

Telangana State Council Higher Education

Notations :

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

Question Paper Name :	ELECTRONICS AND COMMUNICATION ENGINEERING 06th May 2024 Shift1
Subject Name :	Electronics and Communication Engineering
Creation Date :	2024-05-06 19:15:12
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
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
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

Help Button :	No
Show Reports :	No
Show Progress Bar :	No

ELECTRONICS AND COMMUNICATION ENGINEERING

Group Number :	1
Group Id :	7614469
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	76144631
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

Sub-Section Number : 1
Sub-Section Id : 76144645
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 1 Question Id : 7614461611 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

$$\text{If } A = \begin{pmatrix} k & 1 \\ 1 & k \end{pmatrix} \text{ and } |A^3| = 27, \text{ then } k =$$

Options :

7614466401. ✖ ± 1

7614466402. ✔ ± 2

7614466403. ✖ ± 4

7614466404. ✖ ± 5

Question Number : 2 Question Id : 7614461612 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

$$\text{If } A = \begin{pmatrix} 1 & -1 \\ 2 & 1 \end{pmatrix} \text{ satisfies } aA^2 + bA + cI = 0, \text{ then } b + 2c =$$

Options :

7614466405. ✓ 4

7614466406. ✗ 2

7614466407. ✗ -4

7614466408. ✗ 3

Question Number : 3 Question Id : 7614461613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let (x, y, z) be the solution of the system of equations $x + 3y + z = 3$,
 $x + 4y + 2z = 3$, $-x - 2y + 3z = -6$. Then $x^2 + y^2 + z^2 =$

Options :

7614466409. ✗ 12

7614466410. ✗ 9

7614466411. ✗ 6

7614466412. ✓ 3

Question Number : 4 Question Id : 7614461614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} 2 & x+9 \\ 1 & 2x \end{pmatrix}$ is invertible, then $x \neq$

Options :

7614466413. ✖ 4

7614466414. ✖ 1

7614466415. ✔ 3

7614466416. ✖ 5

Question Number : 5 Question Id : 7614461615 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of x satisfying $3^{\log_5(x-5)} = \log_5(125)$ is

Options :

7614466417. ✔ 10

7614466418. ✖ 5

7614466419. ✖ 9

7614466420. ✖ 3

Question Number : 6 Question Id : 7614461616 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } \frac{4x^2 + 1}{x^3 - 1} = \frac{A}{x - 1} + \frac{Bx + C}{x^2 + x + 1}, \text{ then } A - B + C =$$

Options :

7614466421. ✖ -3

7614466422. ✔ 0

7614466423. ✖ 2

7614466424. ✖ 1

Question Number : 7 Question Id : 7614461617 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The diameter of the circle $(x-1)^2 + (y+3)^2 = 3$ is

Options :

7614466425. ✖ $\sqrt{3}$

7614466426. ✖ $4\sqrt{3}$

7614466427. ✓ $2\sqrt{3}$

7614466428. ✗ 3

Question Number : 8 Question Id : 7614461618 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the circle $x^2 + y^2 - 3x - 2y + c = 0$ passes through origin, then $c =$

Options :

7614466429. ✗ -1

7614466430. ✗ 1

7614466431. ✓ 0

7614466432. ✗ ∞

Question Number : 9 Question Id : 7614461619 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The latus rectum of parabola $x^2 = 4y$ is

Options :

7614466433. ✓ 4

7614466434. ✖ 8

7614466435. ✖ 12

7614466436. ✖ 2

**Question Number : 10 Question Id : 7614461620 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

The centre of the circle $45x^2 + 45y^2 - 60x + 36y + 19 = 0$ is

Options :

7614466437. ✖ (0,0)

7614466438. ✖ (60,36)

7614466439. ✖ (-60,36)

7614466440. ✔ $(\frac{2}{3}, -\frac{2}{5})$

**Question Number : 11 Question Id : 7614461621 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

Homogeneous second degree equation $ax^2 + 2hxy + by^2 = 0$ represents two real and distinct lines through origin if

Options :

7614466441. ✓ $h^2 > ab$

7614466442. ✗ $h^2 = ab$

7614466443. ✗ $h^2 < ab$

7614466444. ✗ $h^2 = a + b$

Question Number : 12 Question Id : 7614461622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The equation of the circle with extremities (1,3) and (5, 7) of the diameter is

Options :

7614466445. ✗ $x^2 + y^2 + 6x + 10y + 26 = 0$

7614466446. ✓ $x^2 + y^2 - 6x - 10y + 26 = 0$

7614466447. ✗ $x^2 + y^2 - 6x + 10y + 26 = 0$

7614466448. ✗ $x^2 + y^2 - 6x - 10y - 26 = 0$

Question Number : 13 Question Id : 7614461623 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the line passing through the points $(a,6a)$ and $(5,6)$ is perpendicular to the line
 $3x+4y+5 = 0$, then $7a =$

Options :

7614466449. ✖ -5

7614466450. ✖ -3

7614466451. ✔ -1

7614466452. ✖ -2

Question Number : 14 Question Id : 7614461624 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $(0, k)$, $(1,3)$ and $(82,30)$ are collinear ,then $k =$

Options :

7614466453. ✔ $\frac{8}{3}$

7614466454. ✖ $\frac{9}{4}$

7614466455. ✘ $\frac{10}{7}$

7614466456. ✘ $\frac{11}{6}$

Question Number : 15 Question Id : 7614461625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the two parallel sides of a square are $2x+y+7 = 0, 2x+y+5=0$, then the area of that square is (in square units is)

Options :

7614466457. ✘ $\frac{3}{5}$

7614466458. ✔ $\frac{4}{5}$

7614466459. ✘ $\frac{6}{5}$

7614466460. ✘ $\frac{7}{5}$

Question Number : 16 Question Id : 7614461626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The point at two circles $x^2 + y^2 - 4x - 2y - 4 = 0, x^2 + y^2 - 12x - 8y - 12 = 0$ touches is

Options :

7614466461. ✓ $\left(\frac{-2}{5}, \frac{-4}{5}\right)$

7614466462. ✗ $\left(\frac{2}{5}, \frac{4}{5}\right)$

7614466463. ✗ $\left(\frac{2}{5}, \frac{-4}{5}\right)$

7614466464. ✗ $\left(\frac{-2}{5}, \frac{4}{5}\right)$

Question Number : 17 Question Id : 7614461627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x + y = k$ is a normal to the parabola $y^2 = 12x$, then $k =$

Options :

7614466465. ✗ 5

7614466466. ✓ 9

7614466467. ✗ 7

7614466468. ✖ 3

Question Number : 18 Question Id : 7614461628 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The set of all points where the function $f(x) = x|x|$ is differentiable is

Options :

7614466469. ✖ $(0, \infty)$

7614466470. ✔ $(-\infty, \infty)$

7614466471. ✖ $(-\infty, 0) \cup (0, \infty)$

7614466472. ✖ $(-\infty, 0)$

Question Number : 19 Question Id : 7614461629 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow 1} \frac{1 + x + x^2 + \dots + x^{n-1} - n}{x - 1} =$$

Options :

7614466473. ✖ $n^2 + n$

7614466474. ✘ $\frac{n^2 + n}{2}$

7614466475. ✔ $\frac{n^2 - n}{2}$

7614466476. ✘ $n^2 - n$

Question Number : 20 Question Id : 7614461630 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x = 2 \cos t, y = 2 \sin t$, then $\frac{d^2y}{dx^2}$ at $t = \frac{\pi}{4}$ is

Options :

7614466477. ✘ $\frac{1}{\sqrt{2}}$

7614466478. ✔ $-\sqrt{2}$

7614466479. ✘ $\sqrt{3}$

7614466480. ✘ $-\frac{1}{\sqrt{3}}$

Question Number : 21 Question Id : 7614461631 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the curve $y = x^3 - 3x + 2$ at the point $(2, 4)$ is

Options :

7614466481. ✓ $9x - y - 14 = 0$

7614466482. ✗ $9x + y - 14 = 0$

7614466483. ✗ $9x - y + 14 = 0$

7614466484. ✗ $9x + y = 0$

Question Number : 22 Question Id : 7614461632 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y = a \log x + bx^2 + x$ has its extreme values at $x = -1$ and $x = 2$, then the values of a and b are respectively are

Options :

7614466485. ✗ $-2, 2$

7614466486. ✗ $-4, 4$

7614466487. ✗

$$-\frac{1}{3}, 4$$

7614466488. ✓ $-\frac{1}{2}, 2$

Question Number : 23 Question Id : 7614461633 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the curves $y^2 = 2x$ and $2xy = k$ cut at right angle, then $k^2 =$

Options :

7614466489. ✗ 4

7614466490. ✓ 8

7614466491. ✗ 16

7614466492. ✗ 9

Question Number : 24 Question Id : 7614461634 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x^y y^x = 1$, then $\frac{dy}{dx} =$

Options :

7614466493. ✖ $-\frac{y}{x} \left(\frac{x + y \log x}{y + x \log y} \right)$

7614466494. ✖ $\frac{y}{x} \left(\frac{x - \log x}{y + \log y} \right)$

7614466495. ✖ $\frac{y}{x} \left(\frac{y - x \log y}{x + y \log x} \right)$

7614466496. ✔ $-\frac{y}{x} \left(\frac{y + x \log y}{x + y \log x} \right)$

Question Number : 25 Question Id : 7614461635 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $u = \tan^{-1} \left(\frac{x^3 + y^3}{x - y} \right)$, $x \neq y$ and if $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} - \sin ku = 0$, then $k =$

Options :

7614466497. ✖ 3

7614466498. ✖ 4

7614466499. ✔ 2

7614466500. ✖ 5

Question Number : 26 Question Id : 7614461636 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The slope of the tangent to the curve $xy=1$ at $(1,1)$ is

Options :

7614466501. ✖ -2

7614466502. ✔ -1

7614466503. ✖ 1

7614466504. ✖ 2

Question Number : 27 Question Id : 7614461637 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The function $f(x) = xe^{-x}$ ($x \in R$) attains a maximum value at $x =$

Options :

7614466505. ✖ 2

7614466506. ✖ $1/e$

7614466507. ✓ 1

7614466508. ✗ 3

Question Number : 28 Question Id : 7614461638 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The integral value of $\int \frac{\cos 2x}{\sin^2 x \cos^2 x} dx =$

Options :

7614466509. ✗ $\operatorname{Cosec}^2 x - \operatorname{Sec}^2 x + c$

7614466510. ✗ $\cot x + \tan x + c$

7614466511. ✓ $-\cot x - \tan x + c$

7614466512. ✗ $\operatorname{Cosec} x - \operatorname{Sec} x + c$

Question Number : 29 Question Id : 7614461639 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\int e^{x \operatorname{Cosec} x} \operatorname{Cosec} x (1 - x \cot x) dx =$

Options :

7614466513. ✘ $e^{x\cot x} + c$

7614466514. ✔ $e^{x\operatorname{cosec} x} + c$

7614466515. ✘ $e^{-x\cot x} + c$

7614466516. ✘ $e^{-x\operatorname{cosec} x} + c$

Question Number : 30 Question Id : 7614461640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The integral value of $\int_0^{\pi} x \sin x \cos^4 x dx$ is

Options :

7614466517. ✘ $\frac{\pi}{10}$

7614466518. ✔ $\frac{\pi}{5}$

7614466519. ✘ $-\frac{\pi}{5}$

7614466520. ✘ $-\frac{\pi}{10}$

Question Number : 31 Question Id : 7614461641 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The area enclosed between the curves $y^2 = x$ and $y = |x|$ is

Options :

7614466521. ✘ $1/3$

7614466522. ✘ 1

7614466523. ✘ $2/3$

7614466524. ✔ $1/6$

Question Number : 32 Question Id : 7614461642 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The differential equation of the family of curves $xy = c_1e^x + c_2e^{-x}$ is

Options :

7614466525. ✘ $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - y = 0$

7614466526. ✔ $x\frac{d^2y}{dx^2} + 2\frac{dy}{dx} - xy = 0$

7614466527. ✘ $x\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - y = 0$

7614466528. ✖ $x^2 \frac{d^2y}{dx^2} + 2 \frac{dy}{dx} - y = 0$

Question Number : 33 Question Id : 7614461643 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} - x \tan(y - x) = 1$ is

Options :

7614466529. ✔ $\sin(y - x) = ce^{\frac{x^2}{2}}$

7614466530. ✖ $\cos(y - x) = ce^{\frac{-x^2}{2}}$

7614466531. ✖ $\sin(y + x) = ce^{\frac{-x^2}{2}}$

7614466532. ✖ $\tan(y - x) = ce^{\frac{x^2}{2}}$

Question Number : 34 Question Id : 7614461644 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $xy \frac{dy}{dx} = \frac{1 + y^2}{1 + x^2}$ is

Options :

7614466533. ✘ $(1+x)(1+y) = cx^2y^2$

7614466534. ✔ $(1+x^2)(1+y^2) = cx^2$

7614466535. ✘ $(1+x^2)(1+y^2) = cy$

7614466536. ✘ $(1+x^2)(1+y^2) = cxy$

**Question Number : 35 Question Id : 7614461645 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} - \frac{2}{x}y = 2x^3 + x$ is

Options :

7614466537. ✔ $y = x^4 + x^2 \log x + cx^2$

7614466538. ✘ $y = x^3 + x^2 \log x + cx^2$

7614466539. ✘ $y = x^3 + x \log x + cx^2$

7614466540. ✘ $y = x^2 + x \log x + cx^3$

Question Number : 36 Question Id : 7614461646 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\sec^2 y \frac{dy}{dx} + x \tan y = x^3$ is

Options :

7614466541. ✘ $\sin y = x^2 + 2 + ce^{\frac{-x^2}{2}}$

7614466542. ✘ $\cos y = 2x^2 - 1 + ce^{\frac{-x^2}{2}}$

7614466543. ✘ $\cot y = x^2 - 2 + ce^{\frac{-x^2}{2}}$

7614466544. ✔ $\tan y = x^2 - 2 + ce^{\frac{-x^2}{2}}$

Question Number : 37 Question Id : 7614461647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The particular integral of the differential equation $\frac{d^2 y}{dx^2} + 16y = e^{-3x} + \cos 4x$ is

Options :

7614466545. ✘ $\frac{1}{7}e^{-3x} + \frac{x}{8}\cos 4x$

7614466546. ✘ $\frac{1}{23}e^{-3x} + \frac{x}{8}\cos 4x$

7614466547. ✔ $\frac{1}{25}e^{-3x} + \frac{x}{8}\sin 4x$

7614466548. ✘ $\frac{1}{36}e^{-3x} + \frac{x}{9}\sin 4x$

Question Number : 38 Question Id : 7614461648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A particular integral of the differential equation $\frac{d^2y}{dx^2} + \frac{dy}{dx} + y = x^2$ is

Options :

7614466549. ✘ $x^2 + 4x$

7614466550. ✘ $2x^2 - x$

7614466551. ✘ $x^2 - 8x$

7614466552. ✔ $x^2 - 2x$

Question Number : 39 Question Id : 7614461649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - 15y = 0$ subject to the conditions $y'(0) = 0, y''(0) = 2$ is

Options :

7614466553. ✘ $y = \frac{1}{20}e^{3x} + \frac{1}{12}e^{5x}$

7614466554. ✔ $y = \frac{1}{20}e^{5x} + \frac{1}{12}e^{-3x}$

7614466555. ✘ $y = \frac{1}{12}e^{5x} + \frac{1}{20}e^{-3x}$

7614466556. ✘ $y = \frac{1}{20}e^{-5x} + \frac{1}{12}e^{-3x}$

Question Number : 40 Question Id : 7614461650 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$L \left\{ \int_0^t e^{-u} \sin u \, du \right\} =$$

Options :

7614466557. ✘ $\frac{1}{s^2 + 2s + 2}$

7614466558. ✘

$$\frac{s}{s^2 + 2s + 2}$$

7614466559. ✓ $\frac{1}{s(s^2 + 2s + 2)}$

7614466560. ✗ $\frac{1}{s(s^2 + 2)}$

Question Number : 41 Question Id : 7614461651 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $L\{f(t)\} = \log\left(\frac{s-1}{s}\right)$, then $f(1) =$

Options :

7614466561. ✓ $1-e$

7614466562. ✗ $e-1$

7614466563. ✗ e

7614466564. ✗ $e+1$

Question Number : 42 Question Id : 7614461652 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\infty} \frac{\sin 2t}{t} dt =$$

Options :

7614466565. ✘ π

7614466566. ✘ 0

7614466567. ✘ 2π

7614466568. ✔ $\frac{\pi}{2}$

Question Number : 43 Question Id : 7614461653 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } L\{t \sinh kt\} = \frac{4s}{(s^2 - 4)^2}, \text{ then } k =$$

Options :

7614466569. ✘ 1

7614466570. ✘ 4

7614466571. ✔ 2

7614466572.

✘ $\frac{1}{2}$

Question Number : 44 Question Id : 7614461654 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{Let } L^{-1} \left\{ \frac{e^{-s}}{s^2 + 4s + 5} \right\} = f(t). \text{ If } t > 1, \text{ then } f(t) =$$

Options :

7614466573. ✘ $e^{-2t} \sin t$

7614466574. ✔ $e^{-2(t-1)} \sin(t-1)$

7614466575. ✘ $e^{-2(t+1)} \sin(t+1)$

7614466576. ✘ $e^{2t} \sin t$

Question Number : 45 Question Id : 7614461655 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } L \{ f(t) \} = \frac{2s-1}{(s+1)(s-2)}, \text{ then } L \{ f(4t) \} =$$

Options :

7614466577. ✖ $\frac{2(s+2)}{(s-4)(s+8)}$

7614466578. ✖ $\frac{2(s-1)}{(4s+1)(4s-2)}$

7614466579. ✖ $\frac{s-2}{(s-4)(s+8)}$

7614466580. ✔ $\frac{2(s-2)}{(s+4)(s-8)}$

Question Number : 46 Question Id : 7614461656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $Y(s)$ is the Laplace transform of the solution $y(t)$ of $y'' + y = \sin 3t$,
 $y(0) = 0, y'(0) = 0$, then $Y(0) =$

Options :

7614466581. ✖ 0

7614466582. ✖ 3

7614466583. ✔ $\frac{1}{3}$

7614466584. ✖ $\frac{1}{9}$

Question Number : 47 Question Id : 7614461657 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient a_n in the series expansion of
 $f(x) = |x|$ in $(-\pi, \pi)$ when n is odd is

Options :

7614466585. ✖ $\frac{4}{\pi n^2}$

7614466586. ✔ $\frac{-4}{\pi n^2}$

7614466587. ✖ $\frac{2}{\pi n^2}$

7614466588. ✖ 0

Question Number : 48 Question Id : 7614461658 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient b_0 in the series expansion of
 $f(x) = |x \sin x|$ in $(-\pi, \pi)$ is

Options :

7614466589. ✓ 0

7614466590. ✗ -2

7614466591. ✗ 2

7614466592. ✗ -1

Question Number : 49 Question Id : 7614461659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $f(x) = \sin x$ is expressed as Fourier Cosine series in the interval $(0, \pi)$, then the value of a_0 is

Options :

7614466593. ✗ $\frac{2}{\pi}$

7614466594. ✗ $\frac{1}{\pi}$

7614466595. ✓ $\frac{4}{\pi}$

7614466596. ✗ $\frac{-2}{\pi}$

Question Number : 50 Question Id : 7614461660 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\pi} \sin 6x \sin 4x dx =$$

Options :

7614466597. ✘ $\frac{\pi}{2}$

7614466598. ✘ π

7614466599. ✘ 1

7614466600. ✔ 0

Physics

Section Id :	76144632
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

Sub-Section Number : 1
Sub-Section Id : 76144646
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 51 Question Id : 7614461661 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Which one of the following equation is dimensionally incorrect for the expression representing displacement 'y' and amplitude 'A' of a particle executing Simple Harmonic Motion with time period 'T'?

Options :

7614466601. ✘
$$y = \frac{A}{\sqrt{2}} (\sin\omega t + \cos\omega t)$$

7614466602. ✘
$$y = A \sin\omega t$$

7614466603. ✔
$$y = \frac{A}{T} \sin\left(\frac{t}{A}\right)$$

7614466604. ✘
$$y = A \sin\left(\frac{4\pi t}{T}\right)$$

Question Number : 52 Question Id : 7614461662 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The resultant of two equal forces acting at right angles to each other is 1224 N. Then the magnitude of each force in Newtons.

Options :

7614466605. ✘ 612, 612

7614466606. ✘ 1224, 1224

7614466607. ✔ 865, 865

7614466608. ✘ 432, 432

Question Number : 53 Question Id : 7614461663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The magnitude of three vectors \vec{A}, \vec{B} & \vec{C} are in order 12,5,13 units and

$\vec{A} + \vec{B} = \vec{C}$, then what will be the angle between the vectors \vec{A} & \vec{B}

Options :

7614466609. ✔ 90°

7614466610. ✘ 60°

7614466611. ✘ 30°

7614466612. ✘ 45°

Question Number : 54 Question Id : 7614461664 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A boy pulls a body of mass 50 kg resting on a flat horizontal surface.
Calculate the frictional force if the coefficient of friction is 0.2

Options :

7614466613. ✓ 98.1 kg.m.s⁻²

7614466614. ✗ 15 kg

7614466615. ✗ 98.1 x 10³ g.cm.s⁻²

7614466616. ✗ 1500 g

Question Number : 55 Question Id : 7614461665 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a projectile is thrown with a velocity u at an angle of θ with the horizontal,
then the velocity at maximum height during the projectile motion will be:

Options :

7614466617. ✗ $2u \sin\theta$

7614466618. ✗ $u \sin\theta$

7614466619. ✗ $2u \cos\theta$

7614466620. ✓ $u \cos\theta$

Question Number : 56 Question Id : 7614461666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A child of mass 5 kg is going round a merry-go-round that makes 1 rotation in 3.14 seconds. If the radius of the merry-go-round is 2 m then the centrifugal force on the child will be

Options :

7614466621. ✗ 10 Newton

7614466622. ✗ 20 Newton

7614466623. ✗ 30 Newton

7614466624. ✓ 40 Newton

Question Number : 57 Question Id : 7614461667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A metal plate of area 100 cm^2 is placed on the surface of a liquid and a force of $1 \mu\text{N}$ is required to move the plate so as to produce a velocity change 1 cms^{-1} between two successive layers separated by 1 cm. The coefficient of viscosity of the liquid is

Options :

7614466625. ✓ $10^{-4} Pa s$

7614466626. ✗ $10^{-3} Pa s$

7614466627. ✗ $10^{-1} Pa s$

7614466628. ✗ $10 Pa s$

Question Number : 58 Question Id : 7614461668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Water rises to a height 'h' in a capillary tube of radius 'r' when immersed in water. The mass of the water in the capillary tube is 'm'. The mass of water that will rise in another capillary tube of radius $\frac{r}{2}$ when immersed in water is

Options :

7614466629. ✗ m

7614466630. ✗ 2m

7614466631. ✓ $\frac{m}{2}$

7614466632. ✗ 4m

Question Number : 59 Question Id : 7614461669 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The continuity equation for compressible fluid is (the quantities carry their usual meaning)

Options :

7614466633. ✘ $\rho_2 A_1 v_1 = \rho_1 A_2 v_2$

7614466634. ✘ $A_1 v_1 = A_2 v_2$

7614466635. ✘ $\rho_1 v_1 = \rho_2 v_2$

7614466636. ✔ $\rho_1 A_1 v_1 = \rho_2 A_2 v_2$

Question Number : 60 Question Id : 7614461670 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A block of mass 'm' is moving on frictionless horizontal surface with velocity 5m/sec, compresses an ideal spring by 2m and comes to rest. The ratio of mass 'm' of the block to spring constant 'k' is.

Options :

7614466637. ✘ 25 : 4

7614466638. ✔ 4 : 25

7614466639. ✖ 1: 25

7614466640. ✖ 4 : 1

Question Number : 61 Question Id : 7614461671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following:

- | | |
|-----------------------|---|
| a) Adiabatic Process | i) no volume change takes place. |
| b) Isochoric Process | ii) no pressure change takes place. |
| c) Isobaric Process | iii) no temperature change takes place. |
| d) Isothermal Process | iv) no heat transfer takes place. |

Options :

7614466641. ✖ a-iv, b-iii, c-ii, d-i

7614466642. ✖ a-i, b-iv, c-ii, d-iii

7614466643. ✔ a-iv, b-i, c-ii, d-iii

7614466644. ✖ a-i, b-ii, c-iii, d-iv

Question Number : 62 Question Id : 7614461672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

First law of thermodynamics represents conservation of

Options :

7614466645. ✘ Pressure

7614466646. ✘ Momentum

7614466647. ✘ Entropy

7614466648. ✔ Energy

Question Number : 63 Question Id : 7614461673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing Simple Harmonic Motion is given by $x = a \cos \frac{\pi t}{2}$ where 'x' and 'a' are in metre. The distance covered by it in the time interval between $t = 0$ sec to $t = 4$ sec in metre is

Options :

7614466649. ✘ 0

7614466650. ✘ 2a

7614466651. ✔ 4a

7614466652. ✘ 3a

Question Number : 64 Question Id : 7614461674 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A simple pendulum 80 cm long oscillates with amplitude of 0.02 m. The acceleration at the ends of its path is (take $g = 10 \text{ ms}^{-2}$)

Options :

7614466653. ✘ 0 ms^{-2}

7614466654. ✔ 0.25 ms^{-2}

7614466655. ✘ 2.5 ms^{-2}

7614466656. ✘ 10 ms^{-2}

Question Number : 65 Question Id : 7614461675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A particle undergoing Simple Harmonic Motion passes through the mean position with a velocity of 2 ms^{-1} . The velocity of the particle at the point where its displacement is half the amplitude is

Options :

7614466657. ✘ $2\sqrt{3} \text{ ms}^{-1}$

7614466658. ✘ $4\sqrt{3} \text{ ms}^{-1}$

7614466659. ✘ 0 ms^{-1}

7614466660. ✓ $\sqrt{3} \text{ ms}^{-1}$

Question Number : 66 Question Id : 7614461676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A boy standing between two parallel walls fires a gun. He hears the first echo after 4 sec and next after 6 sec. The distance between the two walls is (take velocity of sound in air as 340 m/s)

Options :

7614466661. ✗ 680 m

7614466662. ✗ 1020 m

7614466663. ✓ 1700 m

7614466664. ✗ 340 m

Question Number : 67 Question Id : 7614461677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a good acoustic hall the distribution of sound should be

Options :

7614466665. ✗ Gradually increasing

7614466666. ✘ Exponentially increasing

7614466667. ✘ Randomly change

7614466668. ✔ Uniform

Question Number : 68 Question Id : 7614461678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two magnetic poles placed 5cm apart in air attract each other with a force of 100 dyne. How far from each other should they be placed to get the force of attraction 25 dyne?

Options :

7614466669. ✔ 10 cm

7614466670. ✘ 4 cm

7614466671. ✘ 2 cm

7614466672. ✘ 6 cm

Question Number : 69 Question Id : 7614461679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a Wheatstone bridge, the four arms have each a resistance of 50 ohm. The galvanometer current is:

Options :

7614466673. ✘ 0.05 A

7614466674. ✘ 0.5 A

7614466675. ✔ 0 A

7614466676. ✘ 5 A

Question Number : 70 Question Id : 7614461680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a transformer, the number of turns in secondary and primary coils are 50 and 200 respectively. If 4 A of current is flowing through the primary, the current flowing through the secondary coil is

Options :

7614466677. ✔ 1 A

7614466678. ✘ 2 A

7614466679. ✘ 3 A

7614466680. ✘ 4 A

Question Number : 71 Question Id : 7614461681 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Electrons are ejected when a photosensitive material is illuminated by violet light but not by blue light. Would electrons come out from the same material when it is illuminated by red light?

Options :

7614466681. ✘ Yes

7614466682. ✔ No

7614466683. ✘ Yes, if intensity of incident light is increased

7614466684. ✘ Yes, if material is illuminated for a long time

Question Number : 72 Question Id : 7614461682 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Optical fibres are electrically

Options :

7614466685. ✘ Conductors

7614466686. ✘ Superconductors

7614466687. ✘ Semiconductors

7614466688. ✓ Insulators

Question Number : 73 Question Id : 7614461683 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In superconducting state the material behaves as

Options :

7614466689. ✓ Perfect diamagnetic

7614466690. ✗ Weak diamagnetic

7614466691. ✗ Perfect ferromagnetic

7614466692. ✗ Weak paramagnetic

Question Number : 74 Question Id : 7614461684 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In semiconductors at room temperature

Options :

7614466693. ✗ The conduction band is completely empty

The valence band is partially empty and the conduction band is partially

7614466694. ✓ filled

The valence band is completely filled and the conduction band is partially

7614466695. ✘ filled

7614466696. ✘ The valence band is completely filled

**Question Number : 75 Question Id : 7614461685 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Semiconductors are doped

Options :

7614466697. ✘ To increase the resistivity

7614466698. ✔ To get the desired level of conductivity

7614466699. ✘ To reduce the conductivity

7614466700. ✘ To get the positive temperature coefficient of resistance

Chemistry

Section Id :	76144633
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	76144647
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 76 Question Id : 7614461686 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Number of neutrons present in an element with atomic number 19 and mass number 39.

Options :

7614466701. ✘ 19

7614466702. ✘ 58

7614466703. ✘ 39

7614466704. ✔ 20

Question Number : 77 Question Id : 7614461687 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The dative bond is present in

Options :

7614466705. ✘ Ammonia

7614466706. ✔ Ammonium ion

7614466707. ✘ Urea

7614466708. ✘ Nitrogen

Question Number : 78 Question Id : 7614461688 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following molecules contains coordinate covalent bond?

Options :

7614466709. ✘ NH_2^-

7614466710. ✘ N_2H_4

7614466711. ✔ H_3O^+

7614466712. ✘ H_2O_2

Question Number : 79 Question Id : 7614461689 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Concentrated hydrochloric acid contains 37% (by mass) HCl. The density of its solution is 1.18 g/mL. The molarity of HCl is

Options :

7614466713. ✓ 12.0

7614466714. ✗ 16.03

7614466715. ✗ 6.0

7614466716. ✗ 1.20

Question Number : 80 Question Id : 7614461690 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A colloidal solution can be purified by the method of

Options :

7614466717. ✗ Peptization

7614466718. ✓ Dialysis

7614466719. ✗ Mechanical Dispersion

7614466720. ✗ Oxidation

Question Number : 81 Question Id : 7614461691 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The compound that does not act as a Lewis acid.

Options :

7614466721. ✓ BaCl_2

7614466722. ✗ AlCl_3

7614466723. ✗ BF_3

7614466724. ✗ BeCl_2

Question Number : 82 Question Id : 7614461692 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The pH value of 0.001 M NaOH solution is

Options :

7614466725. ✗ 3

7614466726. ✗ 9

7614466727. ✗ 7

7614466728. ✓ 11

**Question Number : 83 Question Id : 7614461693 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

The solvent not used for green synthesis is

Options :

7614466729. ✓ Aniline

7614466730. ✗ Room temperature ionic liquids

7614466731. ✗ Bio solvents

7614466732. ✗ Supercritical fluids

**Question Number : 84 Question Id : 7614461694 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Which of these days is celebrated in the form of World Environment Day all around the world?

Options :

7614466733. ✗ July 5th

7614466734. ✗ June 10th

7614466735. ✘ October 20th

7614466736. ✔ June 5th

**Question Number : 85 Question Id : 7614461695 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Extra pure water can be obtained by using

Options :

7614466737. ✘ Lime – Soda process

7614466738. ✘ Permutit process

7614466739. ✘ Ion-exchange process

7614466740. ✔ Electro dialysis process

**Question Number : 86 Question Id : 7614461696 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Sterilization of water can be done by using

Options :

7614466741. ✔ Ozone

7614466742. ✘ Oxygen

7614466743. ✘ Caustic Potash

7614466744. ✘ Hydrogen peroxide

**Question Number : 87 Question Id : 7614461697 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

The product formed at cathode when Pt electrodes are used in the electrolysis of Fused NaCl.

Options :

7614466745. ✘ Cl₂

7614466746. ✘ NaOH

7614466747. ✘ HCl

7614466748. ✔ Na

**Question Number : 88 Question Id : 7614461698 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

What is the electrochemical equivalent (z) of copper, when 0.3950 g of copper is deposited by a current of 0.5 amperes in 40 minutes.

Options :

7614466749. ✓ 0.0003292 g

7614466750. ✗ 0.003950 g

7614466751. ✗ 0.0001646 g

7614466752. ✗ 0.00164 g

**Question Number : 89 Question Id : 7614461699 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Extraction of zinc from zinc blende is achieved by

Options :

7614466753. ✗ Electrolytic reduction

7614466754. ✓ Roasting followed by reduction with carbon

7614466755. ✗ Roasting followed by reduction with another metal

7614466756. ✗ Roasting followed by self-reduction

**Question Number : 90 Question Id : 7614461700 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

In blast furnace iron oxide is reduced by

Options :

7614466757. ✘ Silica

7614466758. ✔ Carbon monoxide

7614466759. ✘ Carbon

7614466760. ✘ Limestone

**Question Number : 91 Question Id : 7614461701 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

During electrochemical corrosion in acidic environment

Options :

7614466761. ✘ Oxygen evolution occurs

7614466762. ✔ Hydrogen evolution takes place

7614466763. ✘ Oxygen absorption occurs

7614466764. ✘ Hydrogen absorption takes place

Question Number : 92 Question Id : 7614461702 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The process of cementation of iron with zinc powder is known as

Options :

7614466765. ✓ Sheradising

7614466766. ✗ Galvanizing

7614466767. ✗ Zincing

7614466768. ✗ Tinning

Question Number : 93 Question Id : 7614461703 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Bakelite is manufactured by the reaction between

Options :

7614466769. ✗ Urea and formaldehyde

7614466770. ✗ Phthalic acid and ethylene glycol

7614466771. ✗ Ethylene glycol and formaldehyde

7614466772. ✓ Phenol and formaldehyde

Question Number : 94 Question Id : 7614461704 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is an elastomer

Options :

7614466773. ✘ Polystyrene

7614466774. ✔ Buna-S rubber

7614466775. ✘ Melamine

7614466776. ✘ Dacron

Question Number : 95 Question Id : 7614461705 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A good fuel has

Options :

7614466777. ✔ Moderate ignition temperature and high calorific value

7614466778. ✘ High ignition temperature and high calorific value

7614466779. ✘ Low ignition temperature and low calorific value

7614466780. ✘ Low ignition temperature and high calorific value

Question Number : 96 Question Id : 7614461706 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The best example of splash lubrication is

Options :

7614466781. ✘ Wick feed lubricator

7614466782. ✔ Ring lubricator

7614466783. ✘ Grease Gun

7614466784. ✘ Pump lubricator

Question Number : 97 Question Id : 7614461707 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Saturated calomel electrode standard reduction potential value in Volts is

Options :

7614466785. ✘ 0

7614466786. ✘ 0.6990

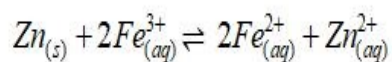
7614466787. ✖ - 0.242

7614466788. ✔ + 0.242

Question Number : 98 Question Id : 7614461708 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the following cell reaction, E° for the cell is



(Standard Reduction potentials of Zn and Fe electrodes are -0.76V and $+0.77\text{V}$ respectively)

Options :

7614466789. ✔ 1.53 V

7614466790. ✖ 0.01 V

7614466791. ✖ -1.53 V

7614466792. ✖ 0.78 V

Question Number : 99 Question Id : 7614461709 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The gas that is responsible for Bhopal gas tragedy is

Options :

7614466793. ✓ Methyl isocyanate

7614466794. ✘ Methyl chloroformate

7614466795. ✘ Methyl isopropyl ether

7614466796. ✘ Methyl isobutyrate

Question Number : 100 Question Id : 7614461710 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following gases is largely responsible for acid – rain?

Options :

7614466797. ✘ CO and CO₂

7614466798. ✘ NO and NO₂

7614466799. ✓ SO₂ and NO₂

7614466800. ✘ N₂ and O₂

Electronics and Communication Engineering

Section Id : 76144634

Section Number : 4

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	76144648
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 101 Question Id : 7614461711 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When the temperature of either n-type or p-type increases, the movement of the position of the Fermi energy level is towards _____ of energy gap

Options :

7614466801. ✘ up

7614466802. ✘ down

7614466803. ✔ centre

7614466804. ✘ out side

Question Number : 102 Question Id : 7614461712 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Among of the following expressions, which one is the right equation to determine the precise location of the Fermi level in p-type material?

Options :

7614466805. ✓ $E_F = E_V + kT \ln(N_D / N_A)$

7614466806. ✗ $E_F = -E_V + kT \ln(N_D / N_A)$

7614466807. ✗ $E_F = E_V - kT \ln(N_D / N_A)$

7614466808. ✗ $E_F = -E_V - kT \ln(N_D / N_A)$

Question Number : 103 Question Id : 7614461713 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A diode with forward resistance R_f is used in a halfwave rectifier. The load resistance is R_L , and the voltage is V_m . The DC current can be determined using

Options :

7614466809. ✗ $\frac{2V_m}{\sqrt{\pi}R_f}$

7614466810. ✘ $\frac{V_m}{\sqrt{2}R_L}$

7614466811. ✔ $\frac{V_m}{\pi(R_f + R_L)}$

7614466812. ✘ $\frac{V_m}{R_L R_f}$

Question Number : 104 Question Id : 7614461714 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A differential amplifier has a gain of 20000 and CMRR is 80 dB.
The common mode gain is

Options :

7614466813. ✘ 0.5

7614466814. ✔ 2

7614466815. ✘ 1

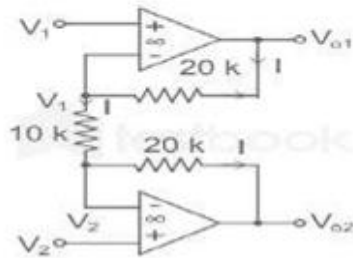
7614466816. ✘ 25

Question Number : 105 Question Id : 7614461715 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The expression for the output ($V_{o1}-V_{o2}$) for the circuit shown below is



Options :

7614466817. ✘ $2(V_2-V_1)$

7614466818. ✘ (V_2-V_1)

7614466819. ✔ $5(V_1 - V_2)$

7614466820. ✘ $2(V_1 - V_2)$

Question Number : 106 Question Id : 7614461716 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The FET's transconductance shows how well the input voltage regulates

Options :

7614466821. ✘ Output Voltage

7614466822. ✘ Supply Voltage

7614466823. ✔ Output Current

7614466824. ✘ Supply current

Question Number : 107 Question Id : 7614461717 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

To initiate the feedback oscillator, it is necessary to

Options :

7614466825. ✔ Positive feedback must be >1

7614466826. ✘ Negative Feedback must be <1

7614466827. ✘ Negative feedback must be $=1$

7614466828. ✘ Positive feedback must be <1

Question Number : 108 Question Id : 7614461718 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A condition needed for positive feedback is that the phase shift of the feedback loop has to be

Options :

7614466829. ✘ 90^0

7614466830. ✔ 0^0

7614466831. ✘ 180^0

7614466832. ✘ 45^0

Question Number : 109 Question Id : 7614461719 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a self bias BJT circuit , choose the incorrect option below

Options :

7614466833. ✘ can be used to any of the three configurations.

7614466834. ✔ Improves the voltage gain

7614466835. ✘ Stability factor is independent of collector resistance

7614466836. ✘ Superior stability in the collector current is obtained.

Question Number : 110 Question Id : 7614461720 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Negative feedback in an amplifier (Identify False statement)

Options :

7614466837. ✘ Increases the separation between the 3db frequency

7614466838. ✘ Improves gain stability

7614466839. ✔ Enhances gain – bandwidth product

7614466840. ✘ Reduces Distortion

Question Number : 111 Question Id : 7614461721 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The region of working in a unijunction transistor is

Options :

7614466841. ✘ Saturation region

7614466842. ✔ Negative Resistance region

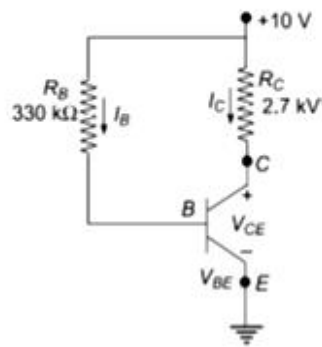
7614466843. ✘ Linear region

7614466844. ✘ Cut-off region

Question Number : 112 Question Id : 7614461722 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If in the given transistor circuit $V_{BE} = 0.7$, $V_{CC} = 10$ V and $\beta = 110$,
the current I_B and I_C are



Options :

7614466845. ✘ 0.028 mA and 3.08 mA

7614466846. ✔ 0.028 A and 3.08 A

7614466847. ✘ 2.8 A and 0.028 A

7614466848. ✘ 0.28 mA and 2.8 mA

Question Number : 113 Question Id : 7614461723 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In _____ amplifiers, cross-over distortion is eliminated.

Options :

7614466849. ✓ Class AB

7614466850. ✗ Push pull

7614466851. ✗ Class A

7614466852. ✗ Class B

Question Number : 114 Question Id : 7614461724 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For an ideal opamp , which of the following statement is True

Options :

7614466853. ✗ Input impedance is zero

7614466854. ✗ Output impedance is infinite

7614466855. ✓ Common mode gain is zero

7614466856. ✘ Open loop gain is zero

Question Number : 115 Question Id : 7614461725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A certain inverting op-amp has a voltage gain of 25 in a closed-loop. The open-loop voltage gain of the op-amp is 100000. If the arrangement is changed to use an op-amp with an open-loop voltage gain of 200000, the closed-loop gain

Options :

7614466857. ✘ Doubles

7614466858. ✘ Drops to 12.5

7614466859. ✓ Remains at 25

7614466860. ✘ Increases slightly

Question Number : 116 Question Id : 7614461726 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The width of the pulse in a mono shot multivibrator using 555 Timer increases

Options :

7614466861. ✘ Supply voltage increases

7614466862. ✔ Timing capacitance increases

7614466863. ✘ Timing resistance decreases

7614466864. ✘ UTP decreases

Question Number : 117 Question Id : 7614461727 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The amplifier employed in the Miller voltage sweep circuit need to have a gain of

Options :

7614466865. ✘ ∞

7614466866. ✘ 1000

7614466867. ✔ $-\infty$

7614466868. ✘

Question Number : 118 Question Id : 7614461728 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The role of low pass filter in a phase-locked loop is to

Options :

7614466869. ✓ eliminate high-frequency noise

7614466870. ✗ Improve low frequency noise

7614466871. ✗ Improve the gain

7614466872. ✗ keep track of voltage variations

Question Number : 119 Question Id : 7614461729 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

With dc excitation at steady state capacitor will act as

Options :

7614466873. ✓ Open circuit

7614466874. ✘ Short circuit

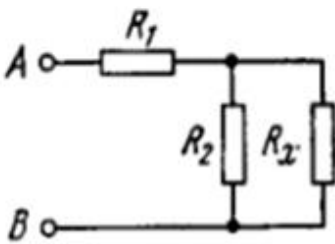
7614466875. ✘ Resistive circuit

7614466876. ✘ Inductor circuit

Question Number : 120 Question Id : 7614461730 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A circuit shown in Fig has resistances $R_1 = 20\Omega$ and $R_2 = 30\Omega$. At what value of the resistance R_x will the thermal power generated in it be practically independent of small variations of that resistance? The voltage between the points A and B is supposed to be constant in this case.



Options :

7614466877. ✘ 50 Ω

7614466878. ✘ 30 Ω

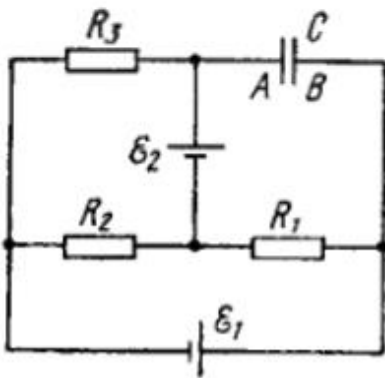
7614466879. ✔ 12 Ω

7614466880. ✘ 6Ω

Question Number : 121 Question Id : 7614461731 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Find a potential difference $C_pA - C_pB$ between the plates of a capacitor C in the circuit shown in Fig. if the sources have emf's $\epsilon_1 = 4.0\text{ V}$ and $\epsilon_2 = 1.0\text{ V}$ and the resistances are equal to $R_1 = 10\ \Omega$, $R_2 = 20\ \Omega$, and $R_3 = 30\ \Omega$. The internal resistances of the sources are negligible.



Options :

7614466881. ✘ 3 V

7614466882. ✘ -2 V

7614466883. ✔ -1 V

7614466884. ✘ 1 V

Question Number : 122 Question Id : 7614461732 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a complex electrical network, which theorem provides a solution for finding the voltage or current at any point without needing to solve the entire network?

Options :

7614466885. ✘ Cramer's Rule

7614466886. ✘ Thevenin's Theorem

7614466887. ✘ Norton's Theorem

7614466888. ✔ Superposition Theorem

Question Number : 123 Question Id : 7614461733 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A circuit consists of a series RLC circuit connected to a transmission line. The RLC circuit has a resistance $R=50\ \Omega$, an inductance $L=0.1\ \text{H}$, and a capacitance $C=100\ \mu\text{F}$. The transmission line has a characteristic impedance $Z_0=75\ \Omega$ and a length $l=0.5\ \text{m}$. If the circuit is excited with a sinusoidal voltage source with a frequency of $f=1\ \text{kHz}$, what is the total impedance seen by the source?

Options :

7614466889. ✘ $50+j25\Omega$

7614466890. ✘ $100+j50\Omega$

7614466891. ✔ $75+j37.5\Omega$

7614466892. ✘ $150+j75\Omega$

Question Number : 124 Question Id : 7614461734 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The distortion in long distance telecommunication underground cables can be eliminated by

Options :

7614466893. ✘ Inductive loading

7614466894. ✔ Capacitive loading

7614466895. ✘ Resistive loading

7614466896. ✘ Sheilding

Question Number : 125 Question Id : 7614461735 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An impedance matching network is designed to match a $50\ \Omega$ transmission line to a $75\ \Omega$ load. Which of the following network configurations is most suitable for this impedance matching?

Options :

7614466897. ✓ T-network with series inductor and parallel capacitor

7614466898. ✗ Pi-network with series capacitor and parallel inductor

7614466899. ✗ L-network with series inductor and shunt resistor

7614466900. ✗ Delta-network with series resistor and parallel capacitor

Question Number : 126 Question Id : 7614461736 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The input impedance of Quarter wave long line is

Options :

7614466901. ✗ Purely Resistive

7614466902. ✘ Purely Capacitive

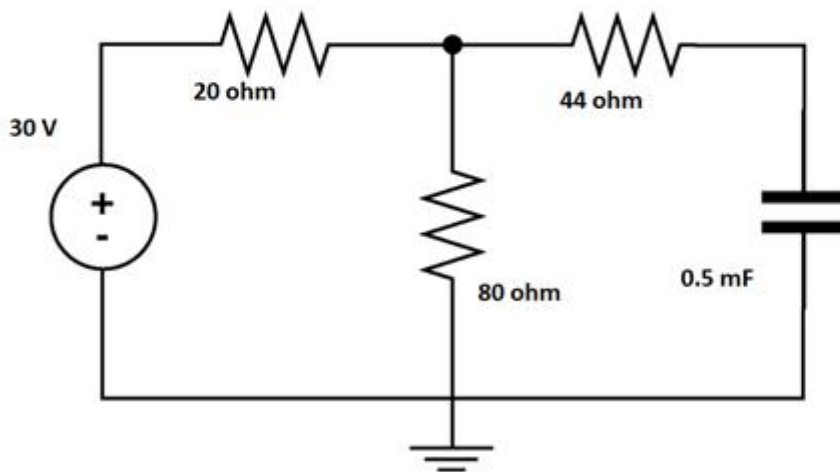
7614466903. ✘ Purely Inductive

7614466904. ✔ Infinity

Question Number : 127 Question Id : 7614461737 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Find the time constant of the RC circuit shown in figure below.



Options :

10 msec

7614466905. ✘

7614466906. ✘ 20 msec

7614466907. ✓ 30 msec

7614466908. ✗ 100 msec

Question Number : 128 Question Id : 7614461738 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not true with the use of Alternators in circuits.

Options :

7614466909. ✓ Filter the noise

7614466910. ✗ Lower voltage

7614466911. ✗ Dissipate power

7614466912. ✗ Improve impedance matching

Question Number : 129 Question Id : 7614461739 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is incorrect with respect to closed loop control system

Options :

7614466913. ✓ Sensitivity of the system may be made high
7614466914. ✘ System is more stable
7614466915. ✘ Less affected by noise
7614466916. ✘ More accurate even in the presence of non-linearities.

Question Number : 130 Question Id : 7614461740 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An SCR device has

Options :

7614466917. ✘ 1 layer
7614466918. ✘ 2 layers
7614466919. ✘ 3 Layers
7614466920. ✓ 4 Layers

Question Number : 131 Question Id : 7614461741 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is an advantage of using a Linear Variable Differential Transformer (LVDT)?

Options :

7614466921. ✘ For high voltage generation, very high displacement is required

7614466922. ✘ It is sensitive to the magnetic field

7614466923. ✘ Output changes with changes in temperature

7614466924. ✔ There is no frequent requirement for an intermediate amplification device.

Question Number : 132 Question Id : 7614461742 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which type of generator is used in Motor- generator set for DC arc welding

Options :

7614466925. ✘ Series type

7614466926. ✘ Shunt type

7614466927. ✓ Differential Compound Type

7614466928. ✘ Cumulative compound type

**Question Number : 133 Question Id : 7614461743 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

True statement for PLC and SCADA systems

Options :

7614466929. ✘ PLC is software and SCADA is hardware

7614466930. ✓ PLC is hardware and SCADA is software

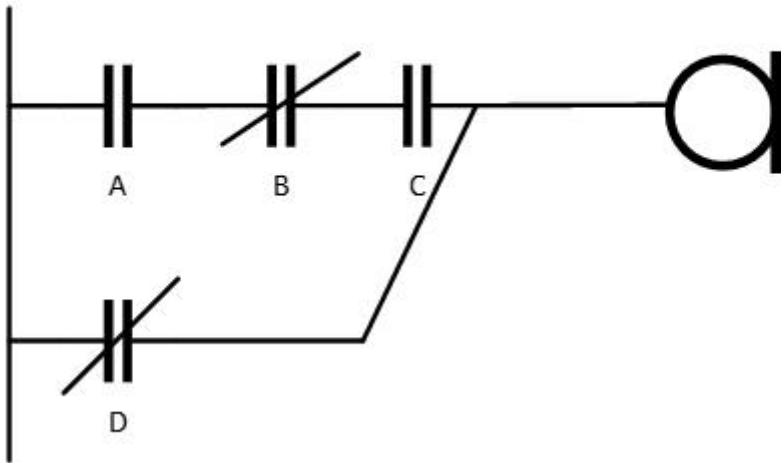
7614466931. ✘ PLC and SCADA both are hardware

7614466932. ✘ PLC and SCADA both are software

**Question Number : 134 Question Id : 7614461744 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Correct Boolean expression for given PLC ladder logic



Options :

7614466933. ✓ $A\bar{B}C + \bar{D}$

7614466934. ✗ $D(AB+C)$

7614466935. ✗ $ABC+D$

7614466936. ✗ $D(AC+B)$

Question Number : 135 Question Id : 7614461745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which part of SCADA System initiate almost all communication with remote sites and interface with an operator

Options :

7614466937. ✗ Communication Device

7614466938. ✘ Remote terminal unit (RTU)

7614466939. ✘ HMI (Human Machine Interface)

7614466940. ✔ Master Terminal Unit (MTU)

Question Number : 136 Question Id : 7614461746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

SPMS are based on the _____ principle.

Options :

7614466941. ✘ Phase Control

7614466942. ✘ Integral Control

7614466943. ✔ Chopper

7614466944. ✘ MOSFET

Question Number : 137 Question Id : 7614461747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The mains supply in the rotating type UPS system is_____

Options :

7614466945. ✘ DC Motor

7614466946. ✘ DC Generator

7614466947. ✔ Alternator

7614466948. ✘ Battery bank

Question Number : 138 Question Id : 7614461748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Analog transducers convert physical quantity to analog signals while digital transducers convert physical quantity to digital signals. Which of the following is an example of an Analog transducer.

Options :

7614466949. ✘ Encoders

7614466950. ✔ Strain gauge

7614466951. ✘ Digital tachometers

7614466952. ✘

Limit switches

Question Number : 139 Question Id : 7614461749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A servo voltage stabiliser is based on the principle of

Options :

7614466953. ✓ Buck-boost the primary voltage

7614466954. ✗ Feedback a sample voltage

7614466955. ✗ Switching different outputs by relays

7614466956. ✗ Open loop control

Question Number : 140 Question Id : 7614461750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following modulation techniques should never be used for space communication?

Options :

7614466957. ✓ Amplitude Modulation (AM)

7614466958. ✘ Frequency Modulation (FM)

7614466959. ✘ Phase Modulation (PM)

7614466960. ✘ Pulse Code Modulation (PCM)

Question Number : 141 Question Id : 7614461751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a Message signal $m(t)=2\cos(2\pi*10^3*t)$ is modulated with carrier signal $c(t)=\cos(2\pi*20*10^3*t)$ using Amplitude modulation. What could be frequency of upper side band

Options :

7614466961. ✘ 1Khz

7614466962. ✘ 19Khz

7614466963. ✘ 20Khz

7614466964. ✔ 21Khz

Question Number : 142 Question Id : 7614461752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

SSB causes loss of information due to single side band. Which modulation scheme is used to solve this issue

Options :

7614466965. ✘ DSB-SC

7614466966. ✔ VSB

7614466967. ✘ Frequency modulation

7614466968. ✘ DSB-FC

Question Number : 143 Question Id : 7614461753 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Magnetron is a

Options :

7614466969. ✘ Low power micro wave oscillator

7614466970. ✘ Low power micro wave amplifier

7614466971. ✔ High power micro wave oscillator

7614466972. ✘ High power micro wave amplifier

Question Number : 144 Question Id : 7614461754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the primary reason behind employing a pre-emphasis and de-emphasis system in FM broadcasting?

Options :

7614466973. ✓ To improve signal-to-noise ratio

7614466974. ✗ To reduce transmitter power consumption

7614466975. ✗ To increase modulation index

7614466976. ✗ To maintain constant bandwidth

Question Number : 145 Question Id : 7614461755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a superheterodyne receiver, if the Local Oscillator (LO) frequency is set higher than the incoming RF frequency, what impact does this have on the receiver's performance?

Options :

7614466977. ✗ Improved image rejection

7614466978. ✗ Increased susceptibility to interference

7614466979. ✓ Enhanced selectivity

7614466980. ✘ Decreased sensitivity

Question Number : 146 Question Id : 7614461756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What role does the bandpass filter play in a superheterodyne receiver, and how does its design impact receiver performance?

Options :

7614466981. ✘ The bandpass filter eliminates image frequencies and enhances selectivity

7614466982. ✘ The bandpass filter amplifies the received signal before demodulation

7614466983. ✘ The bandpass filter isolates the Intermediate Frequency (IF) signal for demodulation

7614466984. ✓ The bandpass filter attenuates out-of-band interference to improve signal purity

Question Number : 147 Question Id : 7614461757 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider a carrier signal which is amplitude modulated by a single-tone sinusoidal message signal with modulation index of 50%. If carrier and one of the sidebands are suppressed in modulated signal, the percentage of power saved is

Options :

7614466985. ✘ 50%

7614466986. ✘ 6%

7614466987. ✘ 75%

7614466988. ✔ 94%

Question Number : 148 Question Id : 7614461758 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A communication system operates with a carrier frequency of 100 MHz. A message signal with a frequency of 5 kHz and an amplitude of 1 V is simultaneously modulated using both amplitude modulation (AM) and frequency modulation (FM). The modulation index for AM is 0.6, and the maximum frequency deviation for FM is ± 25 kHz. Calculate the bandwidth occupied by the modulated signal.

Options :

7614466989. ✘ 60Hz

7614466990. ✔ 76Hz

7614466991. ✘ 16Hz

7614466992. ✘ 10Hz

Question Number : 149 Question Id : 7614461759 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a communication system employing advanced modulation techniques, which of the following modulation schemes exhibits the highest resilience against multipath propagation and frequency-selective fading effects?

Options :

7614466993. ✘ Amplitude Modulation (AM)

7614466994. ✔ Frequency Modulation (FM)

7614466995. ✘ Phase Modulation (PM)

7614466996. ✘ Velocity modulation

Question Number : 150 Question Id : 7614461760 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which gives a better SNR among the following?

Options :

7614466997. ✘ PAM

7614466998. ✘ PWM

7614466999. ✔ PCM

7614467000. ✘ AM

Question Number : 151 Question Id : 7614461761 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For Pulse Amplitude Modulation (PAM), which of the following demodulation techniques is capable of effectively recovering the original analog signal with the highest accuracy?

Options :

7614467001. ✘ Envelope detection

7614467002. ✘ PLL demodulation

7614467003. ✔ Coherent detection

7614467004. ✘ Asynchronous detection

Question Number : 152 Question Id : 7614461762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For data transmission in Computers and Microprocessors, which multiple access technique is used?

Options :

7614467005. ✘ TDMA

7614467006. ✘ FDMA

7614467007. ✔ CDMA

7614467008. ✘ OFDM

Question Number : 153 Question Id : 7614461763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Imagine A owns a mobile network company and B is a mobile user living in an urban area. In an ideal case, A desires _____ bandwidth and B desires _____ bandwidth

Options :

7614467009. ✘ Higher, higher

7614467010. ✔ Higher, lower

7614467011. ✘ Lower, lower

7614467012. ✘ Lower, higher

Question Number : 154 Question Id : 7614461764 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In pulse modulation, if the sampling rate is increased:

Options :

7614467013. ✘ The signal-to-noise ratio (SNR) improves

7614467014. ✘ The bandwidth requirement decreases

7614467015. ✔ The quantization error increases

7614467016. ✘ The pulse width decreases

Question Number : 155 Question Id : 7614461765 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Code Division Multiple Access (CDMA), what does the spreading code accomplish?

Options :

7614467017. ✘ It increases the signal power

7614467018. ✔ It reduces interference from other users

7614467019.

✘ It increases the data rate

7614467020. ✘ It improves the modulation efficiency

Question Number : 156 Question Id : 7614461766 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a digital communication system employing Quadrature Amplitude Modulation (QAM), what is the primary limitation of increasing the constellation size?

Options :

7614467021. ✘ Reduced data rate

7614467022. ✔ Increased susceptibility to noise

7614467023. ✘ Higher complexity in demodulation

7614467024. ✘ Decreased spectral efficiency

Question Number : 157 Question Id : 7614461767 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For GUNN diode, the preferred semiconductor material is

Options :

7614467025. ✘ Silicon

7614467026. ✔ Gallium Arsenide

7614467027. ✘ Germanium

7614467028. ✘ Carbon

Question Number : 158 Question Id : 7614461768 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In delta modulation, which of the following factors contributes to slope overload distortion?

Options :

7614467029. ✔ Large step size

7614467030. ✘ Low sampling rate

7614467031. ✘ High signal frequency

7614467032. ✘ Presence of noise in the signal

Question Number : 159 Question Id : 7614461769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A full scale sinusoidal signal is applied to a 10-bit ADC. The fundamental signal component in the ADC output has a normalized power of 1 W, and the total noise and distortion normalized power is 10 μ W. The effective number of bits of the ADC is

Options :

7614467033. ✘ 9

7614467034. ✘ 7

7614467035. ✘ 10

7614467036. ✔ 8

Question Number : 160 Question Id : 7614461770 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Among microwave semiconductor devices, which device does not exhibit negative resistance and is commonly used in microwave oscillators and amplifiers?

Options :

7614467037. ✘ GUNN Diode

7614467038. ✘ IMPATT Diode

7614467039. ✘ TRAPATT Diode

7614467040. ✔ Schottky Diode

Question Number : 161 Question Id : 7614461771 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When considering satellite communication, which factor primarily determines the coverage area of a geostationary satellite?

Options :

7614467041. ✔ The satellite's altitude

7614467042. ✘ The satellite's inclination angle

7614467043. ✘ The satellite's azimuth angle

7614467044. ✘ The satellite's power output

Question Number : 162 Question Id : 7614461772 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An Earth station antenna has an elevation angle of 45 degrees and is tracking a satellite in a geostationary orbit. If the distance from the Earth station to the satellite is 36,000 kilometers, what is the azimuth angle of the antenna?

Options :

7614467045. ✓ 0 degrees

7614467046. ✗ 30 degrees

7614467047. ✗ 45 degrees

7614467048. ✗ 90 degrees

**Question Number : 163 Question Id : 7614461773 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

If the maximum range of radar has to be doubled

Options :

7614467049. ✓ The peak transmitted power may be increased 16 times

7614467050. ✗ The antenna diameter may be doubled

7614467051. ✗ The sensitivity of receiver may be doubled

7614467052. ✗ The transmitted pulse width may be doubled

**Question Number : 164 Question Id : 7614461774 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time**

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Travelling Wave Tube is sometimes preferred to magnetron as a radar transmitted output tube because it is

Options :

7614467053. ✘ More efficient amplifier

7614467054. ✔ Capable of a larger duty cycle

7614467055. ✘ More broadband amplifier

7614467056. ✘ Less noisy

Question Number : 165 Question Id : 7614461775 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a cellular communication network, FDMA is utilized to allocate frequency bands for multiple users in each cell. Consider a scenario where a base station in a cellular network is transmitting analog FM signals to mobile devices using a waveguide. Each user in the cell is allocated a specific frequency band for transmission, and the total bandwidth allocated for all users in the cell is 100 MHz. If the base station can accommodate 50 users using FDMA, what is the minimum required bandwidth (in MHz) of the waveguide link between the base station and the antenna array?

Options :

7614467057. ✔ 2 Mhz

7614467058. ✘ 4 Mhz

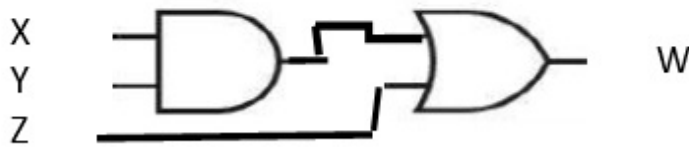
7614467059. ✘ 3 Mhz

7614467060. ✘ 6 Mhz

Question Number : 166 Question Id : 7614461776 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In order to obtain output =1 for the following circuit, the appropriate selection of inputs needs to be



Options :

7614467061. ✘ X= 0 , Y= 0 , Z=0

7614467062. ✘ X= 1 , Y= 0 , Z=0

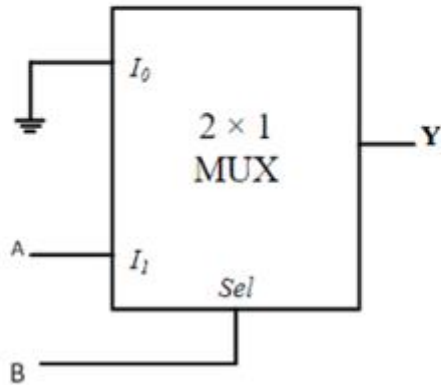
7614467063. ✘ X= 0 , Y= 1 , Z=0

7614467064. ✔ X= 1 , Y= 1 , Z= 0

Question Number : 167 Question Id : 7614461777 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The output Y for the following circuit is



Options :

7614467065. ✘ $A'B$

7614467066. ✔ AB

7614467067. ✘ $A+B$

7614467068. ✘ $A+B'$

Question Number : 168 Question Id : 7614461778 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $(36.204)_8 = (X)_{16}$, Then $X =$ _____

Options :

7614467069. ✘ EC.402

7614467070. ✘ 1C.204

7614467071. ✔ 1E.420

7614467072. ✘ EF.204

Question Number : 169 Question Id : 7614461779 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which property of an IC in digital circuits is a function of a specific transistor's switching time?

Options :

7614467073. ✘ Fan – in

7614467074. ✘ Fan –out

7614467075. ✔ Propagation delay

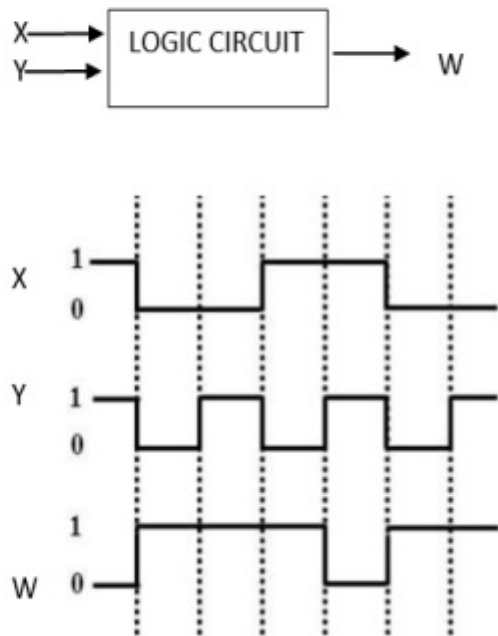
7614467076. ✘ Power dissipation

Question Number : 170 Question Id : 7614461780 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The diagram below represents the logic circuit with two inputs, X and Y, and an output, W. Below are the voltage waveforms for X, Y, and W. The circuit for logic will be



Options :

7614467077. ✘ AND

7614467078. ✘ OR

7614467079. ✔ NAND

7614467080. ✘ NOR

Question Number : 171 Question Id : 7614461781 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What will be the frequency of the output signal if three T-flipflops connect in series if the input to the T-flipflop is a 200 Hz signal?

Options :

7614467081. ✘ 100Hz

7614467082. ✘ 200Hz

7614467083. ✔ 25Hz

7614467084. ✘ 50Hz

Question Number : 172 Question Id : 7614461782 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 5-bit ladder type DAC has a digital input of 11010. If the logic 0 corresponds to 0 V and Logic 1 corresponds to 10 V, its output voltage will be

Options :

7614467085. ✔ +8.125 V

7614467086. ✘ + 6.5 V

7614467087. ✘ - 6.5 V

7614467088. ✘ - 8.125 V

Question Number : 173 Question Id : 7614461783 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 4-bit counting type has a 0.5V resolution. If the analog input is 5.8V, the ADC's output is

Options :

7614467089. ✘ 1000

7614467090. ✔ 1100

7614467091. ✘ 1010

7614467092. ✘ 1011

Question Number : 174 Question Id : 7614461784 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which memory can only be programmed by the user once before being permanently deleted and reprogrammed?

Options :

7614467093. ✔ ROM

7614467094. ✘ PROM

7614467095. ✘ EPROM

7614467096. ✘ EEPROM

**Question Number : 175 Question Id : 7614461785 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

The PRESET input in a Flipflop is used to make the output _____

Options :

7614467097. ✘ 0

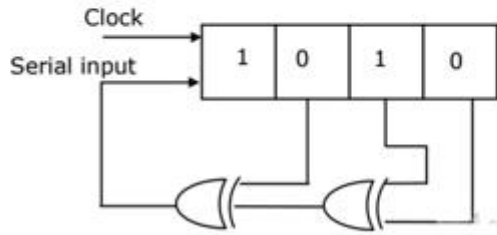
7614467098. ✔ 1

7614467099. ✘ Invalid

7614467100. ✘ No change

**Question Number : 176 Question Id : 7614461786 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

The bit pattern is initially fed into the shift register seen in Fig. The shift register is then timed, and each clock pulse causes the pattern to move one bit position to the right. How many clock pulses will it take for the shift register's contents to change back?



Options :

7614467101. ✘ 11

7614467102. ✘ 3

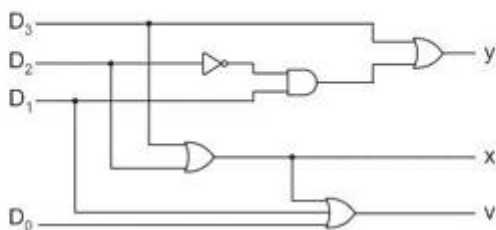
7614467103. ✔ 7

7614467104. ✘ 15

Question Number : 177 Question Id : 7614461787 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The logic circuit shown in the following figure works as



Options :

7614467105. ✘

Binary to Excess-3 converter

7614467106. ✓ Priority encoder

7614467107. ✘ Decoder

7614467108. ✘ Gray to binary converter

Question Number : 178 Question Id : 7614461788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

On power up, the 8051 uses which RAM locations for register R0-R7

Options :

7614467109. ✘ 00-2F

7614467110. ✓ 00-07

7614467111. ✘ 00-7F

7614467112. ✘ 00-0F

Question Number : 179 Question Id : 7614461789 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which type of addressing, the address field contains effective address

Options :

7614467113. ✘ Immediate addressing

7614467114. ✔ Direct addressing

7614467115. ✘ Indirect addressing

7614467116. ✘ Register addressing

Question Number : 180 Question Id : 7614461790 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Suppose a processor does not have any stack pointer register.
Which of the following statements is true?

Options :

7614467117. ✔ It cannot have subroutine call instruction

7614467118. ✘ It can have subroutine call instruction, but no nested subroutine calls

7614467119. ✘ Nested subroutine calls are possible, but interrupts are not

All sequences of subroutine calls and also interrupts are possible

7614467120. ✘

Question Number : 181 Question Id : 7614461791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 4x4 matrix keyboard, to identify which key is being pressed, we need to

Options :

7614467121. ✘ ground all the pins of the port at a time

7614467122. ✔ ground pins of the port one at a time

7614467123. ✘ connect all the pins of the port to the main supply at a time

7614467124. ✘ Connect all the pins of port to high impedance

Question Number : 182 Question Id : 7614461792 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If we push data onto the stack then the stack pointer

Options :

7614467125. ✔ increases with every push

7614467126. ✘ decreases with every push

7614467127. ✘ increases & decreases with every push

7614467128. ✘ Will remain at the same state

**Question Number : 183 Question Id : 7614461793 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

RS 232 is ____

Options :

7614467129. ✘ Parallel communication standard

7614467130. ✘ Memory IC

7614467131. ✘ Serial and parallel communication standard

7614467132. ✔ Serial communication standard

**Question Number : 184 Question Id : 7614461794 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Which devices are specifically being used for converting serial to parallel and from parallel to serial respectively?

Options :

7614467133. ✘ timers

7614467134. ✘ counters

7614467135. ✔ registers

7614467136. ✘ serial communication

Question Number : 185 Question Id : 7614461795 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In 8257 (DMA), each of the four channels has

Options :

7614467137. ✘ a pair of two 8-bit registers

7614467138. ✔ a pair of two 16-bit registers

7614467139. ✘ one 16-bit register

7614467140. ✘ one 8-bit register

Question Number : 186 Question Id : 7614461796 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which port of the 8255 PPI is capable of performing the handshaking function with the interfaced devices?

Options :

7614467141. ✘ Port A

7614467142. ✘ Port B

7614467143. ✔ Port C

7614467144. ✘ Port D

Question Number : 187 Question Id : 7614461797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The signals sent by the TV transmitter to ensure correct scanning in the receiver are called

Options :

7614467145. ✘ chroma

7614467146. ✘ video

7614467147. ✔ sync

7614467148. ✘ luminance

Question Number : 188 Question Id : 7614461798 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which voltages are not found in the output of monochrome receiver video detector

Options :

7614467149. ✘ sweep

7614467150. ✘ Video

7614467151. ✔ burst

7614467152. ✘ audio

Question Number : 189 Question Id : 7614461799 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following signals is not transmitted in color TV

Options :

7614467153. ✘ Y

7614467154. ✔ R

7614467155. ✖ Q

7614467156. ✖ I

**Question Number : 190 Question Id : 7614461800 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

The anode supply to the picture tube is generated from the

Options :

7614467157. ✖ Horizontal oscillator

7614467158. ✔ Horizontal output stage

7614467159. ✖ Vertical output stage

7614467160. ✖ Main transformer

**Question Number : 191 Question Id : 7614461801 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0**

Which of the following circuit is required to separate sync pulses from the composite video waveform

Options :

7614467161. ✘ Differentiator

7614467162. ✘ Integrator

7614467163. ✔ Clipper

7614467164. ✘ Clamper

**Question Number : 192 Question Id : 7614461802 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

The 4:3 ratio in TV represents

Options :

7614467165. ✔ Aspect ratio

7614467166. ✘ Interlace ratio

7614467167. ✘ Diagonal ratio

7614467168. ✘ Horizontal deflection

**Question Number : 193 Question Id : 7614461803 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

In the context of network switching, which method dynamically allocates bandwidth and resources on demand, allowing for more efficient use of network resources?

Options :

7614467169. ✘ Circuit switching

7614467170. ✔ Packet switching

7614467171. ✘ Time-division switching

7614467172. ✘ Space-division switching

Question Number : 194 Question Id : 7614461804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Suppose two hosts are connected by a point-to-point link and they are configured to use Stop-and-Wait protocol for reliable data transfer. Identify in which one of the following scenarios, the utilization of the link is the lowest.

Options :

7614467173. ✔ Longer link length and lower transmission rate

7614467174. ✘ Longer link length and higher transmission rate

7614467175. ✘ Shorter link length and lower transmission rate

Shorter link length and higher transmission rate

7614467176. ✘

Question Number : 195 Question Id : 7614461805 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

HTTP Protocol is ----- Layer protocol

Options :

7614467177. ✘ Transport layer

7614467178. ✔ Application layer

7614467179. ✘ Session layer

7614467180. ✘ Physical layer

Question Number : 196 Question Id : 7614461806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If everyone in a group of N people want to communicate secretly with the $N - 1$ others using symmetric key cryptographic system and the communication between any two persons should not be decodable by the others in the group, then what is the number of keys required in the system as a whole to satisfy the confidentiality requirement?

Options :

7614467181.

✘ $N(N-1)$

7614467182. ✔ $N(N-1) / 2$

7614467183. ✘ $2N$

7614467184. ✘ $(N-1)^2$

**Question Number : 197 Question Id : 7614461807 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Wi-Fi technology standard is

Options :

7614467185. ✘ IEEE 804.15

7614467186. ✔ IEEE 802.11

7614467187. ✘ IEEE 809.15

7614467188. ✘ IEEE 809.11

**Question Number : 198 Question Id : 7614461808 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

If the length of a Broadcast LAN is 2 Km and it has 107 bps bandwidth and uses CSMA/CD and the signal travels along the wire at 2108m/s, then what is the minimum size of the packet?

Options :

7614467189. ✘ 100 bytes

7614467190. ✘ 200 bytes

7614467191. ✘ 50 bytes

7614467192. ✔ 12 bytes

Question Number : 199 Question Id : 7614461809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

UTP stands for

Options :

7614467193. ✘ Unshielded Telephone pair

7614467194. ✘ Unregulated Telephone pair

7614467195. ✔ Unshielded twisted pair

7614467196. ✘ Unregulated Twisted pair

Question Number : 200 Question Id : 7614461810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following network topologies provides fault tolerance by allowing data to be rerouted in the event of a break in the network?

Options :

7614467197. ✘ Bus

7614467198. ✘ Star

7614467199. ✘ Ring

7614467200. ✔ Mesh