

Osmania University Common Entrance Test

Notations :

- Options shown in green color and with ✓ icon are correct.
- Options shown in red color and with ✗ icon are incorrect.

Question Paper Name :	M Sc Mathematics 04th Dec 2020 Shift 3
Subject Name :	M.Sc. Mathematics
Creation Date :	2020-12-05 09:17:43
Duration :	90
Number of Questions :	100
Total Marks :	100
Display Marks:	No
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? :	Yes

M.Sc. Mathematics

Group Number :	1
Group Id :	97108350
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
Is this Group for Examiner? :	No

PART A

Section Id :	97108359
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	97108373
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 9710835107 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $y = \frac{\log x}{x}$ then $\frac{d^2 y}{dx^2}$

$y = \frac{\log x}{x}$ అయినప్పుడు $\frac{d^2 y}{dx^2}$

Options :

97108320401. ✖ $\frac{5 \log x - 3}{x^4}$

97108320402. ✖ $\frac{4 \log x - 3}{x^2}$

97108320403. ✔ $\frac{2 \log x - 3}{x^3}$

97108320404. ✖ $\frac{3 \log x - 2}{x^2}$

Question Number : 2 Question Id : 9710835108 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$\frac{d^{50}}{dx^{50}} \left(\frac{1}{ax+b} \right) =$

Options :

97108320405. ✖ $\frac{51 \cdot a^{60}}{(ax+b)^{49}}$

97108320406. ✔ $\frac{50! \cdot a^{50}}{(ax+b)^{51}}$

97108320407. ✖ $\frac{51! \cdot a^{50}}{(ax+b)^{52}}$

97108320408. ✖ $\frac{50 \cdot a^{60}}{(ax+b)^{50}}$

Question Number : 3 Question Id : 9710835109 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The coefficient of x^2 in Maclaurin's expansion of $y = \log \cos x$ is

$y = \log \cos x$ యొక్క మేక్లారిన్ విస్తరణలో x^2 గుణకం

Options :

97108320409. ✓ $-\frac{1}{2}$

97108320410. ✗ $-\frac{1}{3}$

97108320411. ✗ $-\frac{1}{4}$

97108320412. ✗ $-\frac{1}{5}$

Question Number : 4 Question Id : 9710835110 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow \frac{1}{2}} \frac{\cos^2 \pi x}{e^{2x} - 2ex} =$$

Options :

97108320413. ✗ $\frac{\pi^2}{2e^2}$

97108320414. ✗ $\frac{\pi}{2e}$

97108320415. ✗ $\frac{\pi}{2e^2}$

97108320416. ✓ $\frac{\pi^2}{2e}$

Question Number : 5 Question Id : 9710835111 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow 0} (\cos x)^{\frac{1}{x^2}} =$$

Options :

97108320417. ✗ $\frac{2}{e}$

97108320418. ✓ $\frac{1}{\sqrt{e}}$

97108320419. ✗ $\frac{1}{e}$

97108320420. ✗ $\frac{e}{2}$

Question Number : 6 Question Id : 9710835112 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The radius of curvature of the curve $y = 4 \sin x - \sin 2x$ at $x = \frac{\pi}{2}$ is

$x = \frac{\pi}{2}$ వద్ద $y = 4 \sin x - \sin 2x$ వక్రానికి వక్రతా వ్యాసార్థము.

Options :

97108320421. ✗ $\frac{3\sqrt{3}}{4}$

97108320422. ✓ $\frac{5\sqrt{5}}{4}$

97108320423. ✗ $\frac{6\sqrt{6}}{7}$

97108320424. ✗ $\frac{3\sqrt{3}}{7}$

Question Number : 7 Question Id : 9710835113 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The envelope of the curves $y^2 = 2a(x-a)$, where a is the parameter is

a ను పరామితిగా కల్గిన వక్రాలు $y^2 = 2a(x-a)$ యొక్క ఆవరణిక

Options :

97108320425. ✓ $y = \pm \frac{x}{\sqrt{2}}$

97108320426. ✗ $y = \pm \frac{x}{\sqrt{5}}$

97108320427. ✗ $y = \pm \frac{x}{\sqrt{3}}$

$$y = \pm \frac{x}{\sqrt{7}}$$

97108320428. ✖

Question Number : 8 Question Id : 9710835114 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

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

$e^x + e^y = 2xy$ అయినపుడు $\frac{dy}{dx} =$

Options :

$$\frac{5x + e^y}{e^x - 5y}$$

97108320429. ✖

$$\frac{e^x + e^y}{x + y}$$

97108320430. ✖

$$\frac{e^x + y}{2x + e^y}$$

97108320431. ✖

$$\frac{e^x - 2y}{2x - e^y}$$

97108320432. ✔

Question Number : 9 Question Id : 9710835115 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

For which of the following functions, Rolle's mean value theorem is applicable on the indicated interval

ఈ క్రింది ఇవ్వబడిన ప్రమేయాలలో దేనికి, సూచించిన అంతరం పై రోలె మధ్యమ మూల్య సిద్ధాంతమును అనువర్తింపజేయవచ్చును.

Options :

$$f_1(x) = [x], \quad [0, \frac{3}{2}]$$

97108320433. ✖

$$f_2(x) = (x - 9)^{\frac{1}{3}}, \quad [8, 12]$$

97108320434. ✖

$$f_3(x) = x^2 - 8x + 12, \quad [2, 6]$$

97108320435. ✔

$$f_4(x) = |x|, \quad [-2, 2]$$

97108320436. ✖

Question Number : 10 Question Id : 9710835116 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $f(x) = 3x^2 - 12x + 8$ be defined on $[3, 5]$ If $f(5) - f(3) = 2f'(c)$ then $c =$
 $[3, 5]$ పై $f(x) = 3x^2 - 12x + 8$ గా నిర్వచితమైనది అనుకొందాము $f(5) - f(3) = 2f'(c)$ అయినప్పుడు $c =$

Options :

97108320437. ✖ 2

97108320438. ✖ 1

97108320439. ✔ 4

97108320440. ✖ 3

Question Number : 11 Question Id : 9710835117 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $f(x, y) = e^{x^2 + y^3}$ then the value of $f_y(x, y) - f_x(x, y)$ at $P(2, 2)$ is
 $f(x, y) = e^{x^2 + y^3}$ అయినప్పుడు $P(2, 2)$ వద్ద $f_y(x, y) - f_x(x, y)$ విలువ

Options :

97108320441. ✖ $12 e^{12}$

97108320442. ✔ $8 e^{12}$

97108320443. ✖ $9 e^{12}$

97108320444. ✖ $10 e^{12}$

Question Number : 12 Question Id : 9710835118 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following straight line is not an asymptote of the curve $x^2y^2 = 9(x^2 + y^2)$ is
 ఈ క్రింది ఇచ్చిన సరళరేఖలలో, $x^2y^2 = 9(x^2 + y^2)$ వక్రానికి అనంత స్పర్శరేఖకానిది ఏది ?

Options :

97108320445. ✖ $x + 3 = 0$

97108320446. ✖ $y = 3$

97108320447. ✖ $x = 3$

97108320448. ✔ $y = 9$

Question Number : 13 Question Id : 9710835119 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The minimum value of the function $f(x, y) = 5x^2 + 10y^2 + 12xy - 48x - 72y + 144$ occurs at $P(\alpha, \beta)$ then $\alpha + \beta =$
 $f(x, y) = 5x^2 + 10y^2 + 12xy - 48x - 72y + 144$ ప్రమేయపు కనిష్ఠ విలువ $P(\alpha, \beta)$ వద్ద వ్యవస్థితం అయితే $\alpha + \beta =$

Options :

97108320449. ✖ $\frac{27}{8}$

97108320450. ✔ $\frac{30}{7}$

97108320451. ✖ $\frac{28}{9}$

97108320452. ✖ $\frac{31}{7}$

Question Number : 14 Question Id : 9710835120 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The maximum value of $u(x, y, z) = x^2 y^3 z^4$ if $2x + 3y + 4z = 18$ is
 $2x + 3y + 4z = 18$ అయినపుడు $u(x, y, z) = x^2 y^3 z^4$ యొక్క గరిష్ఠ విలువ

Options :

97108320453. ✖ 128

97108320454. ✖ 1024

97108320455. ✖ 256

97108320456. ✔ 512

Question Number : 15 Question Id : 9710835121 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $z = \sec^{-1}\left(\frac{x^3 + y^3}{x + y}\right)$ then $x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} =$
 $z = \sec^{-1}\left(\frac{x^3 + y^3}{x + y}\right)$ అయినపుడు $x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} =$

Options :

97108320457. ✖ $3 \csc z$

97108320458. ✖ $3 \tan z$

97108320459. ✔ $2 \cot z$

97108320460. ✖ $2 \tan z$

Question Number : 16 Question Id : 9710835122 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $(y - x^3)dx + (x + y^3)dy = 0$ is
 $(y - x^3)dx + (x + y^3)dy = 0$ అనే అవకలన సమీకరణపు సాధారణ సాధన

(Here C is an arbitrary constant)
(ఇక్కడ C ఒక యాదృచ్ఛిక స్థిరరాశి)

Options :

97108320461. ✔ $4xy - x^4 + y^4 = C$

97108320462. ✖ $3xy - x^3 + y^3 = C$

97108320463. ✖ $xy - x^3 + 4y^3 = C$

97108320464. ✖ $x^2y^2 - x^3 + y^3 = C$

Question Number : 17 Question Id : 9710835123 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$d\left(\log\left(\frac{y}{x}\right)\right) =$

Options :

97108320465. ✖ $\frac{x dx + y dy}{x^2 + y^2}$

97108320466. ✖ $\frac{x dy - y dx}{x^3 + y^3}$

97108320467. ✔ $\frac{x dy - y dx}{xy}$

97108320468. ✖ $\frac{x dy + y dx}{x^2}$

Question Number : 18 Question Id : 9710835124 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An integrating factor of the differential equation $y(2x^2 - xy + 1) dx + (x - y)dy = 0$
 $y(2x^2 - xy + 1) dx + (x - y)dy = 0$ అనే అవకలన సమీకరణానికి ఒక సమాకలన గుణకం

Options :

97108320469. ✖ e^{x^3}

97108320470. ✔ e^{x^2}

97108320471. ✖ e^x

97108320472. ✖ e^{x^4}

Question Number : 19 Question Id : 9710835125 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $y^2 \log y = xy p + p^2$ is (where $p = \frac{dy}{dx}$)

$y^2 \log y = xy p + p^2$ అనే అవకలన సమీకరణపు సాధారణ సాధన (ఇక్కడ $p = \frac{dy}{dx}$)

(Here C is an arbitrary constant)
(ఇక్కడ C ఒక యాదృచ్ఛిక స్థిరరాశి)

Options :

97108320473. ✔ $\log y = Cx + C^2$

97108320474. ✖ $\log x = Cy + y^2$

97108320475. ✖ $\log x = \log y + Cx$

97108320476. ✖ $\log y = \log x + Cx^2$

Question Number : 20 Question Id : 9710835126 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The singular solution of the differential equation $y' = xp - \frac{p^2}{3}$ (Here $p = \frac{dy}{dx}$)

$y' = xp - \frac{p^2}{3}$ అవకలన సమీకరణపు విలక్షణ సాధన (ఇక్కడ $p = \frac{dy}{dx}$)

Options :

97108320477. ✖ $4x + 3y^2 = 0$

97108320478. ✖ $4x - 3y^2 = 0$

97108320479. ✖ $3x + 4y^2 = 0$

97108320480. ✔ $3x^2 - 4y = 0$

Question Number : 21 Question Id : 9710835127 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The solution of the equation

$$\frac{dx}{x(y^2 - z^2)} = \frac{dy}{y(z^2 - x^2)} = \frac{dz}{z(x^2 - y^2)}$$

$$\frac{dx}{x(y^2 - z^2)} = \frac{dy}{y(z^2 - x^2)} = \frac{dz}{z(x^2 - y^2)} \text{ అనే సమీకరణపు సాధన}$$

(Here C_1, C_2 are arbitrary constants)

(ఇక్కడ C_1, C_2 లు యాదృచ్ఛిక స్థిరరాశులు)

Options :

97108320481. ✖ $x + y + z = c_1, 2x^2 + y^2 + z^2 = c_2$

97108320482. ✖ $x y z = c_1, x^2 - y^2 - z^2 = c_2$

97108320483. ✖ $x + y z = c_1, x^2 + y + z = c_2$

97108320484. ✔ $x y z = c_1, x^2 + y^2 + z^2 = c_2$

Question Number : 22 Question Id : 9710835128 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $25 \frac{d^2 y}{dx^2} + 30 \frac{dy}{dx} + 9y = 0$ is

$$25 \frac{d^2 y}{dx^2} + 30 \frac{dy}{dx} + 9y = 0 \text{ అనే అవకలన సమీకరణపు సాధారణ సాధన}$$

(Here c_1, c_2 are arbitrary constants)

(ఇక్కడ c_1, c_2 ఒక యాదృచ్ఛిక స్థిరరాశులు)

Options :

97108320485. ✖ $y = (c_1 + c_2 x) e^{\frac{3x}{5}}$

97108320486. ✓ $y = (c_1 + c_2 x) e^{\frac{-3x}{5}}$

97108320487. ✗ $y = (c_1 x + c_2 x^2) e^{\frac{3x}{5}}$

97108320488. ✗ $y = (c_1 + c_2 x^3) e^{\frac{5x}{3}}$

Question Number : 23 Question Id : 9710835129 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{(D-3)^3} e^{3x} =$$

(Here $D \equiv \frac{d}{dx}$)

(ಇಲ್ಲಿ $D \equiv \frac{d}{dx}$)

Options :

97108320489. ✗ $\frac{x^3}{6} e^{2x}$

97108320490. ✗ $\frac{x^3}{16} e^x$

97108320491. ✓ $\frac{x^3}{6} e^{3x}$

97108320492. ✗ $\frac{x^3}{26} e^{3x}$

Question Number : 24 Question Id : 9710835130 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^2 + 4} (\sin 3x + \cos 2x) =$$

(Here $D \equiv \frac{d}{dx}$)

(ಇಲ್ಲಿ $D \equiv \frac{d}{dx}$)

Options :

97108320493. ✖ $\frac{1}{5} \sin 3x - \frac{x}{4} \sin 2x$

97108320494. ✔ $-\frac{1}{5} \sin 3x + \frac{x}{4} \sin 2x$

97108320495. ✖ $\frac{1}{5} \sin 3x + \frac{x}{5} \sin 2x$

97108320496. ✖ $\sin 3x + x \cos 2x$

Question Number : 25 Question Id : 9710835131 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^2 - 1} (2x^2 - 3x + 1) =$$

(Here $D \equiv \frac{d}{dx}$)

(ಇಲ್ಲಿ $D \equiv \frac{d}{dx}$)

Options :

97108320497. ✔ $-2x^2 + 3x - 5$

97108320498. ✖ $2x^2 - 3x - 7$

97108320499. ✖ $2x^2 + 7x - 3$

97108320500. ✖ $5x^2 - 3x - 2$

Question Number : 26 Question Id : 9710835132 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\frac{1}{D^2 - 4D + 3} (e^x \cos 2x) =$$

(Here $D \equiv \frac{d}{dx}$)

(ಇಲ್ಲಿ $D \equiv \frac{d}{dx}$)

Options :

97108320501. ✖ $\frac{e^x}{4} (\sin 2x + \cos 2x)$

97108320502. ✖ $\frac{e^x}{16} (\sin 2x + \cos 2x)$

97108320503. ✔ $-\frac{e^x}{8} (\sin 2x + \cos 2x)$

97108320504. ✖ $\frac{e^x}{8} (\sin 2x - \cos 2x)$

Question Number : 27 Question Id : 9710835133 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $(x^2 D^2 - xD - 3)y = 0$ is
(Here $D \equiv \frac{d}{dx}$)

$(x^2 D^2 - xD - 3)y = 0$ అనే అవకలన సమీకరణపు సాధారణ సాధన

(ఇక్కడ $D \equiv \frac{d}{dx}$)
(Here c_1, c_2 are arbitrary constants)
(ఇక్కడ c_1, c_2 ఒక యాదృచ్ఛిక స్థిరరాశులు)

Options :

97108320505. ✖ $y = c_1 x + \frac{c_2}{x^3}$

97108320506. ✔ $y = \frac{c_1}{x} + c_2 x^3$

97108320507. ✖ $y = c_1 x + c_2 x^3$

97108320508. ✖ $y = \frac{c_1}{x} + \frac{c_2}{x^3}$

Question Number : 28 Question Id : 9710835134 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A particular integral of $(D^2 + 4D + 4)y = 6x e^{-2x}$ is
 $(D^2 + 4D + 4)y = 6x e^{-2x}$ యొక్క ప్రత్యేక సమాకలని

Options :

97108320509. ✖ $x^4 e^{-3x}$

97108320510. ✖ $x^3 e^{-3x}$

97108320511. ✖ $x^2 e^{-3x}$

97108320512. ✔ $x^3 e^{-2x}$

Question Number : 29 Question Id : 9710835135 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $z = f(x^3 + y^3)$ then
 $z = f(x^3 + y^3)$ అయినపుడు

(Here f is an arbitrary function)
(ఇక్కడ f ఒక యాదృచ్ఛిక ప్రమేయం)

(Here $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(ఇక్కడ $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

Options :

97108320513. ✖ $2y^2 p + 3x^2 q = 0$

97108320514. ✔ $y^2 p - x^2 q = 0$

97108320515. ✖ $yp + x^2 q = 0$

97108320516. ✖ $y^2 q + xp = 0$

Question Number : 30 Question Id : 9710835136 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $z = (x^2 + a^2)(y^2 + b^2)$ then
 $z = (x^2 + a^2)(y^2 + b^2)$ అయినపుడు

(Here $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(ఇక్కడ $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

Options :

97108320517. ✔ $4xyz = pq$

97108320518. ✖ $8x y z = p q$

97108320519. ✖ $2x y z = p q$

97108320520. ✖ $6x y z = p q$

Question Number : 31 Question Id : 9710835137 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The general solution of the partial differential equation $y z p - x z q = x y$ is
 $y z p - x z q = x y$ అనే పాక్షిక అవకలన సమీకరణపు సాధారణ సాధన

(Here $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(ఇక్కడ $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(Here F is an arbitrary function)
 (ఇక్కడ F ఒక యాదృచ్ఛిక ప్రమేయం)

Options :

97108320521. ✖ $F(x^2 + y^2, x^3 - 2z^2) = 0$

97108320522. ✖ $F(x + y^3, x - z^2) = 0$

97108320523. ✔ $F(x^2 + y^2, x^2 - z^2) = 0$

97108320524. ✖ $F(x + y^2, x^2 - z^2) = 0$

Question Number : 32 Question Id : 9710835138 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The complete integral of the partial differential equation $p + q = \sin x + \cos y$ is
 $p + q = \sin x + \cos y$ అనే పాక్షిక అవకలన సమీకరణపు సంపూర్ణ సమాకలని

(Here $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(ఇక్కడ $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$)

(Here a, b are arbitrary constants)
 (ఇక్కడ a, b లు యాదృచ్ఛిక స్థిరరాశులు)

Options :

97108320525. ✖ $z = ax - \cos x \cos y + b$

97108320526. ✖ $z = ay - \cos x + b$

97108320527. ✖ $z = ax - \cos x + \sin y + b$

97108320528. ✔ $z = ax - ay - \cos x + \sin y + b$

Question Number : 33 Question Id : 9710835139 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The complete solution $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y} - 6 \frac{\partial^2 z}{\partial y^2} = 0$ is

$\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y} - 6 \frac{\partial^2 z}{\partial y^2} = 0$ యొక్క సంపూర్ణ సాధన

(Here f_1, f_2 are arbitrary functions)
(ఇక్కడ f_1, f_2 లు యాదృచ్ఛిక ప్రమేయాలు)

Options :

97108320529. ✔ $z = f_1(y - 3x) + f_2(y + 2x)$

97108320530. ✖ $z = f_1(y + x) + f_2(y + 2x)$

97108320531. ✖ $z = f_1(y - 3x) + f_2(3y + 4x)$

97108320532. ✖ $z = f_1(y - 3x) + f_2(x)$

Question Number : 34 Question Id : 9710835140 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A particular integral of the partial differential equation $2 \frac{\partial^2 z}{\partial x^2} - 3 \frac{\partial^2 z}{\partial x \partial y} + \frac{\partial^2 z}{\partial y^2} = \sin(x - 2y)$

$2 \frac{\partial^2 z}{\partial x^2} - 3 \frac{\partial^2 z}{\partial x \partial y} + \frac{\partial^2 z}{\partial y^2} = \sin(x - 2y)$ అనే పాక్షిక అవకలన సమీకరణపు ప్రత్యేక సమాకలని

Options :

97108320533. ✖ $\frac{1}{24} \cos(x - 2y)$

97108320534. ✖ $\frac{1}{12} \cos(x - 2y)$

97108320535. ✓ $-\frac{1}{12} \sin(x-2y)$

97108320536. ✗ $-\frac{1}{6} \sin(x-2y)$

Question Number : 35 Question Id : 9710835141 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let $u = u(x, y)$. If $2 \frac{\partial u}{\partial x} + 3 \frac{\partial u}{\partial y} = 0$, $u(0, y) = 5e^{-2y}$ then $u(3, 4) =$

$u = u(x, y)$ గా $2 \frac{\partial u}{\partial x} + 3 \frac{\partial u}{\partial y} = 0$, $u(0, y) = 5e^{-2y}$ అయినప్పుడు $u(3, 4) =$

Options :

97108320537. ✗ $25e$

97108320538. ✗ $15e$

97108320539. ✗ $10e$

97108320540. ✓ $5e$

Question Number : 36 Question Id : 9710835142 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let $p > 0$ and $|a| \leq 1$ then $\lim_{n \rightarrow \infty} \frac{a^n}{n^p} =$

$p > 0$ మరియు $|a| \leq 1$ అయినప్పుడు $\lim_{n \rightarrow \infty} \frac{a^n}{n^p} =$

Options :

97108320541. ✗ 1

97108320542. ✓ 0

97108320543. ✗ 2

97108320544. ✗ $a + 10$

Question Number : 37 Question Id : 9710835143 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following sequence is not a bounded sequence

ఈ క్రింది అనుక్రమాలలో పరిబద్ధం కానిది ఏది ?

Options :

97108320545. ✓ $x_n = (-1)^n, n \geq 1$

97108320546. ✗ $x_n = 1 - \frac{1}{n}, n \geq 1$

97108320547. ✗ $x_n = (1 + \frac{1}{n})^n, n \geq 1$

97108320548. ✗ $x_n = (-1)^n, n \geq 1$

Question Number : 38 Question Id : 9710835144 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $x_1 = \sqrt{2}$ and $x_{n+1} = \sqrt{2 + x_n}$ for all $n \in \mathbb{N}$. Then $\lim_{n \rightarrow \infty} x_n =$

$x_1 = \sqrt{2}$ గా ప్రారంభించి మరియు $x_{n+1} = \sqrt{2 + x_n}$ ప్రతి $n \in \mathbb{N}$ కు అయినప్పుడు $\lim_{n \rightarrow \infty} x_n =$

Options :

97108320549. ✗ e

97108320550. ✗ $\sqrt{3}$

97108320551. ✓ 2

97108320552. ✗ $\sqrt{2}$

Question Number : 39 Question Id : 9710835145 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $a_n = \sin \frac{n\pi}{3} \forall n \in \mathbb{N}$ then the limit inferior of the sequence $\{a_n\}$ is

ప్రతి $n \in \mathbb{N}$ కు $a_n = \sin \frac{n\pi}{3}$ అయినప్పుడు అనుక్రమం $\{a_n\}$ యొక్క నిమన అవధి

Options :

97108320553. ✗ $-\frac{1}{2}$

97108320554. ✓ $-\frac{\sqrt{3}}{2}$

97108320555. ✖ $\frac{\sqrt{3}}{2}$

97108320556. ✖ $\frac{1}{2}$

Question Number : 40 Question Id : 9710835146 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\lim_{n \rightarrow \infty} \left(\frac{1+2+3+\dots+n}{n^2} \right) =$$

Options :

97108320557. ✖ $\frac{1}{8}$

97108320558. ✖ $\frac{1}{6}$

97108320559. ✖ $\frac{1}{3}$

97108320560. ✔ $\frac{1}{2}$

Question Number : 41 Question Id : 9710835147 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following series is convergent ?

ఈ క్రింది వాటిలో అభిసరించే శ్రేణి ఏది ?

Options :

97108320561. ✖ $\sum_{n=1}^{\infty} \frac{5}{3n+2}$

97108320562. ✖ $\sum_{n=1}^{\infty} \left(\frac{2020}{2019} \right)^n$

97108320563. ✖ $\sum_{n=1}^{\infty} \frac{n+1}{n+2}$

97108320564. ✓ $\sum_{n=1}^{\infty} \frac{1}{3n^4 + 2}$

Question Number : 42 Question Id : 9710835148 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\sum_{n=2}^{\infty} \left(-\frac{1}{3}\right)^n =$$

Options :

97108320565. ✗ $\frac{1}{6}$

97108320566. ✓ $\frac{1}{12}$

97108320567. ✗ $\frac{1}{9}$

97108320568. ✗ $\frac{1}{3}$

Question Number : 43 Question Id : 9710835149 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $a_n > 0 \quad \forall \quad n \in \mathbb{N}$ and $\sum_{n=1}^{\infty} a_n$ is convergent. Then which of the following statements is false.

ప్రతి $n \in \mathbb{N}$ కు $a_n > 0$ అనీ మరియు $\sum_{n=1}^{\infty} a_n$ అభిసరిస్తుందని అనుకొనుము. అప్పుడు ఈ క్రింది ప్రవచనాలలో ఏది అసత్యము.

Options :

97108320569. ✗ $\sum_{n=1}^{\infty} a_n^3$ is convergent

97108320570. ✓ $\sum_{n=1}^{\infty} \sqrt{a_n}$ is convergent

97108320571. ✗ $\sum_{n=1}^{\infty} \frac{\sqrt{a_n}}{n}$ is convergent

97108320572. ✗ $\sum_{n=1}^{\infty} a_n^2$ is convergent

Question Number : 44 Question Id : 9710835150 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following series is convergent
ఈ క్రింది శ్రేణులలో అభిసరించే శ్రేణి ఏది ?

Options :

97108320573. ✖ $\sum_{n=1}^{\infty} (-1)^n \cdot \frac{n^2}{3n^2 + 5}$

97108320574. ✖ $\sum_{n=1}^{\infty} (-1)^n \cdot \left(\frac{n+1}{n+5} \right)$

97108320575. ✔ $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}}$

97108320576. ✖ $\sum_{n=1}^{\infty} (-1)^n \cdot (n+1)$

Question Number : 45 Question Id : 9710835151 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The radius of convergence of the power series $\sum_{n=1}^{\infty} \frac{2^n}{n^2} x^n$ is

$\sum_{n=1}^{\infty} \frac{2^n}{n^2} x^n$ అనే పూత శ్రేణి యొక్క అభిసరణ వ్యాసార్థము.

Options :

97108320577. ✔ $\frac{1}{2}$

97108320578. ✖ $\frac{1}{4}$

97108320579. ✖ $\frac{1}{8}$

97108320580. ✖ $\frac{1}{3}$

Question Number : 46 Question Id : 9710835152 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $x \in [0, 1)$ and $f_n(x) = x^n \neq n \in \mathbb{N}$. If $\lim_{n \rightarrow \infty} f_n(x) = f(x)$ then

$x \in [0, 1)$ మరియు $f_n(x) = x^n \neq n \in \mathbb{N}$ గా తీసికొనుము. $\lim_{n \rightarrow \infty} f_n(x) = f(x)$ అయినప్పుడు

Options :

97108320581. ✖ $f_n(x) = 1 \neq n \in [0, 1)$

97108320582. ✔ $f(x) = 0 \neq x \in [0, 1)$

97108320583. ✖ $f(x) = 1 - x \neq x \in [0, 1)$

97108320584. ✖ $f(x) = x + 2 \neq x \in [0, 1)$

Question Number : 47 Question Id : 9710835153 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following sequence of function converges uniformly?

ఈ క్రింది ప్రమేయాల అనుక్రమాలలో ఏకరూప అభీసరణం చెందునది ఏది ?

Options :

97108320585. ✔ $f_n(x) = \frac{1 + 2 \cos^2 nx}{\sqrt{n}}, x \in \mathbb{R}$

97108320586. ✖ $f_n(x) = \frac{nx}{1 + n^2 x^2}, x \in \mathbb{R}$

97108320587. ✖ $f_n(x) = x^n, x \in [0, 1]$

97108320588. ✖ $f_n(x) = \sqrt{x^2 + \frac{1}{n}}, x \in \mathbb{R}$

Question Number : 48 Question Id : 9710835154 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For all $x \in \mathbb{R}$

$$\lim_{n \rightarrow \infty} \int_2^8 \frac{n + \cos x}{4n + \sin^2 x} dx =$$

ప్రతి $x \in \mathbb{R}$ కు $\lim_{n \rightarrow \infty} \int_2^8 \frac{n + \cos x}{4n + \sin^2 x} dx =$

Options :

97108320589. ✖ $\frac{1}{2}$

97108320590. ✖ $\frac{9}{2}$

97108320591. ✖ $\frac{5}{2}$

97108320592. ✔ $\frac{3}{2}$

Question Number : 49 Question Id : 9710835155 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

For $|x| < 1$, $\sum_{n=0}^{\infty} \frac{1}{n+1} x^{n+1} =$
 $|x| < 1$ నకు $\sum_{n=0}^{\infty} \frac{1}{n+1} x^{n+1} =$

Options :

97108320593. ✖ $\log(1 - \frac{x}{2})$

97108320594. ✖ $-\log(3 - x)$

97108320595. ✔ $-\log(1 - x)$

97108320596. ✖ $\log(2 - x)$

Question Number : 50 Question Id : 9710835156 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let f be a bounded function on $[a, b]$. If P, Q are partitions of $[a, b]$ such that $P \subseteq Q$. Then which of the following statements is true.

$[a, b]$ పై నిర్వచిత మయిన ప్రమేయం f పరిబద్ధమనుకొనుము $P \subseteq Q$ అయ్యే విధంగా $[a, b]$ అంతరానికి P, Q లు రెండు విభజనలనుకొనుము. ఇప్పుడు ఈ క్రింది ప్రవచనాలలో ఏది సత్యము.

Options :

97108320597. ✖ $L(f, P) \geq L(f, Q)$

97108320598. ✖ $U(f, P) \leq U(f, Q)$

97108320599. ✖ $L(f, P) \geq U(f, Q)$

97108320600. ✔ $L(f, Q) \leq U(f, P)$

Question Number : 51 Question Id : 9710835157 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following statement is false?

ఈ క్రింది ప్రవచనాలలో ఏది సత్యము.

Options :

Every monotonic function f on $[a, b]$ is continuous

97108320601. ✖ $[a, b]$ పై నిర్వచించబడిన ప్రతి ఏక దిష్ట ప్రమేయం సమాకలనీయం అవుతుంది.

Every integrable function on $[a, b]$ is continuous

97108320602. ✔ $[a, b]$ పై సమాకలనీయం అయ్యే ప్రతి ప్రమేయం అవిచ్ఛిన్నం అవుతుంది.

Every continuous function f on $[a, b]$ is integrable

97108320603. ✖ $[a, b]$ పై నిర్వచించబడిన ప్రతి అవిచ్ఛిన్నం ప్రమేయం సమాకలనీయం అవుతుంది.

97108320604. ✖

If f, g are integrable on $[a, b]$ and if $f(x) \leq g(x)$ for all $x \in [a, b]$ then $\int_a^b f \leq \int_a^b g$

$[a, b]$ పై f, g లు సమాకలనీయం అవుతూ ప్రతి $x \in [a, b]$ కు $f(x) \leq g(x)$ అయినప్పుడు $\int_a^b f \leq \int_a^b g$ అవుతుంది.

Question Number : 52 Question Id : 9710835158 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $1 < \alpha < \beta$. Now $\int_{\alpha}^{\beta} \frac{1}{t \log t} dt =$

$1 < \alpha < \beta$ గా గైకొనుము. ఇప్పుడు $\int_{\alpha}^{\beta} \frac{1}{t \log t} dt =$

Options :

97108320605. ✖ $\log(\log \beta) + \log(\log \alpha)$

97108320606. ✖ $\log \beta + \log(\log \alpha)$

97108320607. ✖ $\log \beta - \log \alpha$

97108320608. ✓ $\log(\log\beta) - \log(\log\alpha)$

Question Number : 53 Question Id : 9710835159 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow 0} \frac{1 - \cos 2x - 2x^2}{x^4} =$$

Options :

97108320609. ✓ $-\frac{2}{3}$

97108320610. ✗ $\frac{3}{2}$

97108320611. ✗ $-\frac{3}{2}$

97108320612. ✗ $\frac{2}{3}$

Question Number : 54 Question Id : 9710835160 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If $*$ is the binary operation defined on the set Z of all integers by $a * b = a + b + 5$ for all $a, b \in Z$, then the inverse of 2 in the group $(Z, *)$ is

పూర్ణ సంఖ్యల సమితి Z పై $*$ అనే యుగ్మ పరిక్రియని ప్రతి $a, b \in Z$ కు $a * b = a + b + 5$ గా నిర్వచిస్తే సమూహం $(Z, *)$ లో 2 యొక్క విలోమం

Options :

97108320613. ✗ -7

97108320614. ✗ -5

97108320615. ✓ -12

97108320616. ✗ -3

Question Number : 55 Question Id : 9710835161 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In the group $(Z_{10}, +_{10})$ of residue classes of integers modulo 10, the order of the element $\bar{7}$ is

10 మాపంగా గల పూర్ణ సంఖ్యల అవక్షేప తరగతుల సమూహం $(Z_{10}, +_{10})$ లో మూలకం $\bar{7}$ యొక్క తరగతి

Options :

97108320617. ✗ 2

97108320618. ✖ 5

97108320619. ✔ 10

97108320620. ✖ 20

Question Number : 56 Question Id : 9710835162 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $kZ = \{kx / x \in Z\}$. Then $8Z \cap 14Z =$

Let $kZ = \{kx / x \in Z\}$ గా గైకొనుము. అప్పుడు $8Z \cap 14Z =$

Options :

97108320621. ✖ $22Z$

97108320622. ✔ $56Z$

97108320623. ✖ $6Z$

97108320624. ✖ $28Z$

Question Number : 57 Question Id : 9710835163 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $G = \langle a \rangle$ and $|a| = 12$. Now the set of all generators of G is

$G = \langle a \rangle$ మరియు $|a| = 12$ గా గైకొనుము. ఇప్పుడు G యొక్క జనక మూలకాల సమితి

Options :

97108320625. ✔ $\{a^1, a^5, a^7, a^{11}\}$

97108320626. ✖ $\{a^1, a^2, a^6, a^8\}$

97108320627. ✖ $\{a^2, a^4, a^6, a^8\}$

97108320628. ✖ $\{a^3, a^6, a^9, a^{12}\}$

Question Number : 58 Question Id : 9710835164 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let G be a finite group and H, K are subgroups of G such that

$|H| = 20, |K| = 25, H \cap K \neq \{e\}$ then $|H \cap K| =$

G ఒక పరిమిత సమూహమనీ, H, K లు G కు ఉపసమూహాలనీ $|H| = 20, |K| = 25, H \cap K \neq \{e\}$

అయినప్పుడు $|H \cap K| =$

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Options :

97108320629. 45

97108320630. 15

97108320631. 10

97108320632. 5

Question Number : 59 Question Id : 9710835165 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is false

ఈ క్రింది ప్రవచనాలలో ఏది అసత్యము

Options :

Every group of order 4 is abelian

97108320633. ✖ 4ను తరగతిగా కల్గిన ప్రతిసమూహం వినిమయం అవుతుంది

Every group of order 5 is abelian

97108320634. ✖ 5ను తరగతిగా కల్గిన ప్రతిసమూహం వినిమయం అవుతుంది

Every group of order 6 is abelian

97108320635. ✔ 6ను తరగతిగా కల్గిన ప్రతిసమూహం వినిమయం అవుతుంది

Every group of order 11 is abelian

97108320636. ✖ 11ను తరగతిగా కల్గిన ప్రతిసమూహం వినిమయం అవుతుంది

Question Number : 60 Question Id : 9710835166 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Let S_n denote the set of all permutations defined on an n element set. Then in the group $(S_3, 0)$, the number of elements in S_3 which satisfy $x^2 = e$ is

ఒక n మూలకం సెట్‌లో నిర్వచించే అన్ని ప్రస్తారణల సమితిని S_n

సూచించిన. అప్పుడు సమూహంలో $(S_3, 0)$, $x^2 = e$ ని

సంతృప్తిపరిచే S_3 లోని మూలకాల సంఖ్య

Options :

97108320637. ✖ 5

97108320638. ✔ 4

97108320639. ✖ 2

97108320640. ✖ 3

Question Number : 61 Question Id : 9710835167 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following is true?

ఈ క్రింది ప్రవచనాలలో ఏది సత్యము ?

Options :

97108320641. ✖ $|S_n| = (n+1)!$

Product of two permutations is again an odd permutation

97108320642. ✖ రెండు బేసి ప్రస్తారాల లబ్ధము తిరిగి బేసి ప్రస్తారం అవుతుంది

If $\alpha, \beta \in S_n$ then $\alpha\beta\alpha^{-1}\beta^{-1}$ is an odd permutation

97108320643. ✖ $\alpha, \beta \in S_n$ అయినపుడు కూడా $\alpha\beta\alpha^{-1}\beta^{-1}$ బేసి ప్రస్తారమవుతుంది

Every subgroup of an abelian group is normal

97108320644. ✔ వినిమయ సమూహం యొక్క ప్రతి ఉపసమూహం అభీలంబం అవుతుంది

Question Number : 62 Question Id : 9710835168 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $\alpha \in S_{10}$. If $\alpha = (1\ 3\ 5\ 7)(2\ 4\ 6\ 8\ 9)$ then the order of α

$\alpha \in S_{10}$ గా గైకొనుము $\alpha = (1\ 3\ 5\ 7)(2\ 4\ 6\ 8\ 9)$ అయినపుడు α యొక్క తరగతి

Options :

97108320645. ✖ 9

97108320646. ✖ 10

97108320647. ✖ 12

97108320648. ✔ 20

Question Number : 63 Question Id : 9710835169 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $G = \langle a \rangle$ and $|a| = 30$. Then the number of distinct left cosets of the subgroup $\langle a^6 \rangle$ in G is
 $G = \langle a \rangle$ మరియు $|a| = 30$ గా గైకొనుము. ఇప్పుడు సమూహం G లో $\langle a^6 \rangle$ అనే ఉపసమూహం యొక్క విభిన్న సహసమితుల సంఖ్య

Options :

97108320649. ✓ 6

97108320650. ✗ 5

97108320651. ✗ 10

97108320652. ✗ 15

Question Number : 64 Question Id : 9710835170 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
 Correct Marks : 1 Wrong Marks : 0

The number of homomorphisms from the group $(Z_{20}, +_{20})$ to the group $(Z_{30}, +_{30})$ is
 సమూహం $(Z_{20}, +_{20})$ నుండి $(Z_{30}, +_{30})$ సమూహానికి గల సమరూపతల సంఖ్య

Options :

97108320653. ✗ 40

97108320654. ✓ 10

97108320655. ✗ 20

97108320656. ✗ 30

Question Number : 65 Question Id : 9710835171 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
 Correct Marks : 1 Wrong Marks : 0

Let $\phi : G \rightarrow \bar{G}$ be a homomorphism of groups. Then which of the following statements is false
 $\phi : G \rightarrow \bar{G}$ ను ఒక సమరూపత అనుకొనుము. అప్పుడు ఈ క్రింది ప్రవచనాలలో ఏది అసత్యము.

Options :

$\phi(e) = e'$ where e, e' are identities of $G, \bar{G}$ respectively.

97108320657. ✗ $\phi(e) = e'$ ఇక్కడ e, e' లు G, G' లలో తత్సమాలు వరుసగా

ϕ is one – one $\Leftrightarrow \text{Ker } \phi = \{e\}$

97108320658. ✗ ϕ అన్వేషకం $\Leftrightarrow \text{Ker } \phi = \{e\}$

For any $a \in G, |a| = |\phi(a)|$

97108320659. ✓ ఏదేని $a \in G$ కీ $|a| = |\phi(a)|$

If $|a| = n$ then $|\phi(a)|$ divides n
 $|a| = n$ అయినపుడు $|\phi(a)|$, n ను భాగిస్తుంది.

97108320660. ✖

Question Number : 66 Question Id : 9710835172 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
 Correct Marks : 1 Wrong Marks : 0

Which of the following is an integral domain

ఈ క్రింది వాటిలో పూర్ణాంక ప్రదేశం ఏది ?

Options :

97108320661. ✔ $(\mathbb{Z}_7, +_7, \cdot_7)$

97108320662. ✖ $(\mathbb{Z}_6, +_6, \cdot_6)$

The ring $M_2(\mathbb{Z})$ of 2×2 matrices over the integers

97108320663. ✖ పూర్ణాంకాలపై 2×2 మాత్రికల రింగ్ $M_2(\mathbb{Z})$

97108320664. ✖ $\mathbb{Z} \oplus \mathbb{Z}$

Question Number : 67 Question Id : 9710835173 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
 Correct Marks : 1 Wrong Marks : 0

In the ring of integers $(\mathbb{Z}, +, \cdot)$, which one of the following is a maximal ideal

పూర్ణ సంఖ్యల వలయం $(\mathbb{Z}, +, \cdot)$ లో, క్రింది వాటిలో అధికతను ఆదర్శం ఏది ?

Options :

97108320665. ✖ $\{0\}$

97108320666. ✖ $12\mathbb{Z}$

97108320667. ✔ $11\mathbb{Z}$

97108320668. ✖ $15\mathbb{Z}$

Question Number : 68 Question Id : 9710835174 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
 Correct Marks : 1 Wrong Marks : 0

The number of solutions $x^2 + 3x + 2 = 0$ in the ring $(\mathbb{Z}_6, +_6, \cdot_6)$

$(\mathbb{Z}_6, +_6, \cdot_6)$ వలయంలో $x^2 + 3x + 2 = 0$ అనే సమీకరణపు సాధనల సంఖ్య

Options :

97108320669. ✖ 6

97108320670. ✔ 4

97108320671. ✖ 3

97108320672. ✖ 5

Question Number : 69 Question Id : 9710835175 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $f(x), g(x) \in \mathbb{Z}_5[x]$ and $f(x) = 2x^3 + 4x^2 + 3x + 1$, $g(x) = x^2 + 3x + 4$ then $f(x) \cdot g(x) =$

$f(x), g(x) \in \mathbb{Z}_5[x]$ గా గైకొనుము $f(x) = 2x^3 + 4x^2 + 3x + 1$, $g(x) = x^2 + 3x + 4$ అయినప్పుడు $f(x) \cdot g(x) =$

Options :

97108320673. ✖ $2x^3 + 4x^2 + 4x + 1$

97108320674. ✖ $2x^3 + 4x^2 + x + 3$

97108320675. ✖ $2x^5 + x^3 + x^2 + x$

97108320676. ✔ $2x^5 + 3x^3 + x^2 + 4$

Question Number : 70 Question Id : 9710835176 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following statements is false?

ఈ క్రింది ప్రవచనాలలో ఏది అసత్యము ?

Options :

97108320677. ✖ If U is an ideal of a ring R and $1 \in U$ then $U = R$
వలయం R లో U ఒక ఆదర్శం మరియు $1 \in U$ అయినప్పుడు $U = R$

97108320678. ✖ If F is a field, then its only ideals are (0) and F
 F ఒక క్షేత్రమయితే (0) మరియు F లు మాత్రమే F నకు ఆదర్శాలు అవుతాయి

97108320679. ✔ Every subring in a ring is an ideal
ఏదేని వలయం ప్రతి ఉపవలయం ఒక ఆదర్శం అవుతుంది

97108320680. ✖ Every ideal in a ring is a subring
వలయంలో ప్రతి ఆదర్శము ఒక ఉపవలయం అవుతుంది

Question Number : 71 Question Id : 9710835177 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following is a subspace of the vectorspace $R^3(R)$

ఈ క్రింది వాటిలో సదిశాంతరాళం $R^3(R)$ నకు ఉపాంతరాళం అయ్యేది ఏది ?

Options :

$$W_1 = \left\{ \begin{bmatrix} x \\ y \\ z \end{bmatrix} \in R^3(R) \mid x = y + 1 \right\}$$

97108320681. ✖

$$W_2 = \left\{ \begin{bmatrix} x \\ y \\ z \end{bmatrix} \in R^3(R) \mid x = y^2 \right\}$$

97108320682. ✖

$$W_3 = \left\{ \begin{bmatrix} x \\ y \\ z \end{bmatrix} \in R^3(R) \mid x > 0 \right\}$$

97108320683. ✖

$$W_4 = \left\{ \begin{bmatrix} x \\ y \\ z \end{bmatrix} \in R^3(R) \mid x + y + z = 0 \right\}$$

97108320684. ✔

Question Number : 72 Question Id : 9710835178 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If $\begin{bmatrix} 9 \\ 14 \end{bmatrix} = a \begin{bmatrix} 1 \\ 2 \end{bmatrix} + b \begin{bmatrix} 3 \\ 4 \end{bmatrix}$ then $\begin{bmatrix} a \\ b \end{bmatrix} =$

$\begin{bmatrix} 9 \\ 14 \end{bmatrix} = a \begin{bmatrix} 1 \\ 2 \end{bmatrix} + b \begin{bmatrix} 3 \\ 4 \end{bmatrix}$ అయినప్పుడు $\begin{bmatrix} a \\ b \end{bmatrix} =$

Options :

$$\begin{bmatrix} 0 \\ 3 \end{bmatrix}$$

97108320685. ✖

$$\begin{bmatrix} 6 \\ 1 \end{bmatrix}$$

97108320686. ✖

$$\begin{bmatrix} 3 \\ 2 \end{bmatrix}$$

97108320687. ✔

$$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

97108320688. ✖

Question Number : 73 Question Id : 9710835179 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let A be a 4×9 matrix with a two dimensional null space. Then the rank of A is
A అనే 4×9 మాత్రిక యొక్క శూన్యంతరాళపు పరిమాణం 2 అయినపుడు A యొక్క ర్యాంక్

Options :

97108320689. ✔ 7

97108320690. ✖ 6

97108320691. ✖ 9

97108320692. ✖ 2

Question Number : 74 Question Id : 9710835180 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following sets is a basis of the vector space $\mathbb{R}^3(\mathbb{R})$
 $\mathbb{R}^3(\mathbb{R})$ అనే సదిశాంతరాళానికి ఈ క్రింది వాటిలో ఆధారం అయ్యే సమితి ఏది ?

Options :

$$B_1 = \left\{ \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \right\}$$

97108320693. ✔

$$B_2 = \left\{ \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 2 \\ 2 \\ 3 \end{bmatrix} \right\}$$

97108320694. ✖

$$B_4 = \left\{ \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} \right\}$$

97108320695. ✖

$$B_4 = \left\{ \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 3 \\ 5 \\ 7 \end{bmatrix}, \begin{bmatrix} 2 \\ 3 \\ 4 \end{bmatrix} \right\}$$

97108320696. ✖

Question Number : 75 Question Id : 9710835181 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Let A be an $n \times n$ invertible matrix. Then which of the following statements is false?

ఏదేని $n \times n$ మాత్రిక A కు విలోమం వ్యవస్థితం అనుకొనుము అప్పుడు ఈ క్రింది ప్రవచనాలలో ఏది అసత్యము ?

Options :

The columns of A forms a basis of $R^n(R)$

A యొక్క దొంతులు $R^n(R)$ కు ఆధారాన్ని ఏర్పరచును

97108320697. ✖

$\text{Null } A = \{ 0 \}$

A యొక్క శూన్యతాంతరాకం = $\{ 0 \}$

97108320698. ✖

$\text{Rank } A = n$

A కోటి = n

97108320699. ✖

$\text{Rank } (A) = n - 1$

A కోటి = n - 1

97108320700. ✔

Question Number : 76 Question Id : 9710835182 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The eigen values of the matrix $A = \begin{bmatrix} 1 & 2 & 3 & 5 \\ 0 & 4 & 7 & 0 \\ 0 & 0 & 5 & 2 \\ 0 & 0 & 0 & 6 \end{bmatrix}$

$A = \begin{bmatrix} 1 & 2 & 3 & 5 \\ 0 & 4 & 7 & 0 \\ 0 & 0 & 5 & 2 \\ 0 & 0 & 0 & 6 \end{bmatrix}$ అనే మాత్రిక యొక్క లాక్షణిక (ఐగన్) విలువలు

Options :

1, 5, 2, 6

97108320701. ✖

1, 4, 5, 6

97108320702. ✔

1, 4, 5, 3

97108320703. ✖

1, 2, 3, 5

97108320704. ✖

Question Number : 77 Question Id : 9710835183 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is an eigen vector of the matrix $A = \begin{bmatrix} 4 & -2 & 3 \\ 3 & 1 & 1 \\ 2 & 1 & 2 \end{bmatrix}$

ఈ క్రింది మాత్రిక $A = \begin{bmatrix} 4 & -2 & 3 \\ 3 & 1 & 1 \\ 2 & 1 & 2 \end{bmatrix}$ నకు ఐగన్ (లాక్షణిక) సదిశ అయ్యేది.

Options :

97108320705. ✖ $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$

97108320706. ✖ $\begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix}$

97108320707. ✖ $\begin{bmatrix} 1 \\ 3 \\ 4 \end{bmatrix}$

97108320708. ✔ $\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$

Question Number : 78 Question Id : 9710835184 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The characteristic equation of the matrix $A = \begin{bmatrix} 3 & 1 & -1 \\ -2 & 1 & 2 \\ 0 & 1 & 2 \end{bmatrix}$

$A = \begin{bmatrix} 3 & 1 & -1 \\ -2 & 1 & 2 \\ 0 & 1 & 2 \end{bmatrix}$ అనే మాత్రిక యొక్క లాక్షణిక సమీకరణం

Options :

97108320709. ✖ $\lambda^3 - 11\lambda^2 + 6\lambda - 6 = 0$

97108320710. ✖ $\lambda^3 + 6\lambda^2 + 11\lambda + 6 = 0$

97108320711. ✓ $\lambda^3 - 6\lambda^2 + 11\lambda - 6 = 0$

97108320712. ✗ $\lambda^3 + 6\lambda^2 - 12\lambda + 6 = 0$

Question Number : 79 Question Id : 9710835185 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following matrix is not diagonalizable ?

ఈ క్రింది మాత్రికలలో ఏకర్ణీకరణం కానిది ఏది ?

Options :

$$A = \begin{bmatrix} 1 & 6 & 7 \\ 0 & 2 & 5 \\ 0 & 0 & 4 \end{bmatrix}$$

97108320713. ✗

$$A = \begin{bmatrix} 5 & -8 & 1 \\ 0 & 0 & 7 \\ 0 & 0 & -2 \end{bmatrix}$$

97108320714. ✗

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$$

97108320715. ✗

$$A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$$

97108320716. ✓

Question Number : 80 Question Id : 9710835186 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If eigen values of a 3 x 3 matrix A are $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}$ then the eigen values of A^2 are

A అనే 3 x 3 మాత్రిక యొక్క ఐగన్ (లాక్షణిక) విలువలు $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}$ అయినపుడు A^2 యొక్క ఐగన్ (లాక్షణిక) విలువలు

Options :

$$\frac{1}{9}, \frac{1}{25}, \frac{1}{49}$$

97108320717. ✓

$$3, 5, 7$$

97108320718. ✗

$$9, 25, 49$$

97108320719. ✗

97108320720. ✖ 9, 5, 49

Question Number : 81 Question Id : 9710835187 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$\begin{vmatrix} x & y & z \\ y & z & x \\ z & x & y \end{vmatrix} =$$

Options :

97108320721. ✖ $3xyz + x^3 + y^3 + z^3$

97108320722. ✔ $3xyz - x^3 - y^3 - z^3$

97108320723. ✖ $3xyz + 3yz + 3zx$

97108320724. ✖ $x^3 + y^3 + z^3 + xyz$

Question Number : 82 Question Id : 9710835188 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Let $V = \begin{bmatrix} 1 \\ 2 \\ 2 \\ 0 \end{bmatrix}$ then the unit vector in the direction of V is

$V = \begin{bmatrix} 1 \\ 2 \\ 2 \\ 0 \end{bmatrix}$ గా గైకొనుము. ఇప్పుడు V దిశలో ఉండే ఏకాంక సదిశ

Options :

97108320725. ✖ $\begin{bmatrix} 1/5 \\ 1/5 \\ 1/5 \\ 0 \end{bmatrix}$

97108320726. ✖ $\begin{bmatrix} 1/9 \\ 2/9 \\ 2/9 \\ 0 \end{bmatrix}$

$$\begin{bmatrix} 1/3 \\ 2/3 \\ 2/3 \\ 0 \end{bmatrix}$$

97108320727. ✓

$$\begin{bmatrix} 1/3 \\ -2/3 \\ 2/3 \\ 0 \end{bmatrix}$$

97108320728. ✗

Question Number : 83 Question Id : 9710835189 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let u and v are any two non-zero vectors in $R^n(R)$. Then which of the following statements is true
 $R^n(R)$ లో u, v ఏదేని రెండు శూన్యేతర సదిశలను కొనుము అప్పుడు ఈ క్రింది ప్రవచనాలలో ఏది సత్యము ?

Options :

$$u, v \text{ are orthogonal if } \|u + v\|^2 = \|u\|^2 + \|v\|^2$$

97108320729. ✓

$$\|u + v\|^2 = \|u\|^2 + \|v\|^2 \text{ అయితే } u, v \text{ లు లంబాలవృత్తాయి.}$$

$$\|u + v\|^2 + \|u - v\|^2 = \|u\|^2 + \|v\|^2$$

97108320730. ✗

$$\|u + v\|^2 + \|u - v\|^2 = 2\|u\|^2 + 3\|v\|^2$$

97108320731. ✗

$$\|u + v\|^2 + \|u - v\|^2 = 3\|u\|^2 + 4\|v\|^2$$

97108320732. ✗

Question Number : 84 Question Id : 9710835190 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If $y = \begin{bmatrix} 5 \\ 5 \end{bmatrix}$ and $u = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$ then $\frac{y \cdot u}{u \cdot u} u =$

$y = \begin{bmatrix} 5 \\ 5 \end{bmatrix}$ మరియు $u = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$ అయినప్పుడు $\frac{y \cdot u}{u \cdot u} u =$

Options :

$$\begin{bmatrix} \frac{21}{5} \\ \frac{28}{5} \end{bmatrix}$$

97108320733. ✗

$$\begin{bmatrix} \frac{4}{7} \\ \frac{3}{7} \end{bmatrix}$$

97108320734. ✖

$$\begin{bmatrix} \frac{4}{5} \\ \frac{3}{5} \end{bmatrix}$$

97108320735. ✖

$$\begin{bmatrix} \frac{28}{5} \\ \frac{21}{5} \end{bmatrix}$$

97108320736. ✔

Question Number : 85 Question Id : 9710835191 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let $\{u_1, u_2, \dots, u_r\}$ be an orthogonal basis for a subspace W of $\mathbb{R}^n$ and let $y \in W$. If $y = c_1 u_1 + c_2 u_2 + \dots + c_r u_r$ then for any i ($1 \leq i \leq r$), $c_i =$
 $\mathbb{R}^n$ యొక్క ఏదేని ఉపాంతరం W యొక్క లంబతాదారం $\{u_1, u_2, \dots, u_r\}$ గానూ, $y \in W$ అనీ
 అనుకొనుము. ఇప్పుడు $y = c_1 u_1 + c_2 u_2 + \dots + c_r u_r$ అయినచో ప్రతి i ($1 \leq i \leq r$) నకు $c_i =$

Options :

$$\frac{y, u_i}{u_i, u_i}$$

97108320737. ✔

$$\frac{u_i, u_i}{y, u_i}$$

97108320738. ✖

$$\frac{y, u_i}{y, y}$$

97108320739. ✖

$$\frac{u_i, u_i}{y, y}$$

97108320740. ✖

Question Number : 86 Question Id : 9710835192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The interval in which $f(x) = x^3 + 4x^2 - 10 = 0$ has a real root is
 $f(x) = x^3 + 4x^2 - 10 = 0$ యొక్క వాస్తవ మూలము ఉండే అంతరం

Options :

97108320741. ✖ [2, 3]

97108320742. ✖ [-1, 0]

97108320743. ✔ [1, 2]

97108320744. ✖ [0, 1]

Question Number : 87 Question Id : 9710835193 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The fixed points of $f(x) = x^2 - 110$ are
 $f(x) = x^2 - 110$ యొక్క స్థిరబిందువులు

Options :

97108320745. ✖ -10, -11

97108320746. ✔ -10, 11

97108320747. ✖ 10, 11

97108320748. ✖ 10, -11

Question Number : 88 Question Id : 9710835194 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following is an iterative formula to find the inverse of $b \in \mathbb{N}$ using Newton-Raphson method.

న్యూటన్ రాఫ్సన్ పద్ధతిలో $b \in \mathbb{N}$ యొక్క వ్యుత్క్రమాన్ని కనుగొనడానికి ఉపయోగించే పునరుక్త సూత్రం ఏది ?

Options :

97108320749. ✖ $x_{k+1} = x_k^2 - bx_k$, $k = 0, 1, 2, \dots$

97108320750. ✔ $x_{k+1} = 2x_k - bx_k^2$, $k = 0, 1, 2, \dots$

97108320751. ✖ $x_{k+1} = 2x_k + bx_k^3$, $k = 0, 1, 2, \dots$

97108320752. ✖ $x_{k+1} = x_k + bx_k^2$, $k = 0, 1, 2, \dots$

Question Number : 89 Question Id : 9710835195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following is a repeated root of the equation $f(x) = x^3 - 4x^2 - 3x + 18 = 0$

ఈ క్రింది వాటిలో $f(x) = x^3 - 4x^2 - 3x + 18 = 0$ నకు పునరావృత మూలం ఏది ?

Options :

97108320753. ✖ - 3

97108320754. ✖ 2

97108320755. ✖ 4

97108320756. ✔ 3

Question Number : 90 Question Id : 9710835196 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Let $f(x)$ be the Lagrange interpolating polynomial which fits the following data

ఈ క్రింది దత్తాంశాన్ని సందానించే లెగ్రాంజ్ అంతర్వేశన బహుపదిని $f(x)$ గా తీసికొనుము

x	1	3	4
$f(x)$	2	22	41

Then $f(5) =$

ఇప్పుడు $f(5) =$

Options :

97108320757. ✔ 66

97108320758. ✖ 67

97108320759. ✖ 68

97108320760. ✖ 69

Question Number : 91 Question Id : 9710835197 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If $f(x) = \frac{1}{x}$ then the divided difference $f[x_0, x_1, x_2] =$

$f(x) = \frac{1}{x}$ అయినపుడు విభాజిత భేదం $f[x_0, x_1, x_2] =$

Options :

97108320761. ✖ $\frac{x_2}{x_0 x_3}$

97108320762. ✖ $\frac{x_1^2}{x_0 x_2}$

$$\frac{x_1}{x_0 x_2^2}$$

97108320763. ✖

$$\frac{1}{x_0 x_1 x_2}$$

97108320764. ✔

Question Number : 92 Question Id : 9710835198 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

With usual notation $\Delta^3 x_i =$

సాధారణ సంకేతంతో $\Delta^3 x_i =$

Options :

$$x_{i+3} - x_{i+2} - x_{i+1} - x_i$$

97108320765. ✖

$$x_{i+3} - 3x_{i+1}$$

97108320766. ✖

$$x_{i+3} - 3x_{i+2} + 3x_{i+1} - x_i$$

97108320767. ✔

$$x_i - x_{i+3}$$

97108320768. ✖

Question Number : 93 Question Id : 9710835199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

$$f[x_n, x_{n-1}, x_{n-2}] =$$

(Here $x_n - x_{n-1} = h$)

(ఇక్కడ $x_n - x_{n-1} = h$ గా తీసుకోవడం)

Options :

$$\frac{1}{6h} \nabla f(x_n)$$

97108320769. ✖

$$\frac{1}{2h^2} \nabla^2 f(x_n)$$

97108320770. ✔

$$\frac{1}{3h^2} \nabla f(x_n)$$

97108320771. ✖

$$\frac{1}{h^2} \nabla f(x_n)$$

97108320772. ✖

Question Number : 94 Question Id : 9710835200 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The polynomial which fits the following data is

ఈ క్రింది దత్తాంశాన్ని సందానించే బహుపది

x	0	1	2
$f(x)$	1	3	7

Options :

97108320773. ✖ $x^2 + 1$

97108320774. ✔ $x^2 + x + 1$

97108320775. ✖ $x^2 + 2x$

97108320776. ✖ $2x^2 - 1$

Question Number : 95 Question Id : 9710835201 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The Lagrange linear interpolating polynomial which fits the following data is

ఈ క్రింది దత్తాంశాన్ని సందానించే లెగ్రాండ్ రేఖీయ అంతర్వేశన బహుపది

x	1	3
$f(x)$	10	16

Options :

97108320777. ✖ $x + 13$

97108320778. ✖ $x + 9$

97108320779. ✔ $3x + 7$

97108320780. ✖ $5x + 1$

Question Number : 96 Question Id : 9710835202 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

With usual notation, which of the following is Simpson's rule to evaluate $\int_{x_0}^{x_2} f(x)dx$

సాధారణ సంకేతంలో $\int_{x_0}^{x_2} f(x)dx$ ను గణించడానికి ఈ క్రింది వాటిలో సింప్సన్ సూత్రమేది ?

(Here $h = x_i - x_{i-1} \forall i \geq 1$)

(ఇక్కడ $h = x_i - x_{i-1} \forall i \geq 1$)

Options :

$$\int_{x_0}^{x_2} f(x)dx \approx \frac{h}{3}[f(x_0) + 4f(x_1) + f(x_2)]$$

97108320781. ✓

$$\int_{x_0}^{x_2} f(x)dx \approx \frac{3h}{5}[f(x_0) + 4f(x_1) + f(x_2)]$$

97108320782. ✖

$$\int_{x_0}^{x_2} f(x)dx \approx \frac{h}{3}[f(x_0) + 3f(x_1) + f(x_2)]$$

97108320783. ✖

$$\int_{x_0}^{x_2} f(x)dx \approx \frac{h}{3}[f(x_0) + 2f(x_1) + 4f(x_2)]$$

97108320784. ✖

Question Number : 97 Question Id : 9710835203 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

To evaluate $\int_a^b f(x)dx$, in applying Simpson's three-eighth rule the number of subintervals should be taken as multiples of k then k =

సింప్సన్ 3/8 వ సూత్రాన్ని ఉపయోగించి $\int_a^b f(x)dx$ ను గణించడానికి ఉపాంతరాల సంఖ్యను k యొక్క గుణిజాలుగా తీసికొంటారు అప్పుడు k =

Options :

97108320785. ✖ 10

97108320786. ✖ 7

97108320787. ✖ 5

97108320788. ✓ 3

Question Number : 98 Question Id : 9710835204 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

With usual notation, the divided difference $f[x_0, x_1, x_2, \dots, x_k] =$
సాధారణ సంకేతంతో విభజిత భేదం $f[x_0, x_1, x_2, \dots, x_k] =$

(Here $x_n - x_{n-1} = h, k \geq 3$)
(ఇక్కడ $x_n - x_{n-1} = h, k \geq 3$ గా తీసికొనుము)

Options :

$$\frac{1}{h^k} \Delta^{k-1} f(x_o)$$

97108320789. ✖

$$\frac{1}{k!} \Delta^k f(x_o)$$

97108320790. ✖

$$\frac{1}{k! h^k} \Delta^k f(x_o)$$

97108320791. ✔

$$\frac{k!}{2 h^k} \Delta^k f(x_o)$$

97108320792. ✖

Question Number : 99 Question Id : 9710835205 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

With usual notation $\nabla + \nabla + \frac{\nabla}{\Delta} =$

సాధారణ సంకేతంతో $\nabla + \nabla + \frac{\nabla}{\Delta} =$

Options :

$$\Delta^2$$

97108320793. ✖

$$\nabla^2$$

97108320794. ✖

$$\Delta \nabla$$

97108320795. ✖

$$\frac{\Delta}{\nabla}$$

97108320796. ✔

Question Number : 100 Question Id : 9710835206 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

With usual notation $\Delta - \nabla =$

సాధారణ సంకేతంతో $\Delta - \nabla =$

Options :

$$\frac{2\nabla}{1+\Delta}$$

97108320797. ✖

$$\Delta \nabla$$

97108320798. ✔

$$\frac{\nabla}{\Delta + \nabla}$$

97108320799. ✖

97108320800. ✖ $\nabla + \nabla \Delta$