the correct alternatives for each of the following [03]

1)

2)

3)

Q.2 Attempt any three of the following [12]

1)

2)

3)

4)

Section-II

Q.1 Select the correct alternatives for each of the following [03]

1)

2)

3)

Q.2 Attempt any three of the following [12]

1)

2)

3)

4)

Vivekanand College, Kolhapur (Autonomous)
B.Sc. (Part-II) Semester-IV Internal Examination 2021-2022
MATHEMATICS

Subject Code: _____
Day and Date: 07/06/2022

Time: 1 Hr.
Total Marks: 30

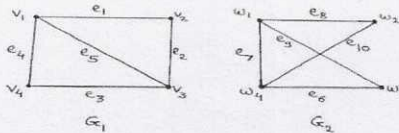
Section-I
Discrete Mathematics

Q.1 Choose the correct alternatives [03]

- 1) The contribution of loop towards degree of the corresponding vertex is....
 A) 1 B) 0 C) 2 D) ∞
- 2) Number of edges in 4-regular graph on 6-vertices is....
 A) 4 B) 6 C) 12 D) 24
- 3) A complete K_m graph is.....
 A) m-regular B) (m-1) regular
 C) (m+1) regular D) m(m-1) regular

Q.2 Attempt any three [12]

- 1) Define (a) Adjacency matrix (b) Incidency matrix
- 2) Draw the graph (a) $K_{2,4}$ (b) $K_{3,2}$
- 3) Show that following pair of graphs are isomorphic.



- 4) State and prove Hand-Shaking Lemma.

Section-II
Integral Transform

Q.1 Choose the correct alternatives [03]

- 1) If $L\{F(t)\} = f(s)$ then $L\{e^{at}F(t)\} = \dots$
 A) $f(s)$ B) $f(s-a)$ C) $f(s+a)$ D) $f(a)$
- 2) If $F(t) = 1$ then Laplace transform of $F(t)$ is
 A) $\frac{1}{s}$ $s < 0$ B) $\frac{1}{s}$ $s > 0$ C) $\frac{1}{2s}$ $s < 0$ D) $\frac{1}{2s}$ $s > 0$

4) $L^{-1}\left\{\frac{3s-7}{s^2-6s+8}\right\} = \dots$

- | | |
|----------------------------------|----------------------------------|
| A) $e^{3t}[3\cos ht - 2\sin ht]$ | B) $e^{3t}[3\cos t - 2\sin t]$ |
| C) $e^{3t}[3\cos t - 2\sin ht]$ | D) $e^{3t}[3\cos ht + 2\sin ht]$ |

Q.2 Attempt any three [12]

- 1) Find Laplace transform of $F(t)$, where

$$F(t) = \begin{cases} 0, & \text{for } 0 < t < 1 \\ t, & \text{for } 1 < t < 2 \\ 0, & \text{for } t > 2 \end{cases}$$

2) Find $L^{-1}\left\{\frac{1}{(8s-27)^{2/3}}\right\}$

- 3) Using Laplace transform, Solve $y'' + 25y = 10 \cos 5t$, $y(0) = 2$, $y'(0) = 0$

- 4) Using Laplace transform, Solve $4y'' + \pi^2 y = 0$, $y(0) = 2$, $y'(0) = 0$

Date:30/05/2022

Vivekanand College, Kolhapur (Autonomous)

Department of Mathematics

B. Sc. III Sem. VI

Internal Examination 2021-22

All the students of B.Sc. III are hereby informed that their Internal Examination of Mathematics will be conducted from 06th June 2022 to 09th June 2022 at time 2.00- 3.00. The examination will be conducted only one time, students are directed to attend the examination without fail. Syllabus, timetable and nature of question paper of examination is given below:

Sr. No.	Name of Paper	Units	Date
1	Metric Space	UNIT I, II	06/06/2022
2	Linear Algebra	UNIT I, II	07/06/2022
3	Complex Analysis	UNIT I, II	08/06/2022
4	Numerical Methods II	UNIT I, II	09/06/2022

* Nature of question paper:

Time: 1hour

Total Marks: 25

Q.1 Select the most correct alternative for each of the following: [05]

Five questions


Q.2 Attempt any four

[20]

Five questions

Venue: Roome No. 39




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Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-VI Internal Examination 2021-22

MATHEMATICS

Metric Space

Subject Code: DSC-1003F1

Date: 06/06/2022

Total Marks: 25

Time: 2.00 - 3.00

Q. 1 Select the most correct alternative for each of the following: [05]

i) In metric space every open set as well as closed set .

- A) usual B) Discrete C) Euclidean D) None of these

ii) If a Cauchy sequence has a convergent subsequence then it is.....

- A) Divergent B) Convergent C) both A and B D) None of these

iii) The diameter of X in a discrete metric space (X, d) is.....

- A) 1 B) 0 C) ∞ D) $-\infty$

iv) If F is finite set of R then \bar{F} is.....

- A) \emptyset B) F C) R-F D) R

v) A metric space (X, d) is said to be disconnected if and only if.....

- A) X cannot be expressed as union of two non empty disjoint open set
B) X cannot be expressed as union of two non empty disjoint closed set
C) X can be expressed as union of two non empty disjoint open set
D) X can be expressed as union of two open set.

Q.2 Attempt any four of the following

[20]

i) Show that the mapping $d: R^2 \rightarrow R^2$ defined by $d(x, y) = |x_1 - y_1| + |x_2 - y_2|$ where $x = (x_1, x_2), y = (y_1, y_2)$ is metric on R^2

ii) Prove that continuous image of connected set is connected

iii) Prove that in a metric space, every open sphere is an open set

iv) Prove that in a metric space, every convergent sequence is a Cauchy sequence

vi) Prove that a mapping $f: X \rightarrow Y$ is continuous on X iff $f^{-1}(F)$ is closed in X whenever closed in Y.

Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-VI Internal Examination 2021-22

MATHEMATICS

Linear Algebra

Subject Code: DSC-1003F1

Date: 07/06/2022

Total Marks: 25

Time: 2.00 - 3.00

Q. 1 Select the most correct alternative for each of the following: [05]

- i) If W is a subspace of V then $L(W) =$ _____.
- A) W B) V C) $\{0\}$ D) ϕ
- ii) If $\dim V = n$ and $S = \{v_1, v_2, \dots, v_n\}$ spans V then S is _____ of V .
- A) a subspace B) a basis
C) a linearly dependent subset D) the smallest subspace
- iii) A linear transformation $T : V \rightarrow W$ is non singular if _____.
- A) T is not one- one B) T is not onto
C) $\text{Ker } T = \{0\}$ D) $\text{Range } T = \{0\}$
- iv) If T is a linear operator on R^2 defined by $T(x_1, x_2) = (0, 0)$ then rank of $T =$ _____.
- A) 3 B) 0 C) 2 D) 1
- v) In an inner product space V , for any $u, v \in V$, $|(u, v)| \leq$ _____.
- A) $\|u\| + \|v\|$ B) $\|u\|^2 \cdot \|v\|^2$
C) $\|u\| - \|v\|$ D) $\|u\| \cdot \|v\|$

Q.2 Attempt any four of the following [20]

- i) $S = \{(0,1,-2), (1,-1,1), (1,2,1)\}$. Find whether S is linearly independent or linearly dependent.
- ii) Let T be linear operator on FDVS $V(F)$ then prove that for $c \in F$ is an characteristic value of T iff $T - cI$ is singular, With usual notation
- iii) Find Range, Rank, Kernel, Nullity of following
- $T : R^2 \rightarrow R^3$ such that, $T(x, y) = (x, x+y, y)$

iv) Let S is an orthogonal set of non zero vectors in an IPS V . Then prove that S is Linearly independent set.

v) Let $T: V \rightarrow U$ be Homomorphism then show that $\ker T = \{0\}$ iff T is one-one

Vivekanand College, Kolhapur (Autonomous)
B.Sc. (Part-III) Semester-VI Internal Examination 2021

MATHEMATICS

Complex Analysis

Subject Code: DSC-1003F2

Date: 08/06/2022

Total Marks: 25

Time: 2.00 - 3.00

Q. 1 Select the most correct alternative for each of the following: [05]

i) The value of $\int_C \frac{e^z}{z-2} dz$ at $|z| = 1$ is _____

- A) 0 B) $2\pi i$ C) $4\pi i$ D) $-2\pi i$

ii) The analytic functions are called _____

- A) Isomorphic B) Homomorphic C) Holomorphic D) conformal

iii) A continuous arc without multiple points is called as _____.

- A) Jordon arc B) continuous arc C) contour D) Rectifiable arc

iv) Residue of $f(z)$ at a simple pole $z = 6$ is _____

- A) $\lim_{z \rightarrow 6} z f(z)$ B) $\lim_{z \rightarrow 6} (z - 6)f(z)$ C) $\lim_{z \rightarrow 6} \frac{f(z)}{(z-6)}$ D) $\lim_{z \rightarrow 6} \frac{(z-6)}{f(z)}$

v) Residue of $\frac{z^3}{(z-1)^4(z-2)(z-3)}$ of $z = 3$ is.....

- A) $\frac{101}{16}$ B) -8 C) 0 D) $\frac{27}{16}$

Q.2 Attempt any four of the following:

[20]

i) Evaluate $\int_0^{1+i} z^2 dz$ along the line $y = x$

ii) Use contour integration to prove that $\int_0^\infty \frac{dx}{1+x^2} = \frac{\pi}{2}$.

iii) Find the residue of $f(z) = \frac{z^2}{(z-1)^2(z+2)}$ at $z = 1, -2$.

iv) Obtain Laurent series for $f(z) = \frac{1}{(z+1)(z+3)}$ for region $1 < |z| < 3$

v) Show that the function $u = x^4 - 6x^2y^2 + y^4$ satisfies Laplaces equation and find its corresponding analytic function $f(z) = u + iv$

Vivekanand College, Kolhapur (Autonomous)

B.Sc. (Part-III) Semester-VI Internal Examination, 2021-22

MATHEMATICS

Numerical Methods II

Subject Code: DSC-1003F2

Date: 09/06/2022

Total Marks: 25

Time: 2.00 - 3.00

Q. 1 Select the most correct alternative for each of the following: [05]

i) ----- is not useful for numerical integration.

A) Euler's method

B) Trapezoidal rule

C) Simpson's $1/3$ rd rule

D) Simpson's $3/8$ th rule

ii) For a given initial value problem $y' = y - x, y(0) = 2$ the value of $y(0.1)$ by

Runge - Kutta second order method is:

A) 2.2100

B) 2.0050

C) 2.2050

D) 2.1900

iii) If $\frac{dy}{dx} = xy, y(0) = 1, h = 0.1$, then by Euler's method $y(0.2) =$ -----

A) 1

B) 1.01

C) 1.0302

D) 1.0611

iv) If $y = f(x)$ takes the values y_0, y_1, \dots, y_n for $a = x_0, x_1 = x_0 + h, \dots, x_n = x_0 + nh = b$. Then the value of $\int_a^b f(x) dx$ by Trapezoidal rule is:

A) $\frac{h}{3} [2(y_0 + y_n) + (y_1 + \dots + y_{n-1})]$

B) $\frac{h}{2} [(y_0 + y_n) + 2(y_1 + \dots + y_{n-1})]$

C) $\frac{h}{2} [2(y_0 + y_1) + (y_2 + \dots + y_{n-1})]$

D) $h[(y_0 + y_n) + 2(y_1 + \dots + y_{n-1})]$

v)) $f(x_0, x_1, x_2) =$ -----

A) $\frac{f(x_1, x_2) - f(x_0, x_1)}{x_0 - x_1}$

B) $\frac{f(x_1, x_2) - f(x_0, x_1)}{x_0 - x_2}$

C) $\frac{f(x_1, x_2) - f(x_0, x_1)}{x_2 - x_0}$

D) $\frac{f(x_1, x_2) - f(x_0, x_1)}{x_1 - x_0}$

Q.2 Attempt any four questions**[20]**

- i) Evaluate $\int_0^1 \frac{dx}{1+x}$ by Trapezoidal rule, take $n = 6$
- ii) Find the $\int_0^{\pi/2} e^{\sin x} dx$ using Simpson's 1/3 rule with 4 subdivisions
- iii) Solve $\frac{dy}{dx} + y = 0$ using R-K method of second order under the boundary condition $y(0) = 1$ and find y at $x = 0.1, 0.2$. (take $h = 0.1$)
- iv) Solve the differential equation $\frac{dy}{dx} = \frac{x+y}{y^2 - \sqrt{xy}}$ using Euler's method under the boundary condition $y(1.3) = 2$. Find y at $x = 1.7$ in 4 steps.
- v) Using Newton's divided difference formula, find the value of $f(8)$ from the following table:

x	4	5	7	10	11	13
y	48	100	294	900	1210	2028

Date: 08/06/2022

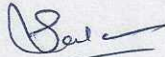
Vivekanand College, Kolhapur (Autonomous)
Department of Mathematics
B. Com. (Part- I) Sem. II
Internal Examination 2021-22

Internal Examination of Business Mathematics-II will be conducted in on
17th June, 2022 at 10.00 am to 11.00 pm. In the room No: 41 All students must
remain present on the day of examination.

Sr. No.	Name of Paper	Topics
1	Business Mathematics-II GEC-1045B	Unit 1: Functions Unit 2: Differentiation Unit 3: Application of differentiation Unit 4: Integration

***Nature of question paper:- 15 MCQs of Two mark each**




Mr. S. P. Patankar
HEAD
Department of Mathematics
Vivekanand College, Kolhapur

17/06/2022

Vivekanand College, Kolhapur (Autonomous)

B.Com. (Part-I) Semester-I

Internal Examination

Business Mathematics Paper- II

Time: 1 hr.

Total Marks: 30

Q. 1) Select the correct alternative.

1) If the function has removable discontinuity at $x=c$, then which of the following statement is true?

A) $\lim_{x \rightarrow c^-} f(x) = \lim_{x \rightarrow c^+} f(x) = f(c)$ B) $\lim_{x \rightarrow c^-} f(x) \neq \lim_{x \rightarrow c^+} f(x) = f(c)$

C) $\lim_{x \rightarrow c^-} f(x) = \lim_{x \rightarrow c^+} f(x) \neq f(c)$ D) None of the above.

2) If $f(x) = x^3 + 9x + 4$ then the range of given function is ...

A) $[1, 2]$ B) $[14, 30]$ C) $[8, 10]$ D) $[-1, 1]$

3) The graph of some function $f(x)$, is represented by a straight-line then the function is ...

A) quadratic function B) linear function

C) logarithmic function D) exponential function

4) The value of $\lim_{n \rightarrow 0} \frac{a^n - 1}{n} = \dots$

A) $\log_e a$ B) $\log_a e$ C) 1 D) 0

5) If $y = f(x)$ is an increasing function if ...

A) $\frac{dy}{dx} < 0$ B) $\frac{dy}{dx} = 0$ C) $\frac{dy}{dx} > 0$ D) None of these

6) If $x^2 + y^2 = 4$ then $\frac{d^2y}{dx^2} = \dots$

A) $\frac{2}{y^3}$ B) $\frac{4}{y^3}$ C) $-\frac{4}{y^3}$ D) $-\frac{2}{y^3}$

7) If $\int_0^1 (x^2 + x + 12) dx = \frac{77}{6}$, then value of $\int_1^0 (x^2 + x + 12) dx = \dots$

A) $\frac{77}{6}$ B) $-\frac{77}{6}$ C) $\frac{75}{4}$ D) $-\frac{75}{4}$

8) If $\int_0^a 8x \, dx = 64$, then $a = \dots$

- A) ± 4 B) ± 2 C) ± 16 D) ± 8

9) The gradient of the curve $y = 3x^2 + 5x + 2$ at the point $x = 3$ is...

- A) 23 B) 21 C) 22 D) 24

10) If $x = y^2 + e^y + 2$ then $\frac{dy}{dx} = \dots$

- A) $\frac{1}{2x+e^y}$ B) $\frac{1}{2y+e^y}$ C) $\frac{1}{2x+e^x}$ D) $\frac{1}{2y+e^x}$

11) The value of $\int_{-a}^a f(x) \, dx = \dots$, where $f(x) = f(-x)$.

- A) 0 B) $\int_0^a f(x) \, dx$ C) $2 \int_0^a f(x) \, dx$ D) $2 \int_a^{2a} f(x) \, dx$

12) If the cost of commodity is $C = 4 + 2x + x^2$ then marginal average cost = ...

- A) $\frac{4+x^2}{x^2}$ B) $\frac{-4+x^2}{x}$ C) $\frac{-4+x^2}{x}$ D) $\frac{-4+x^2}{x^2}$

13) If $y = xe^{xy}$ then $\frac{dy}{dx} = \dots$

- A) $\frac{y(1+xy)}{x(1+xy)}$ B) $\frac{y(1+xy)}{x(1-xy)}$ C) $\frac{x(1+xy)}{y(1+xy)}$ D) $\frac{x(1+xy)}{y(1+xy)}$

14) Which of the following is continuous function?

- A) $f(x) = x^2 + 4$ B) $f(x) = \sin \frac{\pi}{6}$ C) $f(x) = \frac{x^3 - 8}{(x-2)}$ D) All of them.

15) The $f(x) + f(-x)$ is always ... function.

- A) even B) odd C) constant D) parametric

Shri Swami Vivekanand Shikshan Sanstha's
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Subject Wise Student Blank Marks Entry

Session: JAN-FEB 2022

Subject: MATHEMATICS (DSC-1003C)

Stream: B.Sc.

Standard: B.SC. SEM 3

Sub-Subject: CIE

Semester:

Max Marks: 20

Print Date : 26-02-2022

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SrNo	PRN	SeatNo	GRNos	RollNo	StudentName	Marks
1	2021037364	526064	2953444	7364	AMBI PRANAV ANIL	15
2	2021037369	526069	2953483	7369	DHISALE VINAYAK DAMODAR	13
3	2020037014	526074	2573735	7374	GHATAGE SHAMAL DATTATRAY	20
4	2020037023	526080	2478029	7380	JAMADAR MAHEK SHAKILAHMED	20
5	2020037119	526084	2488634	7384	KAMBLE PRADNYAVANT MACHHINDRA	10
6	2021037385	526085	2953443	7385	KARALE PRATIK SANJAY	18
7	2020037033	526086	2548422	7386	KAREKAR ARYAN CHETAN	17
8	2019037029	526089	1746196	7389	KHTANGLE NISHIKANT NIVRUTI	17
9	2020037038	526092	2717466	7392	KUMBHAR DHANASHRI DATTATRAYA	20
10	2020037130	526094	2584993	7394	MALI SAMRUDDHI SURESH	19
11	2020037049	526097	2478660	7397	MORE PRAJAKTA PRABHAKAR	20
12	2020037134	526099	2493529	7399	PATAKURE ADITYA SHIVAJI	AB
13	2021037402	526102	2953411	7402	PATIL AJAYRAJ BABURAO	14
14	2020037155	526106	2620306	7406	SAWANT SAHIL ANANDA	20
15	2020037083	526108	2548580	7408	SURYAVANSHI PRIYANKA GOVINDA	19
16	2020037042	526109	2850311	7409	TASHILDAR SHIVANI NAMDEV	20
17	2021037410	526110	2953581	7410	THORVAT AJINKYA ANANDA	16
18	2020037009	526116	2824407	7416	GADE VAIBHAVI RAJENDRA	18
19	2020037016	526117	2488695	7417	GUTTE SHRUTI VINAY	20
20	2021037419	526119	2953567	7419	JADHAV PANKAJ PARASHARAM	19
21	2020037027	526125	2502124	7425	KALKUTKI SHUBHAM BABASAHEB	18
22	2020037036	526131	2746280	7431	KUMBHAR TEJASWINI TANAJI	20
23	2020037040	526132	2548524	7432	KURADE SALONI SANJAY	20
24	2020037045	526133	2542301	7433	MANE MANOJ JAGANNATH	15
25	2020037052	526135	2520864	7435	PADMAKAR ALOK NARAYAN	8
26	2020037057	526139	2554927	7439	PATIL NIKITA ASHOK	20
27	2020037059	526141	2493497	7441	POOJA SAMPAT PATIL	19
28	2020037064	526144	2554912	7444	PATIL SHRADDHA BAJIRAO	19
29	2020037070	526147	2481620	7447	KEDAR KRUSHNAT POWAR	19
30	2020037121	526161	2573928	7461	KAVANE DIGVIJAY DILIP	AB
31	2020037126	526163	2721884	7463	KONDEKAR ASMITA TANAJI	18
32	2020037139	526164	2481283	7464	PATIL NIKHIL SUNIL	13
33	2020037141	526165	2721208	7465	PATIL SAKSHI PANDURANG	16
34	2020037157	526167	2721888	7467	SHINDE AKANKSHA SANTOSH	19
35	2020037430	526171	2826879	7471	WAYDANDE ARPITA DIPAK	15
36	2019037278	526292	1714764	7592	BHOPALE ANIMESH SUNIL	13
37	2020037436	526295	2812222	7595	PRATHMESH VIJAYKUMAR CHOUGULE	20
38	2020037307	526299	2552212	7599	SHREYASH RAMESH INGALE	9
39	2020037310	526301	2582230	7601	KALE ADITYA JITENDRA	15
40	2020037313	526305	2811997	7605	NADALE SWAPANALI DINKAR	AB
41	2020037316	526306	2487297	7606	SIDDHI MOHAN PANDHARPATTE	20
42	2020037319	526308	2744923	7608	PENDHARI SOHEB IMTIYAZ	15
43	2020037317	526309	2817869	7609	SHAIKH AMAN ALAMGIR	15
44	2020037323	526313	2812291	7613	TAHSILDAR PRATIK RAJESH	16
45	2020037329	526323	2553379	7623	KESARKAR NIKHIL MAHADEV	15
46	2020037336	526328	2638093	7628	PATIL MITHILA SANTOSH	20
47	2020037337	526330	2561327	7630	SAYALI SHRIKANT POWAR	20
48	2020037089	526337	2548747	7637	VADAR SOURABH SANJAY	20
49	2020037013	526071	2585345	7371	RAJNANDINI GANESH GAIKWAD	20
50	2020037015	526075	2488725	7375	GOSAVI VINAYAK NANDKUMAR	20
51	2020037028	526082	2690667	7382	KAMBLE ADITYA DATTATRAY	19
52	2020037117	526083	2683064	7383	KAMBLE AMOL MANIK	14
53	2020037041	526090	2786520	7390	KULKARNI NUPUR SUJIT	18

Shri Swami Vivekanand Shikshan Sanstha's
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54	2021037391	526091	2953472	7391	KUMBHAR ABHISHEK SHIVAJI	16
55	2021037398	526098	2953473	7398	MULIK SURAJ PANDIT	19
56	2020037136	526100	2739067	7400	PATIL ABHISHEK UDAY	19
57	2020037088	526111	2488819	7411	UBARE SANIKA RAJARAM	19
58	2020037166	526112	2526337	7412	YADAV VEDAJA AJAY	20
59	2020037006	526115	2639937	7415	CHOUGALE PRATIKSHA RAJARAM	20
60	2020037019	526120	2612292	7420	SHREYA ANIL JADHAV	19
61	2021037436	526136	2953434	7436	PANHALKAR ASHAM IMAM	19
62	2020037074	526149	2488678	7449	SATPUTE SAKSHI PANDURANG	AB
63	2020037080	526152	2628707	7452	SHINDE SANIKA SARJERAO	17
64	2020037152	526166	2694156	7466	ROPALKAR VRUSHALI AARTI	20
65	2020037437	526303	2793297	7603	SHUBHAM SHASHIKANT KORE	15
66	2020037440	526329	2815880	7629	PATIL VRUSHALI VITTHAL	20
67	2020037058	526140	2548736	7440	PATIL OM SANJAY	19
68	2020037069	526146	2731522	7446	POTDAR VEDA GURUNATH	20
69	2020037072	526148	2493477	7448	AKASH ANANTRAO SANGAR	15
70	2020037085	526154	2585358	7454	TANDALE GOURI SAGAR	18
71	2020037304	526296	2708433	7596	CHOUGULE TEJAS GAJANAN	18
72	2020037309	526300	2681054	7600	ATHARVA BHARAT JASUD	17
73	2020037022	526079	2488772	7379	JADHAVE SOURABH RAMESH	20
74	2020037044	526095	2565411	7395	MALI TEJASWINI SAMPATRAO	12
75	2020037046	526096	2483755	7396	MANE SWARUP PRAKASH	14
76	2020037145	526105	2481465	7405	SOURABH RAJENDRA PATIL	15
77	2020037005	526114	2573828	7414	CHILGONDE ADITYA GANPAT	15
78	2020037021	526122	2488730	7422	JADHAVE ANIKET ARUN	19
79	2020037060	526142	2585311	7442	PATIL PRAJAKTA KESHAV	19
80	2020037301	526291	2522898	7591	SIDDIKA FIROJKHAN AMBARDEKAR	20
81	2020037024	526123	2548633	7423	JAMDADDE MANASI TANAJI	20
82	2020037026	526124	2493490	7424	SANDHYA DATTATRAY KAGAVALE	19
83	2020037061	526143	2548718	7443	PATIL SANJANA SANJAY	18
84	2020037078	526151	2628672	7451	SHINDE PRANAV TANAJI	19
85	2020037335	526326	2535815	7626	PATIL DNYANESHWARI JAYVEER	20
86	2020037029	526126	2548590	7029	ANJALI BHAGWAN KAMBLE	AB
87	2020037082	526153	2565391	7082	SANIKA NANDKUMAR SOKASANE	AB
88	2020037008	526065	2871525	7365	AVDANKAR PRATIKSHA RANJEET	20
89	2020037101	526066	2526306	7366	BARGIR YUSUF RAHIM	20
90	2020037108	526070	2481252	7370	DHOTRE SHREYASH RAJENDRA	20
91	2020037110	526072	2584967	7372	NAMRATA RATAN GAJARE	18
92	2020037111	526073	2526273	7373	GARAD DNYANESHWAR SUNIL	18
93	2020037220	526076	2493547	7376	ASHISH PANDURANG JADHAV	20
94	2020037034	526087	2585292	7387	DATTATRAY PRAKASH KATKAR	15
95	2020037129	526093	2573913	7393	MALI ABHISHEK SANJAY	18
96	2020037054	526101	2573761	7401	PATIL ADITI MOHAN	20
97	2020037063	526103	2548660	7403	PATIL SHIVANI PRAKASH	20
98	2020037002	526113	2612277	7413	DHANSHRI POPAT CHAVAN	19
99	2020037037	526130	2548431	7430	VARSHA RAJESH KUMAWAT	16
100	2020037402	526134	2548291	7434	MUJAWAR UMMEAIMAN UMARFARUK	20
101	2020037065	526145	2585328	7445	SWAPNIL YUVRAJ PATIL	19
102	2020037077	526150	2510145	7450	SHINDE MANISHA BABASAHEB	19
103	2020037086	526155	2481608	7455	VINAYAK RAJARAM TELI	20
104	2020037107	526159	2565586	7459	DEVEKAR VINAYAK DATTTATRAYA	14
105	2020037447	526162	2852870	7462	KHOT ANKITA BALASO	20
106	2020037160	526168	2542103	7468	SINGH SAPANA RAVIRANJAN	20
107	2020037161	526169	2542120	7469	SURYAVANSHI AJAY MOHAN	15
108	2020037162	526170	2694126	7470	TODKAR SHIVANI DIPAK	20

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109	2020037305	526297	2535611	7597	SWARUP KRUSHNAT GADAVE	20
110	2020037306	526298	2546729	7598	ABHISHEK RAHUL HAWALE	20
111	2020037312	526302	2717225	7602	GUNJAN SACHIN KANTE	19
112	2020037315	526304	2492236	7604	ONKAR ANIL MORE	20
113	2020037318	526307	2643832	7607	SHWETA BANDU PATIL	20
114	2020037320	526310	2524902	7610	SANIKA PRABHAKAR SHINDE	20
115	2020037322	526312	2692146	7612	ISHA AMAR SHINTRE	20
116	2020037324	526314	2546417	7614	WAGHAMARE RUTUJA PANDIT	20
117	2020037003	526316	2548673	7616	KOMAL PRAKASH CHAVAN	18
118	2020037326	526317	2533896	7617	PANKAJ ASHOK DHAVAL	20
119	2020037327	526318	2524790	7618	SHUBHAM RANGRAO DURUGALE	20
120	2020037328	526319	2496106	7619	INGALE ADITI NARAYAN	20
121	2020037308	526320	2610366	7620	DHIRAJ DATTATRAY JADHAV	20
122	2020037438	526321	2805990	7621	PARTH VISHAL JADHAV	18
123	2020037439	526322	2808078	7622	KAMATE SAKSHI MOHAN	20
124	2020037332	526324	2535773	7624	PATHAN SHIFA ASHAPAK	18
125	2020037333	526325	2535640	7625	APEKSHA BHUJGONDA PATIL	20
126	2020037334	526327	2599020	7627	GAYATRI ANANDA PATIL	20
127	2020037339	526332	2487270	7632	TODAKAR SHVETA SHASHIKANT	20
128	2020037340	526333	2580081	7633	SAHIL VIKRAM VANARSE	20
129	2020037341	526334	2478684	7634	VIDIRA RAJARAM VIBHUTE	20
130	2020037007	526068	2542191	7368	CHOUGALE TEJAS TUKARAM	15
131	2020037018	526077	2573722	7377	PRAJAKTA HAMBIR JADHAV	20
132	2020037465	526078	2890891	7378	JADHAV SHANKAR GAJANAN	15
133	2020037025	526081	2510096	7381	KADWALE ANKIT VINAYAK	15
134	2020037124	526088	2585018	7388	KHOT RUTUJA KRUSHNAT	12
135	2020037081	526104	2478082	7404	PATIL SHIVANI SIDGONDA	20
136	2020037075	526107	2793417	7407	SHINDE VIVEK JANARDAN	20
137	2020037020	526121	2478622	7421	VAISHNAVI VISHWAS JADHAV	15
138	2020037030	526127	2548642	7427	KANIRE DARSHAN SHARAD	20
139	2020037032	526128	2481633	7428	KARAPE RAJKUMAR BABAN	20
140	2020037128	526129	2488660	7429	KOTHAWALE TEJAS VIKAS	19
141	2020037053	526137	2548619	7437	PANHALKAR VARSHA YASHVANT	20
142	2020037056	526138	2478143	7438	HARSHAD KIRAN PATIL	20
143	2020037087	526156	2481659	7456	THAKARE VAISHNAVEE NAVNATH	18
144	2020037164	526157	2488674	7457	SHRIYASH KERABA WARKE	16
145	2020037115	526160	2542141	7460	SAEE SANDEEP JADHAV	19
146	2020037302	526293	2808879	7593	BOTE PRAJAKTA SHANTINATH	20
147	2020037303	526294	2535690	7594	MADHURA VAIBHAV CHOUGULE	20
148	2020037321	526311	2535704	7611	SEJAL MANOJ SHINDE	20
149	2020037325	526315	2533867	7615	SAMRUDHI SURESH BORAGE	20
150	2020037338	526331	2478584	7631	OMKAR JITENDRA SHINDE	20
151	2020037342	526335	2608986	7635	AISHWARYA DHANAJI YADAV	20
152	2020037004	526067	2548533	7367	CHAVAN SHRUTI RAJ	20
153	2020037012	526336	2646732	7636	DONGARE SUYASH SANJAY	20