TS SET

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Subject Name :	PHYSICAL SCIENCES
Duration :	180
Total Marks :	300
Display Marks:	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

Teaching and Research Aptitude

Group Number :	1
Group Id :	270282215
Group Maximum Duration :	60
Group Minimum Duration :	60
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Teaching and Research Aptitude

Section Id :	270282215
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	42
Number of Questions to be attempted :	42
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 :	2702821197
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 27028216332 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Questioning skill in teaching is most useful in
బోధనలో ప్రశ్నించే నైపుణ్యం ఇందుకు ఎక్కువగా దోహదపడును

Options :

1. ✔ Ensuring students' active participation in learning
విద్యార్థులు అభ్యసనలో చురుకుగా పాల్గొనడానికి

2. ✖ Memorizing the facts by students
విద్యార్థులు విషయాలను గుర్తుపెట్టుకోవడానికి

3. ✖ Making students disciplined
విద్యార్థులను క్రమశిక్షణలో ఉంచడానికి

4. ✖ Preparing students for examination
విద్యార్థులను పరీక్షలకు సిద్ధం చేయడానికి

Question Number : 2 Question Id : 27028216333 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Which one of the following is considered as main sign of motivated teaching?
క్రింది వానిలో ప్రేరణ కల్పించే బోధన యొక్క ప్రధాన సూచిక

Options :

1. ✖ Most of the students listening carefully
చాలామంది విద్యార్థులు శ్రద్ధగా వినడం

2. ✖ Pin drop silence in the classroom
తరగతి గదిలో పూర్తి నిశ్శబ్దం

3. ✔ Students asking relevant questions
విద్యార్థులు సంబంధిత ప్రశ్నలు అడగడం

4. ✖ Students taking notes with interest
విద్యార్థులు ఆసక్తితో విషయాలను రాసుకోవడం

Question Number : 3 Question Id : 27028216334 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which one of the following statements is correct with regard to nature of multiple - choice type questions?
బహుళైచ్ఛిక _____ ప్రశ్నలకు సంబంధించి క్రింది ప్రతి పాదనలలో సరియైనది

Options :

1. ✔ They are more objective than true-false type questions.
తప్పు-ఒప్పు ప్రశ్నలకన్న ఎక్కువ లక్ష్యాత్మకమైనవి

2. ✖ They are less objective than essay type questions
వ్యాసరూప ప్రశ్నలకన్న తక్కువ లక్ష్యాత్మకమైనవి

3. ✖ They are more subjective than short-answer type questions.
లఘు సమాధాన ప్రశ్నల కన్న ఎక్కువ ఆత్మాశ్రయమైవి

4. ✖

They are more subjective than match the following type questions.
జతపరుచు ప్రశ్నలకన్న ఎక్కువ ఆత్మాశ్రయమైనవి

Question Number : 4 Question Id : 27028216335 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Scholastic Achievement tests are commonly used for the purpose of:
విద్యాసాధన పరీక్షలను సాధారణంగా దీనికొరకుఉపయోగిస్తారు

Options :

1. ✖ Selecting candidates for a course
విద్యార్థులు ఏదేని కోర్సులో ప్రవేశానికి ఎంపిక చేయడంకొరకు

2. ✖ Making selections for a specific job
నిర్దిష్ట ఉద్యోగానికి ఎంపిక నిమిత్తం

3. ✔ To understand learning outcomes of an academic course
విద్యా విషయక కోర్సు అభ్యసన ఫలితాలను అవగాహన చేసుకోవడానికి

4. ✖ Identifying strengths and weaknesses of learners
అభ్యాసకుల బలాలు, బలహీనతలను గుర్తించడానికి

Question Number : 5 Question Id : 27028216336 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Which of the following is not a characteristic of Continuous and Comprehensive Evaluation?
దీనిలో నిరంతర సమగ్ర మూల్యంకనం లక్షణం కానిది ఏది?

Options :

1. ✔ It increases the workload on students
ఇది విద్యార్థులపై పనిభారం పెంచుతుంది

2. ✖ It reduces theoretical testing
సిద్ధాంతపరమైన పరీక్షలను తగ్గిస్తుంది

3. ✖ It evaluates every aspect of the students.
విద్యార్థులకు సంబంధించిన అన్ని అంశాల మూల్యాంకనం చేయును

4. ✖ It helps in reducing examination phobia.
పరీక్షల భయాన్ని తగ్గించడంలో దోహదపడుతుంది

Sub-Section Number : 2

Sub-Section Id : 2702821198

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 6 Question Id : 27028216337 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The research that meant for immediate application is
వెంటనే వినియోగించడానికి వీలైన పరిశోధన రకం

Options :

1. ✖ Experimental research
ప్రయోగాత్మక పరిశోధన

2. ✔ Action research
చర్యాత్మక పరిశోధన

3. ✖ Fundamental research
ప్రాథమిక లేక మూలపరిశోధన

4. ✖ Survey research
సర్వే పరిశోధన

Question Number : 7 Question Id : 27028216338 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Sampling error decreases with the
ప్రతిచయ లోపాన్ని తగ్గించడానికి

Options :

1. ✖ decrease in sample size
ప్రతిచయన పరిమాణాన్ని తగ్గించడం

2. ✔ increase in sample size
ప్రతిచయన పరిమాణాన్ని పెంచడం

3. ✖ process of randomization
యాదృచ్ఛిక ప్రక్రియ

4. ✖ process of analysis
విశ్లేషణ ప్రక్రియ

Question Number : 8 Question Id : 27028216339 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

The variable which impacts the relationship between an independent variable and a dependent variable is known as
స్వతంత్ర మరియు పరితంత్ర చరాలమధ్య గల సంబంధాన్ని ప్రభావితం చేసే చరరాశిని ఏమందురు?

Options :

1. ✖ antecedent variable
అంటిసిడెంట్ చరరాశి

2. ✖ precedent variable
ప్రెసిడెంట్ చరరాశి

3. ✖ predictor variable
ప్రిడిక్టర్ చరరాశి

4. ✔ intervening variable
మధ్యస్థ చరరాశి

Question Number : 9 Question Id : 27028216340 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No Correct Marks : 2 Wrong Marks : 0

Which of the following sampling methods is not based on probability?
క్రింది వానిలో ఏ ప్రతిచయన పద్ధతి సంభ్యావత పై ఆధారపడి ఉండదు?

Options :

1. ✖ Systematic Sampling
క్రమపద్ధతి గల ప్రతిచయనము

2. ✖ Stratified Sampling
స్తరిత ప్రతిచయనము

3. ✔ Quota Sampling
కోటా ప్రతిచయనము

4. ✖ Cluster Sampling
సముచ్ఛయ ప్రతిచయనము

Question Number : 10 Question Id : 27028216341 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A hypothesis is
ఒక పరికల్పన

Options :

1. ✖ A proven statement for an argument.
ఒక చర్చకు సంబంధించి నిరూపణ ప్రతిపాదన

2. ✖ A statement which is not required to be tested.
పరీక్షించాల్సిన అవసరం లేని ప్రతిపాదన

3. ✔

A tentative statement which is to be tested.
పరీక్షించాల్సిన తాత్కాలికం ప్రతిపాదన

A Scientific statement.
శాస్త్రీయమైన ప్రతిపాదన

4. ✖

Sub-Section Number :	3
Sub-Section Id :	2702821199
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 27028216342 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Question Numbers : (11 to 15)

Question Label : Comprehension

Read the passage and answers the questions from 11 to 15:

The air crash of Taihoku took place on August 18, 1945 at a time when aircraft were not the most reliable form of transport. During World War II dozens of crashes took place which altered the course of the war. What, however, was special about the air crash in Taihoku was that it coincided with the defeat of Japan in war. The outcome of the crash was that Netaji Subhas Chandra Bose who had suffered a lot of uncertainties during the last few months of the war disappeared in a fog of mystery and speculation even as his closest companions described that he had perished in the crash.

Ashis Ray has made a significant observation about the reasons that allowed the persistence of Netaji's myth in Indian politics. The years from 1937 to 1947 were landmark for various reasons. Apart from Partition, this period saw many dramatic violent incidents. Netaji's disappearance was one of them. A major reason that prevented a credible discussion on the death of Netaji was the breakdown of the internal mechanism of the Congress party. Jawaharlal Nehru who took over as the prime minister of India remained on difficult terms with the Boses who maintained a power centre in the Congress party. The cold war between Sarat Bose and Nehru was well known and cast a shadow on conduct of frank conversations between the two. Sarat Bose was a minister in the cabinet of Nehru before Partition.

Apart from the meticulous historical and archival research, Ray's submission is backed by Anita, the daughter of Netaji. She discloses that there were uncertainties to begin with about what exactly happened to Netaji but highlighted that out of the three commissions of inquiry Shah Nawaz Khan Commission, Khosla Commission and the Mukherjee Commission, two concluded that Netaji had died. His death in the Taihoku crash spared him all the harassment that awaited him in the hands of the Anglo-American victors. His daughter has urged that his DNA should be extracted from the remains kept at the Shinto shrine near Tokyo.

11 నుంచి 15 వరకు గల ప్రశ్నలకు సంబంధించిన పాఠ్యభాగము ఈ క్రింద ఇవ్వబడినది. దానితో పాటు 5 బహుళ ఐచ్ఛిక ప్రశ్నలు ఇవ్వబడినవి. సరైన జవాబు ఎంచుకొని రాయండి.

తైహూకు యొక్క ప్రమాదము అగస్టు 18, 1945 నాడు జరిగింది. అప్పుడు విమాన ప్రయా
నాలు అంత నమ్మదగినవి గా లేవు. రెండవ ప్రపంచ యుద్ధ సమయంలో జరిగిన డజన్ల
కొద్ది వైమానిక ప్రమాదాలు యుద్ధ రీతులను మార్చి వేశాయి. ఏది ఏమైనప్పటి కి తైహూకు
జరిగిన ప్రమాదం మరియు జపాన్ దేశం యుద్ధం లో ఓ డిపోవడం ఒకేసారి జరిగాయి.
ఈ ప్రమాదం ఫలింతంగా,యుద్ధంలో గత కొన్ని నెలలు గా నెలకొన్న అనిశ్చిత పరిస్థితులను
ఎరుక్కొంటున్న నేతాజి సుభాష్ చంద్రభోస్ దగ్గరి సహచరుల ఊహా గానాల ప్రకారంగా
నేతాజి ఈ ప్రమాదంలోనే అదృష్యం అయినట్లు గా చెప్పడం ఇప్పటికి ఊహకందని విషయం.
ఆశిష్ రే భారత రాజకీయాలలో నేతాజి యొక్క అదృష్యం కు సంభందించిన కారణాలను
పరీశీలించి ముఖ్యమైన వ్యాక్యలను చేశారు. 1937 నుండి 1947 సంవత్సరాల కాలం
అనేక కారణాల వల్ల ఒక మైలు రాయిగా నిలిచి పోయింది. దేశ విభజన తో పాటు
ఎన్నో హింసాత్మక సంఘటనలు ఈ కాలంలో చోటు చేసుకోవటంతో పాటు నేతాజి యొక్క
అదృష్యం కూడ అందులో ఒకటి. ఈ అదృష్యం కాంగ్రెస్ పార్టీలోని అంతర్గత వర్గాలలో జరిగిన
విచ్ఛిన్నం వల్ల నేతాజి మరణం పై చర్చ మరుగున పడింది. ప్రధాని జవహర్‌లాల్ నెహ్రు
ఒక బోసు రాజకీయ వర్గంతో అభిప్రాయ బేధాలు కలిగి ఉండటంమే కాక వారు కాంగ్రేస్
పార్టీలో ఒక బలమైన వర్గంగా ఉన్నారు. ఈ విషయమే శరత్ బోస్ మరియు నెహ్రుల
మధ్య ప్రచ్ఛన్న యుద&ంగా మొదలై, సఖ్యతతో కూడిన సంభాషణ కూడా లేకుండా పోయింది
విభజనకు ముందు నెహ్రు మంత్రి వర్గంలో శరత్ బో సు మంత్రి గా పని చేశారు.
నేతాజి కుమార్తె అయిన అనిత ఖచ్ఛితమైన చారిత్రాత్మక పురాతన పరీశోదన ఆధారాలతో
ఆశిష్ రే యొక్క వాదనలను సమర్ధించింది. నేతాజికి జరిగిన ప్రమాదం పై ఉన్న అనుమానా లు
మరియు అనిశ్చిత పరిస్థితులను ఆమే బట్టబయలు చేశారు. నేతాజి మరణంపై
నియమించిన మూడు ఎంక్వైరి కమీషన్ లు - Shah Nawaz Khan Commission,
Khosla Commission and the Mukherjee Commission
అయన మరణాన్ని రెండు కమీషన్ లు మాత్రమే నిర్ధాయించాయి. నేతాజి మరణం ఒక
రకంగా ఆయనను ఆంగ్లో అమెరికన్ విజేతల వేదింపుల నుండి దూరం చేసింది. ఆయన
కూమార్తె బోసు యొక్క DNA ను టోకియో కు సమీపంలో ఉన్న షింటో
మందిరం లో భద్ర పరిచిన ఆయన అవశేషాల DNA తో పరీక్షలు జరిపించాలని అభ్యర్ధించింది.

Sub questions

Question Number : 11 Question Id : 27028216343 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The airplanes were in the past
విమానాలు గతంలో

Options :

1. ✔ Undependable
నమ్మదగినవి కావు

2. ✖ not advanced
ఆధునికమైనవి కావు

3. ✖ economical
తక్కువ ఖర్చుతో కూడుకొన్నవి

4. ✖ smaller
చిన్నవి

Question Number : 12 Question Id : 27028216344 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is correct?
వీటిలో ఏది సరైనది?

Options :

1. ✖ There was a cold war between Sarat Bose and Nehru. Sarat Bose was a minister in the cabinet of Nehru in post-independence.
శరత్ బోస్ మరియు నెహ్రూ మధ్య ఒక ప్రచ్ఛన్న యుద్ధం చోటు చేసుకుంది.
స్వాతంత్ర్యానంతరం నెహ్రూ మంత్రి వర్గంలో శరత్ బోస్ మంత్రి గా పనిచేశారు.

Sarat Bose and Nehru had different opinions. They never met again after the independence. Sarat died in air crash.

శరత్ బోస్ మరియు నెహ్రూ విభిన్న అభిప్రాయాలను కలిగి ఉన్నారు. వారు స్వాతంత్ర్యానంతరం మరలా ఎప్పుడూ కలవలేదు. శరత్ ఎయిర్ క్రాష్ లో మరణించారు.

2. ✖

Sarat Bose disagreed with Nehru over the Cabinet Mission Plan's call to partition Bengal between Hindu majority and Muslim majority regions. He was a cabinet minister led by Nehru before partition.

హిందూ మెజారిటీ మరియు ముస్లిం మెజారిటీ ప్రాంతాల మధ్య బెంగాల్ విభజన కోసం కేబినెట్ మిషన్ ప్లాన్ యొక్క పిలుపుపై నెహ్రూ తో శరత్ బోస్ విభేదించాడు. ఆయన విభజన ముందు నెహ్రూ నాయకత్వంలోని క్యాబినెట్ మంత్రి గా ఉన్నారు.

3. ✔

Nehru fought with Sarat Bose because of miscommunication when Bose was a personal assistant to him. He ordered police to catch him and keep in prison.

బోస్ ఒక వ్యక్తిగత సహాయకుడుగా ఉన్నప్పుడు నెహ్రూ శరత్ బోస్ తో పోరాడారు అతన్ని పట్టుకోవటానికి మరియు జైలులో ఉండటానికి అతను పోలీసులను ఆదేశించాడు.

4. ✖

Question Number : 13 Question Id : 27028216345 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Try to find out the meaning for 'credible'

'క్రెడిటబుల్' అనే దానికి అర్థం తెలుసుకోవడానికి ప్రయత్నించండి

Options :

1. ✖

Impressionable
ప్రభావితమైన

2. ✔ Reliable
నమ్మదగిన

3. ✖ Debatable
వాదించ దగిన

4. ✖ Conceivable
రూపొందించదగిన

Question Number : 14 Question Id : 27028216346 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The years 1937-1947 are the evidence of
1937-1947 సంవత్సరాలు అనేవి_____ సాక్ష్యం

Options :

1. ✖ Ashis Ray's ideas about Netaji's disappearance and partition of India and Pakistan.
అశిష్ రే యొక్క ఆలోచనలు నేతాజీ అదృశ్యం మరియు భారత్ పాకిస్తాన్ ల విభజన గురించి

2. ✖ Netaji's disappearance and Sarat Bose's demise
నేతాజీ అదృశ్యం మరియు శరత్ బోస్ మరణం

3. ✖

Taihoku crash and Bhagat Singh's death
తైహూకు క్రాష్ మరియు భగత్ సింగ్ మరణం

Netaji's disappearance and India and Pakistan partition
నేతాజీ అదృశ్యం మరియు భారతదేశం మరియు పాకిస్తాన్ విభజన

4. ✔

Question Number : 15 Question Id : 27028216347 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

What was the mystery written in the above paragraph?
పై పేరాలో పేర్కొన్న రహస్యం ఏమిటి?

Options :

The reason of World War II
రెండవ ప్రపంచ యుద్ధం యొక్క కారణం

1. ✖

Japan's defeat
జపాన్ ఓటమి

2. ✖

Netaji's death
నేతాజీ మరణం

3. ✔

Air crash
విమాన ప్రమాదం

4. ✖

Sub-Section Number : 4

Sub-Section Id : 2702821200

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 16 Question Id : 27028216348 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

'Communication is the exchange of information and the transmission of meaning. It is the very essence of a social system of an organization.' This definition is given by

'కమ్యూనికేషన్ సమాచార మార్పిడి మరియు అర్థం యొక్క బదిలీ. ఇది ఒక సంస్థ యొక్క సామాజిక వ్యవస్థ యొక్క సారాంశం. "ఈ నిర్వచనాన్ని ఎవరు ఇచ్చారు?

Options :

1. ✔ Katz and Kahn
కాట్జ్ మరియు కాహ్న్

2. ✖ Myers and Myers
మైర్స్ మరియు మేయర్స్

3. ✖ Newman and Summer
న్యూమన్ మరియు సమ్మర్

4. ✖ Leland Brown
లేలాండ్ బ్రౌన్

Question Number : 17 Question Id : 27028216349 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Assertion (A): Written communication engages any type of message that makes use of the written word.

ప్రకటన (A): వ్రాతపూర్వక సంభాషణ వ్రాతపూర్వక పదాన్ని ఉపయోగించుకుని ఏ రకమైన సందేశాన్ని అయిన చేస్తుంది.

Reason (R): Written communication is the most effective mode in any academic and business communication.

కారణం (R): వ్రాతపూర్వక సంభాషణ అకాడెమిక్ మరియు బిజినెస్ కమ్యూనికేషన్‌లో నైన అత్యంత ప్రభావవంతమైనది.

Choose the correct answer from the following code:

క్రింది కోడ్ నుండి సరైన సమాధానం ఎంచుకోండి:

Options :

1. ✔ Both (A) and (R) are true but (R) is not the correct explanation of (A)
రెండూ (A) మరియు (R) నిజమైనవి కాని (R), (A) యొక్క సరైన వివరణ కాదు

2. ✖ Both (A) and (R) are true and (R) is the correct explanation of (A)
(A) మరియు (R) ఒప్పు మరియు (R), (A) యొక్క సరైన వివరణ

3. ✖ (A) is true, but (R) is false
(A) ఒప్పు, కాని (R) తప్పు

4. ✖ (A) is false, but (R) is true
(A) తప్పు, కాని (R) ఒప్పు

Question Number : 18 Question Id : 27028216350 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Communication is not
కమ్యూనికేషన్ కానిది

Options :

1. ✖ Unrepeatable
పునరావృతము కాదు

2. ✖ Inevitable
అనివార్యము

3. ✖ Irreversible
పూడ్చలేని

4. ✔ Avertable
తప్పించదగినది

Question Number : 19 Question Id : 27028216351 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the items in the List – I with items in List –II according to the code given below:
ఈ క్రింది వాటిని సరియైన వాటితో జతపరచండి

List-I జాబితా -1	List-II జాబితా -2
1. Critical Listening క్రిటికల్ లిజనింగ్	a. Misinterpretation మిస్‌ఇంటర్ప్రిటేషన్
2. Biased Listening బైయసడ్ వినికిడి	b. Evaluate and judge ఇవాల్యుయేట్ మరియు జడ్జ్
3. Therapeutic Listening థెరాపటిక్ వినికిడి	c. Difference between different sounds విభిన్న ధ్వనుల మధ్య వ్యత్యాసం
4. Discriminative Listening డిస్క్రిమినేటివ్ వినడం	d. Evidence based auditory intervention ఎవిడెన్స్ ఆధారిత శ్రవణ జోక్యం

Codes:

Options :

1. ✖ 1-d, 2-b, 3-a, 4-c

2. ✖ 1- a, 2-b, 3-d, 4-c

3. ✖ 1-c, 2-b, 3-d, 4-a

4. ✔ 1-b, 2- a, 3-d, 4-c

Question Number : 20 Question Id : 27028216352 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Assertion (A): All the teachers can communicate in the classroom effectively.
ప్రకటన (A): ఉపాధ్యాయులందరూ తరగతిలో సమర్థవంతంగా కమ్యూనికేట్ చేయగలరు

Reason (R): some of the teachers can only communicate in the classroom effectively.
కారణం (R): కొందరు ఉపాధ్యాయులు **మాత్రమే** తరగతిలో సమర్థవంతంగా కమ్యూనికేట్ చేయగలరు.

Choose the correct answer from the following code:
క్రింది కోడ్ నుండి సరైన సమాధానం ఎంచుకోండి:

Options :

1. ✖ Both (A) and (R) are true but (R) is not the correct explanation of (A)
రెండూ (A) మరియు (R) ఒప్పు **కాని** (R), (A) **యొక్క** సరైన వివరణ కాదు

2. ✖ Both (A) and (R) are true and (R) is the correct explanation of (A)
(A) మరియు (R) ఒప్పు మరియు (R), (A) **యొక్క** సరైన వివరణ

3. ✖ (A) is true, but (R) is false
(A) ఒప్పు, కాని (R) తప్పు

4. ✔ (A) is false, but (R) is true
(A) తప్పు, కాని (R) ఒప్పు

Sub-Section Number :	5
Sub-Section Id :	2702821201
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 27028216353 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control :

No

Correct Marks : 2 Wrong Marks : 0

A train of length 100 meters, travelling with speed 45 kmph, taking the time to cross a platform of length 150 meters (in seconds) is .

100 మీటర్ల పొడవు గల రైలు, గంటకు 45 కిలోమీటర్ల వేగంతో ప్రయాణిస్తూ 150 మీటర్ల పొడవైన ప్లాట్‌ఫారమును దాటుటకు పట్టు సమయము

Options :

1. ✔ 20

2. ✖ 15

3. ✖ 10

4. ✖ 5

Question Number : 22 Question Id : 27028216354 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A, B and C can complete a work in 4, 5 and 7 days respectively. Those three combinedly got Rs. 415 for that job, them what is A's share?

ఒక పనిని A, B మరియు C లు వరుసగా 4, 5 మరియు 7 రోజులలో పూర్తిచేయగలవు. వారు ముగ్గురు కలిసి, ఆ పనికి రూ. 415 పొందినచో, A యొక్క వాటా ఎంత ?

Options :

1. ✖ 100

2. ✖ 140

3. ✔ 175

4. ✖ 220

Question Number : 23 Question Id : 27028216355 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A business man purchasing an article with an amount Rs. 1,200 and sold it for Rs. 1,500. Then the percentage of profit he makes is

ఒక వ్యాపారవేత్త ఒక వస్తువును రూ. 1,200 తో కొని మరియు దానిని రూ. 1,500 కి అమ్మిన, అతనికి లభించిన లాభ శాతం?

Options :

1. ✖ 1.25

2. ✖ 12.5

3. ✔ 25

4. ✖ 300

Question Number : 24 Question Id : 27028216356 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A's father's father's only daughter-in-law's brother is related to A is.
A యొక్క తండ్రి, తండ్రి కి ఉన్న ఏకైక కుమార్తె సోదరునికి,, A తో గల సంబంధము

Options :

1. ✖ father
తండ్రి

2. ✔ uncle
మామ

3. ✖ brother in law
బావ / బావ మరిది

4. ✖ brother
సోదరుడు

Question Number : 25 Question Id : 27028216357 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The word 'NAME' is coded as 'MNEA' and 'SOME' is coded as 'MSEO' then the code for 'WARM' in that language is

'NAME' అనే పదం కోడ్ 'MENA' అని మరియు 'SOME' అనే అనే పదం కోడ్ 'MSEO' అని కోడ్ చేయబడిన, అప్పుడు ఆ భాషలో 'WARM' కొరకు కోడ్

Options :

1. ✔ RWMA

2. ✖ MARW

3. ✖ WARM

4. ✖ ARMW

Sub-Section Number : 6

Sub-Section Id : 2702821202

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 26 Question Id : 27028216358 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Missing group of letters in the following is
క్రింది క్రమంలో లోపించిన అక్షరాల సమూహం
ERASE : FSBTF :: MAGIC : ?

Options :

1. ✖ NHBJ

2. ✖ NBHGD

3. ✖ NBJHD

4. ✔ NBHJD

Question Number : 27 Question Id : 27028216359 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The missing number in the sequence: 5, 10, 17, 26, 37, _____ is
అనుక్రమంలో లోపించిన సంఖ్య: 5, 10, 17, 26, 37, _____ .

Options :

1. ✔ 50

2. ✖ 49

3. ✖ 56

4. ✖ 57

Question Number : 28 Question Id : 27028216360 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The odd one among the following letters is
క్రింది వానిలో నున్న, ఒక సరిపోలని అక్షరా లు

Options :

1. ✖ RS

2. ✖ VW

3. ✖ CD

4. ✔ TV

Question Number : 29 Question Id : 27028216361 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If $W > X > Y$, $Y = U = V$ and $T \leq U \leq S$ then which among the following is correct
$W > X > Y$, $Y = U = V$ and $T \leq U \leq S$ అయిన, అప్పుడు క్రింది వానిలో ఏది సరియైనది

Options :

1. ✖ $V \geq S$

2. ✖ $W \leq V$

3. ✔ $Y \leq S$

4. ✖ $W = S$

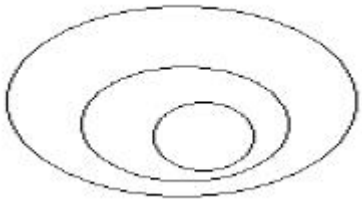
Question Number : 30 Question Id : 27028216362 Question Type : MCQ Option Shuffling : No

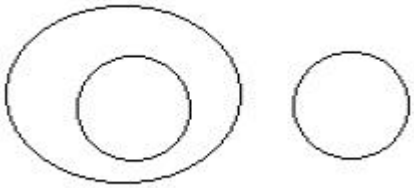
Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

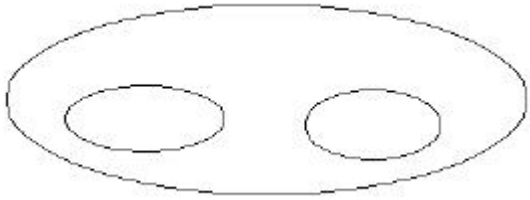
Correct Marks : 2 Wrong Marks : 0

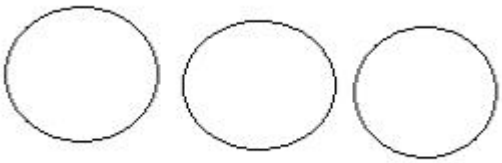
Animals, Cat, Dog : the relation among these terms in venn diagrams is
జంతువులు, పిల్లి, కుక్క : వెన్ రేఖా చిత్రములలో ఈ పదముల మధ్య గల సంబంధము

Options :

1. ✖ 

2. ✖ 

3. ✔ 

4. ✖ 

Sub-Section Number :	7
Sub-Section Id :	2702821203
Question Shuffling Allowed :	No

Is Section Default? : null

Question Id : 27028216363 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Question Numbers : (31 to 35)

Question Label : Comprehension

Note: The questions Q. 31 to Q. 35 are based on the following information.

గమనిక: ప్రశ్నలు Q. 31 నుండి Q. 35 వరకు, క్రింది సమాచారం ఆధారంగా ఉన్నాయి.

The pass percentage of boys and girls and the total number of students in six schools is presented in the following table.
ఆరు పాఠశాలల్లో మొత్తం విద్యార్థుల సంఖ్య మరియు ఉత్తీర్ణత సాధించిన బాలుర మరియు బాలికల సంఖ్యలు, క్రింది పట్టికలో పొందు పరచబడినది.

School పాఠశాల	Boys బాలురు		Girls బాలికలు	
	Total no. of students మొత్తం విద్యార్థుల సంఖ్య	Passed ఉత్తీర్ణత	Total no. of students మొత్తం విద్యార్థుల సంఖ్య	Passed ఉత్తీర్ణత
A	380	266	300	228
B	430	301	330	264
C	400	332	460	414
D	350	273	390	273
E	440	374	440	396
F	350	301	430	344

Sub questions

Question Number : 31 Question Id : 27028216364 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The percentage girls passed in total students in School A is
పాఠశాల A, లోని మొత్తం విద్యార్థులలో, ఉత్తీర్ణులైన బాలికల శాతము

Options :

1. ✖ 70.00

2. ✖ 76.00

3. ✔ 33.53

4. ✖ 34.74

Question Number : 32 Question Id : 27028216365 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In which school the number of girls who failed the highest
ఏ పాఠశాల లో అత్యధిక సంఖ్యలో బాలికలు విఫలమైనారు

Options :

1. ✖ F

2. ✔ D

3. ✖ A

4. ✖ B

Question Number : 33 Question Id : 27028216366 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Out of total number of boys in the given schools, pass percentage of boys is (nearest)
ఇచ్చిన పాఠశాలల్లోని మొత్తం బాలుర సంఖ్యలో, ఉత్తీర్ణత సాధించిన బాలుర శాతం (దగ్గరగా)

Options :

1. ✔ 78.59

2. ✖ 72.54

3. ✖ 76.67

4. ✖ 75.25

Question Number : 34 Question Id : 27028216367 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Out of total number of girls, in the given schools, total pass percentage of girls is (nearest)
ఇచ్చిన పాఠశాలల్లోని మొత్తం బాలికల సంఖ్యలో, ఉత్తీర్ణత సాధించిన బాలికల శాతం (దగ్గరగా)

Note: For this question, discrepancy is found in

question/answer. Full Marks is being awarded to all candidates.

Options :

1. 78.59

2. 70.62

3. 40.82

4. 31.57

Question Number : 35 Question Id : 27028216368 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In the given schools, the highest pass percentage of girls is in the school
ఇచ్చిన పాఠశాలల్లో, అత్యధిక ఉత్తీర్ణత శాతం పొందిన బాలికల పాఠశాల

Options :

1. ✔ C

2. ✔ E

3. ✖ D

4. ✖ F

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Sub-Section Number : 8

Sub-Section Id : 2702821204

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 36 Question Id : 27028216369 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The process of dividing the a disk drive into tracks and sectors is called
ఒక డిస్క్‌డ్రైవ్‌కు ట్రాక్స్ మరియు సెక్టార్స్ గా విభజించడాన్ని ఈ క్రింది విధంగా పిలుస్తారు.

Options :

1. ✖ Tracking
ట్రాకింగ్

2. ✔ Formatting
ఫార్మాటింగ్

3. ✖ Crashing
క్రాస్సింగ్

4. ✖ Allotting
అలాటింగ్

Question Number : 37 Question Id : 27028216370 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Von Neumann computer uses the following type of instructions
వాన్ స్యూమెన్ కంప్యూటర్ ఈ తరహా Instructions వాడుతుంది

Options :

1. ✔ SISD

2. ✖ MIMD

3. ✖ MISD

4. ✖ SIMD

Question Number : 38 Question Id : 27028216371 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is not a web browser
ఈ క్రింది వాటిలో ఏది వెబ్ బ్రౌజర్ కాదు

Options :

1. ✖ Internet explorer
ఇంటర్‌నెట్ ఏక్స్‌ప్లోరర్

2. ✖ Firefox
ఫైర్ ఫాక్స్

3. ✖ Chrome
క్రోమ్

4. ✔ Foxpro
ఫాక్స్ ప్రో

Question Number : 39 Question Id : 27028216372 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following domains is used for academic institutions in india?
ఈ క్రింది వాటిలో ఏడొమైన్ ను భారతదేశంలోని విద్యా సంస్థలకు వాడుతారు

Options :

1. ✖ .net

2. ✖ .edu

3. ✔ .ac

4. ✖ .org

Question Number : 40 Question Id : 27028216373 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following domains is used for – profit businesses?
ఈ క్రింది వాటిలో ఏ డొమైన్ లాభాల ఆర్జించే వ్యాపారాలకు వాడతారు

Options :

1. ✖ .net

2. ✖ .edu

3. ✔ .com

4. ✖ .org

Sub-Section Number :	9
Sub-Section Id :	2702821205
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 41 Question Id : 27028216374 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is responsible of formation of Ozone hole ?
ఓజోన్ రంధ్రము ఏర్పడటానికి ఈ క్రింది వాటిలో ఏది బాధ్యత వహిస్తుంది?

i. UV radiation
UV వికిరణాలు

ii. Vortex formation
వర్టెక్స్ ఏర్పడుట

iii. Very low temperatures in exosphere
ఎక్సోస్ఫియర్ నందు అతి తక్కువ ఉష్ణోగ్రత

iv. Polar stratosphere clouds
ధృవప్రాంతంలోని స్ట్రాటోస్ఫియర్ మేఘాలు

Options :

1. ✖ iii

2. ✖ i and iii
i మరియు iii

3. ✖ ii and iii
ii మరియు iii

4. ✔ i, ii and iv
i, ii మరియు iv

Question Number : 42 Question Id : 27028216375 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is correct with respect to Nuclear Winter ?
న్యూక్లియర్ (అణు) చలికాలానికి సంబంధించి ఈ క్రింది వాటిలో ఏది సరియైనది?

i. Reduction in photosynthesis
కిరణ జన్య సంయోగక్రియ తగ్గుట

ii. Animal starvation
జంతువుల ఆకలి (పస్తుండుట)

iii. Biodiversity expansion
జీవవైవిధ్య విస్తరణ

iv. Food supply increase for animals
జంతువులకు అధికంగా ఆహార సరఫరా

Options :

1. ✖ iv

2. ✖ i

3. ✖ iii and iv
iii మరియు iv

4. ✔ i and ii
i మరియు ii

Question Number : 43 Question Id : 27028216376 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which one will cause environmental degradation in rural areas ?
గ్రామ ప్రాంతాలలో పర్యావరణం క్షీణించుటకు కారణం ఏది?

Options :

1. ✔

Shifting agriculture
ప్రాంతాన్ని మారుస్తూ సాగు చేయుట

2. ✖ Biodiversity conservation
జీవ వైవిధ్య సంరక్షణ

3. ✖ Afforestation
అడవుల పెంపకం

4. ✖ Integrated agricultural practices
సమగ్ర వ్యవసాయ పద్ధతులు

Question Number : 44 Question Id : 27028216377 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which is the socio-economic factor that regulates soil degradation ?
ఏ సాంఘీక – ఆర్థిక కారకంచే భూసారము క్షీణించును?

Options :

1. ✔ Farm policies
వ్యవసాయ విధానాలు

2. ✖ Fertilizer usage
ఎరువుల వాడకం

3. ✖ Vegetation protection
వృక్ష సంపద రక్షణ

4. ✖ Population density
జన సాంద్రత

Question Number : 45 Question Id : 27028216378 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Minimata chemical industry discharges their waste into the sea. Which of the following is correct ?
మినిమాటా రసాయన పరిశ్రమ వ్యర్థాలను సముద్రంలోనికి విడుదల చేయును. దానికి సంబంధించి ఈ క్రింది వానిలో ఏది సరియైనది?

i. Mercury is the chief pollutant
పాదరసం ముఖ్య కాలుష్య కారకము

ii. Death of humans caused due to gases released by the industry.
పరిశ్రమ విడుదలచేసిన వాయువులచే మానవులు మృతి చెందుట

iii. Bioaccumulation of mercury in the fish
చేపలో పాదరసం జీవ సమీకరణ చెందుట

iv. Mercury helps fish metabolism
చేప జీవ రసాయన చర్యలో పాదరసం తోడ్పడును

Options :

1. ✖ i

2. ✖ i and ii
i మరియు ii

3. ✔ i and iii
i మరియు iii

4. ✖ ii and iv
ii మరియు iv

Sub-Section Number : 10

Sub-Section Id : 2702821206

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 46 Question Id : 27028216379 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is the Highest academic decision making body of University?
విశ్వవిద్యాలయానికి సంబంధించిన విద్యాపరమైన అంశాల్లో నిర్ణయాలు తీసుకునే అత్యున్నతమైనది క్రింది వానిలో ఏది?

Options :

1. ✖ Board of studies
బోర్డ్ ఆఫ్ స్టడీస్

2. ✖ Faculty Dean
ఫ్యాకల్టీ డీన్

3. ✔ Academic Council
అకడమిక్ కౌన్సిల్

4. ✖ Head of the department
హెడ్ ఆఫ్ ద డిపార్ట్‌మెంట్

Question Number : 47 Question Id : 27028216380 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Education as a subject of legislation figures in the
శాసనపరమైన అంశాలకు సంబంధించి విద్య దీనికి చెందిన అంశం

Options :

1. ✖ Union List
కేంద్ర జాబితా

2. ✖ State List
రాష్ట్ర జాబితా

3. ✔ Concurrent List
ఉమ్మడి జాబితా

4. ✖ Residuary Powers
అవశేష అధికారాలు

Question Number : 48 Question Id : 27028216381 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Most prominent role of a teacher in higher education
ఉన్నత విద్య స్థాయిలో ఉపాధ్యాయుని ప్రధాన పాత్ర

Options :

1. ✖ Provide required information to students.
విద్యార్థులకు కావలసిన సమాచారాన్ని అందించడం

2. ✔ Promote self learning in students.
విద్యార్థులలో స్వీయ అభ్యసనాన్ని పెంపొందించడం

3. ✖ Encourage healthy competition among students.
విద్యార్థుల్లో ఆరోగ్యకరమైన పోటీని ప్రోత్సహించడం

4. ✖ Advise students to solve their problems.
విద్యార్థులకు వారి సమస్యలను వారే పరిష్కరించుకోమని సూచన చేయడం

Question Number : 49 Question Id : 27028216382 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following statements is NOT correct about distance education in India?
భారతదేశంలో దూరవిద్యకు సంబంధించిన క్రింది ప్రవచనంలో సరికానిది ఏది?

Options :

1. ✖ It supplements formal education wherever required.
అవసరమైన మేరకు నియత విద్యకు అనుసంధానంగా ఉంటుంది

2. ✖ It reduces the cost of education to a great extent.
విద్యా సంబంధమైన ఖర్చును చాలా వరకు తగ్గిస్తుంది

3. ✔ It replaces the formal education shortly.
త్వరలో నియత విద్యాస్థానాన్ని ఆక్రమిస్తుంది

4. ✖

It enhances access to education.
విద్యా అవకాశాల అందుబాటును పెంచును

Question Number : 50 Question Id : 27028216383 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Assessment and accreditation of all technical institutions is in the jurisdiction of
సాంకేతిక విద్యా సంస్థల అంచనా మరియు గుర్తింపు దీని పరిధిలోనికి వస్తుంది.

Options :

1. ✖ UGC
యు.జి.సి.

2. ✖ AICTE
ఎ.ఐ.సి.టి.ఇ.

3. ✔ NAAC
న్యాక్

4. ✖ NCERT
ఎన్.సి.ఇ.ఆర్.టి

PHYSICAL SCIENCES

Group Number : 2

Group Id : 270282216

Group Maximum Duration :	120
Group Minimum Duration :	120
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

PHYSICAL SCIENCES

Section Id :	270282216
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	200
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	2702821207
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 51 Question Id : 27028216384 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The equation of a surface of revolution is $Z = \pm\sqrt{\frac{3}{2}x^2 + \frac{3}{2}y^2}$. The unit vector normal to the surface at the point $P(\sqrt{\frac{2}{3}}, 0, 1)$ is,

Options :

1. ✖ $\sqrt{\frac{3}{5}}\hat{\imath} + \frac{2}{\sqrt{10}}\hat{k}$

2. ✖ $\sqrt{\frac{3}{5}}\hat{\imath} + \frac{2}{\sqrt{5}}\hat{k}$

3. ✔ $\sqrt{\frac{3}{5}}\hat{\imath} - \frac{2}{\sqrt{10}}\hat{k}$

4. ✖ $\sqrt{\frac{3}{10}}\hat{\imath} + \frac{2}{\sqrt{10}}\hat{k}$

Question Number : 52 Question Id : 27028216385 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The solutions to the differential equation $\frac{dy}{dx} = -\frac{x}{y+1}$ are

Options :

1. ✔ circles with different radii

2. ✖ straight lines with different slopes

3. ✖ circles with different centres

4. ✖ straight lines with different intercepts

Question Number : 53 Question Id : 27028216386 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

For an n x n matrix, if all the elements are equal to one, then

Options :

1. ✖ all eigen values are equal to zero.

2. ✖ all eigen values are equal to one.

3. ✖ the eigen values are 1,2,.....,n.

4. ✔ one eigen value is equal to n, and remaining all are equal to zero.

Question Number : 54 Question Id : 27028216387 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A 3 x 3 matrix of trace is 11, and its determinant is 36. If the eigen values of the matrix are all known to be positive integers, then the largest eigen value of the matrix is

Options :

1. ✔ 6

2. ✖ 9

3. ✖ 12

4. ✖ 18

Question Number : 55 Question Id : 27028216388 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

$P_n(x)$ is the Legendre's polynomial of order 'n', the value of $\frac{3}{5}P_1(x) + \frac{2}{5}P_3(x)$ *is*

Options :

1. ✖ 0

2. ✖ 1

3. ✔ x^3

4. ✖ $\frac{x^3}{5}$

Question Number : 56 Question Id : 27028216389 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The Laplace transform of e^{-2t} Sin 4t is

Options :

1. ✖ $\frac{4}{s^2+4s-25}$

2. ✔ $\frac{4}{s^2+4s+20}$

3. ✖ $\frac{4s}{s^2+4s+25}$

4. ✖ $\frac{4s}{s^2+4s+20}$

Question Number : 57 Question Id : 27028216390 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The sum of the infinite series $1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \ldots..$, is

Options :

1. ✖ π

2. ✖ 2π

3. ✖ $\frac{\pi}{2}$

4. ✔ $\frac{\pi}{4}$

Question Number : 58 Question Id : 27028216391 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If 'P' is the mean of a Poisson distribution, the standard deviation is given by

Options :

1. ✖ m

2. ✖ $\frac{m}{2}$

3. ✔ $\sqrt{m}$

4. ✖ m^2

Question Number : 59 Question Id : 27028216392 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If the motion of a particle is described by $x = 5\cos(8\pi t)$, $y = 5\sin(8\pi t)$ and $z = 5t$, then trajectory of the particle is

Options :

1. ✖ circular

2. ✖ elliptical

3. ✔ helical

4. ✖ spiral

Question Number : 60 Question Id : 27028216393 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following for a rotating rigid body

1. Spherical top	(i) $I_x = I_y \neq I_z$
2. Asymmetric top	(ii) $I_x = I_y$ and $I_z = 0$
3. Symmetrical top	(iii) $I_x = I_y = I_z$
4. Rotator	(iv) $I_x \neq I_y \neq I_z$

Options :

1. ✖ (1-iii) (2-iv) (3-ii) (4-i)

2. ✖ (1-iv) (2-ii) (3-iii) (4-i)

3. ✖ (1-iv) (2-i) (3-iii) (4-ii)

4. ✔ (1-iii) (2-iv) (3-i) (4-ii)

Question Number : 61 Question Id : 27028216394 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Consider an object moving with a velocity $\vec{v}$ in a frame which rotates with a constant angular velocity $\vec{\omega}$. The Coriolis force experienced by the object is

Options :

1. ✖ along the direction of $\vec{v}$

2. ✖ along the direction of $\vec{\omega}$

3. ✖ always directed towards the axis of rotation

4. ✔ perpendicular to both $\vec{v}$ and $\vec{\omega}$

Question Number : 62 Question Id : 27028216395 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A bead of mass 'm' is sliding on a uniformly rotating string inclined at an angle 'θ' with respect to the x-axis. The equation of motion of the bead is

Options :

1. ✖ $m\ddot{r} + mr\omega^2 + mg\sin\omega t$

2. ✖ $m\ddot{r} - mr\omega^2 - mg\sin\omega t$

3. ✖ $m\ddot{r} + mr\omega^2 - mg\sin\omega t$

4. ✔ $m\ddot{r} - mr\omega^2 + mg\sin\omega t$

Question Number : 63 Question Id : 27028216396 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A dynamical system with two generalized coordinates q_1 and q_2 has Lagrangian, $L = \dot{q_1}^2 + \dot{q_2}^2$. If p_1 and p_2 are the corresponding generalized momenta, then the Hamiltonian is

Options :

1. ✔ $\left(\frac{p_1^2+p_2^2}{4}\right)$

$\left(\frac{q_1^2+q_2^2}{2}\right)$

2. ✖

3. ✖ $\left(\frac{q_1^2+q_2^2}{4}\right)$

4. ✖ $\left(\frac{p_1^2+p_2^2}{2}\right)$

Question Number : 64 Question Id : 27028216397 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A particle of mass 'm' is in a potential is given by $V(x) = \frac{1}{2}kx^2 + \frac{\lambda}{2x^2}$, where k and λ are positive constants. If the particle is slightly displaced from its equilibrium position it undergoes a simple harmonic oscillation, then the time period of oscillation is

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

Options :

1. $2\pi\sqrt{\frac{k}{m}}$

2. $4\pi\sqrt{\frac{k}{m}}$

3. $2\pi\sqrt{\frac{k}{2m}}$

4. $2\pi\sqrt{\frac{k\lambda}{m}}$

Question Number : 65 Question Id : 27028216398 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control :

No

Correct Marks : 2 Wrong Marks : 0

A rod is moving with a speed of 0.8c in a direction at 60^0 to its own length. The percentage contraction in the length of the rod is

Options :

1. ✖ 6%

2. ✔ 9%

3. ✖ 12%

4. ✖ 15%

Question Number : 66 Question Id : 27028216399 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In an observer's rest frame, a particle is moving towards the observer with an energy E and momentum 'P'. The energy of the particle in another frame moving in the same direction as particle moves with a constant velocity v is (c is the velocity of light in vacuum)

Options :

1. ✔ $\frac{E+vP}{\sqrt{1-(\frac{v}{c})^2}}$

2. ✖ $\frac{E+vP}{1-(\frac{v}{c})^2}$

3. ✖ $\frac{(E+vP)^2}{\sqrt{1-(\frac{v}{c})^2}}$

4. ✖ $\frac{(E-vP)^2}{\sqrt{1-(\frac{v}{c})^2}}$

Question Number : 67 Question Id : 27028216400 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A steady current in a straight conducting wire produces a surface charge on it. Let E_{in} and E_{out} be the magnitudes of the electric fields just inside and just outside the wire, respectively. Which of the following statements is true?

Options :

1. ✖ E_{out} is equal to E_{in}

2. ✔ E_{out} is always greater than E_{in}

3. ✖ E_{out} is always smaller than E_{in}

4. ✖ E_{out} could be greater or smaller than E_{in}

Question Number : 68 Question Id : 27028216401 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If the electrostatic potential at a point (x,y) is given by V = (2x+4y) volts, the electrostatic energy density at that point is

Options :

1. ✖ $\frac{1}{2}\varepsilon_0 (2x-4y)^2$ J/m^3

2. ✖ $20\ \varepsilon_0$ J/m^3

3. ✔ $10\ \varepsilon_0$ J/m^3

4. ✖ $\frac{1}{2}\varepsilon_0 (2x+4y)^2$ J/m^3

Question Number : 69 Question Id : 27028216402 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A ring of radius 'R' carries a linear charge density 'λ'. If it is rotating with angular speed 'ω', then the magnetic field at its centre is

Options :

1. ✖ $\mu_0\lambda\omega/\pi$

2. ✖ $3\mu_0\lambda\omega/2$

3. ✖ $3\mu_0\lambda\omega/\pi$

4. ✔ $\mu_0\lambda\omega/2$

Question Number : 70 Question Id : 27028216403 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

From the following statements, choose the correct option(s) about a perfect conductor,

(i) the conductor has an equipotential surface.
(ii) net charge resides only on the surface of conductor
(iii) just outside the conductor, the electric field is always perpendicular to its surface

Options :

1. ✖ (i) and (ii) only

2. ✖ (ii) and (iii) only

3. ✖ (i) and (iii) only

4. ✔ (i), (ii) and (iii)

Question Number : 71 Question Id : 27028216404 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control :

No

Correct Marks : 2 Wrong Marks : 0

If a force $\vec{F}$ is derivable from the potential function V(r), where 'r' is the distance from the origin, then it follows that

Options :

1. ✖ $\vec{\nabla} . \vec{F} = 0$

2. ✔ $\vec{\nabla} X \vec{F} = 0$

3. ✖ $\nabla^2 V = 0$

4. ✖ $\vec{\nabla} . V = 0$

Question Number : 72 Question Id : 27028216405 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If scalar potential $\phi(x,t) = 0$ and vector potential $\vec{A}(z,\hat{t}) = tzi$, then the electric field $\vec{E}(z,t)$ and magnetic field $\vec{B}(z,t)$ are,

Options :

1. ✖ $\vec{E} = z\,\hat{i}$ and $\vec{B} = -t\,\hat{j}$

2. ✖ $\vec{E} = z\,\hat{i}$ and $\vec{B} = t\,\hat{j}$

3. ✔ $\overrightarrow{E} = -z\,\hat{i}$ and $\overrightarrow{B} = t\,\hat{j}$

4. ✖ $\overrightarrow{E} = -z\,\hat{i}$ and $\overrightarrow{B} = -t\,\hat{j}$

Question Number : 73 Question Id : 27028216406 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The intrinsic impedance of a lossy dielectric medium is given by

Options :

1. ✖ $\left(\frac{j\omega\varepsilon}{\sigma+j\omega\varepsilon}\right)^{1/2}$

2. ✔ $\left(\frac{j\omega\mu}{\sigma+j\omega\varepsilon}\right)^{1/2}$

3. ✖ $\left(\frac{j\omega}{\sigma+j\omega\varepsilon}\right)^{1/2}$

4. ✖ $\left(\frac{j\omega}{\sigma+j\omega\varepsilon}\right)$

Question Number : 74 Question Id : 27028216407 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control :

No

Correct Marks : 2 Wrong Marks : 0

The maximum electric field at a point near a high frequency transmitter is 10^4 V/m. The maximum magnetic flux density at the point is

Options :

1. ✖ 33.3 mT

2. ✖ 3.33 μT

3. ✔ 33.3 μT

4. ✖ 3.33 mT

Question Number : 75 Question Id : 27028216408 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The black body spectrum of two objects such that its radiant intensities are maximum at the wavelengths of 100 nm and 400 nm, respectively. The ratio of power emitted per unit area of two objects is

Options :

1. ✖ 4

2. ✖ 16

3. ✖ 64

4. ✔ 256

Question Number : 76 Question Id : 27028216409 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A wave is moving in a medium with the angular frequency ω and the wave number k which are related by $\omega^2 = (\omega_0^2 + c^2k^2)$, where, c and ω_0 are constants. The product of group and phase velocities is

Options :

1. ✖ c

2. ✔ c^2

3. ✖ 0.5 c

4. ✖ 0.5 c^2

Question Number : 77 Question Id : 27028216410 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control :

No

Correct Marks : 2 Wrong Marks : 0

If a particle is moving in a two dimensional potential well given by,
$V(x,y) = 0,\ 0 \le x \le L$ and $0 \le y \le 2L$
$= \infty$, elsewhere then, the ground state energy of the particle is

Options :

1. ✖ $\frac{2h^2}{8mL^2}$

2. ✖ $\frac{5h^2}{12mL^2}$

3. ✔ $\frac{5h^2}{32mL^2}$

4. ✖ $\frac{h^2}{16mL^2}$

Question Number : 78 Question Id : 27028216411 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Consider a free electron (e), a proton (p) both have same energy. If λ and P represent wavelength and momentum, respectively, then which of the following statements is true?

Options :

1. ✖ $\lambda_e = \lambda_p$ and $P_e = P_p$

2. ✖ $\lambda_e < \lambda_p$ and $P_e > P_p$

3. ✖ $\lambda_e > \lambda_p$ and $P_e > P_p$

4. ✔ $\lambda_e > \lambda_p$ and $P_e < P_p$

Question Number : 79 Question Id : 27028216412 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following relations is/are true for Pauli matrices σ_x, σ_y and σ_z?

(i) $\sigma_x^2 + \sigma_y^2 + \sigma_z^2 = 1$
(ii) $\sigma_x\sigma_y + \sigma_y\sigma_z = 0$
(iii) $\sigma_x\sigma_y = i\sigma_z$
(iv) $[\sigma_x, \sigma_y] = 2i\sigma_z$

Options :

1. ✖ (i), (ii), and (iii) only

2. ✖ (i), (ii), and (iv) only

3. ✖ (i), (iii), and (iv) only

4. ✔ All

Question Number : 80 Question Id : 27028216413 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If J_x, J_y and J_z are total angular momentum operators, then the eigen values of the operator $\frac{Jx+Jy}{h}$ are

Options :

1. ✖ $\pm\sqrt{1}$

2. ✔ $\pm\sqrt{2}$

3. ✖ $\pm\sqrt{3}$

4. ✖ 0

Question Number : 81 Question Id : 27028216414 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The operator $(\frac{d}{dx} - x)(\frac{d}{dx} + x)$ is equal to

Options :

1. ✔

$\frac{d^2}{dx^2} - x^2 + 1$

2. ✖ $\frac{d^2}{dx^2} - x^2 \frac{d}{dx}$

3. ✖ $\frac{d^2}{dx^2} - 2x\frac{d}{dx} + 1$

4. ✖ $\frac{d^2}{dx^2} - x^2 + 2$

Question Number : 82 Question Id : 27028216415 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The binding energy of an electron in the ground state of a He^+ ion is

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

Options :

1. 6.8 eV

2.

13.6 eV

3. 54.4 eV

4. 108.8 eV

Question Number : 83 Question Id : 27028216416 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The degree of degeneracy of 3-dimensional harmonic oscillator is

Options :

1. ✖ $\frac{1}{2}(n+1)$

2. ✔ $\frac{1}{2}(n+1)(n+2)$

3. ✖ $\frac{1}{2}(2n+1)(2n+2)$

4. ✖ $(2n+1)(n+2)$

Question Number : 84 Question Id : 27028216417 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

. The rms velocity of hydrogen will be double of its value at NTP. If pressure remains unchanged, the temperature will be

Options :

1. ✔ $819\ ^0C$

2. ✖ $109\ ^0C$

3. ✖ $1162\ ^0C$

4. ✖ $1220\ ^0C$

Question Number : 85 Question Id : 27028216418 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Two gases having molecular diameters d_1 and d_2 and mean free paths λ_1 and λ_2, respectively, are trapped separately in identical containers. If $d_2 = 4d_1$, then the ratio of two mean free paths is

Options :

1. ✖ 2

2. ✖ 4

3. ✖ 8

4. ✔ 16

Question Number : 86 Question Id : 27028216419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The numerical value of the slope of an isoenthalpic curve at any point on a T-P diagram is called

Options :

1. ✖ Joule coefficient

2. ✖ Vander Waal's constant

3. ✖ Virial coefficient

4. ✔ Joule-Kelvin coefficient

Question Number : 87 Question Id : 27028216420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following relations is INCORRECT for thermodynamic variable?

Options :

1. ✖ $Tds = C_v\, dT + T\,(\frac{\partial P}{\partial T})_V\, dV$

2. ✖ $Tds = C_p\, dT - T\,(\frac{\partial V}{\partial T})_p\, dP$

3. ✔ $dF = -S\, dT + P\, dV$

4. ✖ $dG = -S\, dT + V\, dP$

Question Number : 88 Question Id : 27028216421 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Consider a diatomic molecule with an infinite number of equally spaced non-degenerate levels. The spacing between any two adjacent levels is 'ε' and the ground state energy is zero. What is the single particle partition function 'Z'?

Options :

1. ✖ $Z = \frac{1}{1-e^{\varepsilon/K_BT}}$

2. ✖ $Z = \frac{1}{1-e^{2\varepsilon/K_BT}}$

3. ✔ $Z = \frac{1}{1-e^{-\varepsilon/K_B T}}$

4. ✖ $Z = \frac{1}{1+e^{-\varepsilon/K_B T}}$

Question Number : 89 Question Id : 27028216422 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The heat capacity $C_v = \alpha T + \beta T^2$ as a function of temperature, where α and β are constants.
The entropy at constant volume is

Options :

1. ✖ $\alpha T + \frac{1}{3}\beta T^2$

2. ✔ $\alpha T + \frac{1}{2}\beta T^2$

3. ✖ $\frac{1}{2}\alpha T + \frac{1}{3}\beta T^2$

4. ✖ $\alpha T + \beta T^2$

Question Number : 90 Question Id : 27028216423 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

When the temperature of a black body is doubled, the maximum value of its spectral energy density with respect to that at initial temperature would become

Options :

1. ✖ 8 times

2. ✖ $\frac{1}{8}$ times

3. ✔ 16 times

4. ✖ $\frac{1}{16}$ times

Question Number : 91 Question Id : 27028216424 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The isothermal compressibility (k_T) for a 'n' moles of an ideal gas is

Options :

1. ✖ $-\frac{1}{P}$

2. ✖ $-\frac{n}{P}$

3. ✔ $\frac{1}{P}$

4. ✖ $\frac{n}{P}$

Question Number : 92 Question Id : 27028216425 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In a P-N junction, the dopant concentration on the p-side is higher than that on the n-side. If the junction is unbiased, which of the following statements is/are correct?

(i) The width of the depletion layer is larger on the n-side
(ii) At thermal equilibrium, the Fermi energy is higher on the p-side
(iii) In the depletion region, number of negative charges per unit area on the p-side is equal to number of positive charges per unit area on the n-side.
(iv) The value of the built-in potential barrier dependent on the dopant concentration

Options :

1. ✖ (i), (ii), and (iii) only

2. ✔ (i), (iii), and (iv) only

3. ✖ (ii), (iii), and (iv) only

4.

✖ (i), (ii), (iii), and (iv)

Question Number : 93 Question Id : 27028216426 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

For using a transistor as an amplifier, choose the correct option regarding the resistances of base-emitter (R_{BE}) and base-collector (R_{BC}) junctions

Options :

1. ✖ Very high R_{BE} and very low R_{BC}

2. ✖ Very low R_{BE} and very low R_{BC}

3. ✔ Very low R_{BE} and very high R_{BC}

4. ✖ Very high R_{BE} and very high R_{BC}

Question Number : 94 Question Id : 27028216427 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The power density of incident light on a solar cell is 100 mW/cm^2. Its short circuit current density is 30 mA/cm^2 and the open circuit voltage is 0.7 V. If the fill factor of the Solar cell decreases from 0.8 to 0.5, then the decrease in the percentage of efficiency is from

Options :

1. ✖ 42.0 to 24.2

2. ✖ 34.6 to 18.8

3. ✖ 24.6 to 12.5

4. ✔ 16.8 to 10.5

Question Number : 95 Question Id : 27028216428 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

An LED operates at 1.5 V and 5 mA in forward bias. Assuming external efficiency of LED as 80%, how many photons are emitted per second?

Options :

1. ✖ 5.2×10^{16}

2. ✖ 1.5×10^{16}

3. ✔ 2.5×10^{16}

4. ✖ 5×10^{16}

Question Number : 96 Question Id : 27028216429 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is an INCORRECT Boolean expression?

Options :

1. ✖ $\bar{P}Q + PQ = Q$

2. ✖ $(P + \bar{Q})(P + Q) = P$

3. ✔ $P(P + Q) = Q$

4. ✖ $(\bar{P}\bar{Q}\bar{R}+\bar{P}\bar{Q}R+ P\bar{Q}\bar{R} + P\bar{Q}R)=\bar{Q}$

Question Number : 97 Question Id : 27028216430 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If P and Q are the inputs, then which of the following gates represent the Boolean expression $P + \bar{P}Q$?

Options :

1. ✖ AND

2. ✖ NAND

3. ✖ NOT

4. ✔ OR

Question Number : 98 Question Id : 27028216431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The voltage resolution of a 12-bit digital to analog converter, whose output varies from -10 V to +10 V is

Options :

1. ✖ 2.4 mV

2. ✔ 4.8 mV

3. ✖ 9.6 mV

4.

✖ 20 mV

Question Number : 99 Question Id : 27028216432 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If one of the inputs of a J-K flip-flop is high and the other is low, then the outputs Q and $\bar{Q}$

Options :

1. ✖ toggle and the circuit acts like a T flip-flop

2. ✖ are opposite to the inputs

3. ✖ are both high

4. ✔ follow the inputs and the circuit acts like an R-S flip-flop.

Question Number : 100 Question Id : 27028216433 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Proportional error is an example of

Options :

1. ✖ indeterminate error

2. ✔ determinate error

3. ✖ absolute error

4. ✖ relative error

Question Number : 101 Question Id : 27028216434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The number of independent components of an antisyymetric tensor A_{ij} with indices i and j running from 1 to 4 is

Options :

1. ✖ 4

2. ✔ 6

3. ✖ 8

4. ✖ 10

Question Number : 102 Question Id : 27028216435 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The one dimensional heat flow equation is

Options :

1. ✖ $\frac{\partial y}{\partial t} = \frac{1}{k^2}\frac{\partial^2 y}{\partial x^2}$

2. ✖ $\frac{\partial^2 y}{\partial t^2} = \frac{1}{k^2}\frac{\partial^2 y}{\partial x^2}$

3. ✔ $\frac{\partial y}{\partial t} = k^2\frac{\partial^2 y}{\partial x^2}$

4. ✖ $\frac{\partial^2 y}{\partial t^2} = k^2\frac{\partial^2 y}{\partial x^2}$

Question Number : 103 Question Id : 27028216436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

An isotropic tensor of components

Options :

1. ✖ remains unchanged under a translation of the axis

2. ✔ remains unchanged under a rotation of the axis

3. ✖ changes under a rotation of the axis

4. ✖ All of the above

Question Number : 104 Question Id : 27028216437 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following is/are correct?
(i) If every element of a group has its own inverse, then group must be abelian
(ii) A group of even order has at least one element of order '2'
(iii) The order of an element of an infinite group may be finite or infinite.

Options :

1. ✖ (i) only correct

2. ✖ (ii) and (iii) only correct

3. ✖ (i) and (iii) only correct

4. ✔ All are correct

Question Number : 105 Question Id : 27028216438 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following

1. Lagrange's theorem	(i) every finite group is isomorphic to its permutation group
2. Cayley thoerm	(ii) each element of a group can be expressed as some integral power of 'i'
3. Cyclic group	iii) orders of the each sub-group of a finite group is a divisor of the group.

Options :

1. ✔ (1-iii) (2-i) (3-ii)

2. ✖ (1-i) (2-ii) (3-iii)

3. ✖ (1-ii) (2-i) (3-iii)

4. ✖ (1-iii) (2-ii) (3-i)

Question Number : 106 Question Id : 27028216439 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following

1. Newton-Raphson method	(i) method of linear interpolation
2. Regula-Falsi method	(ii) solving of ordinary differential equation
3. Simpson's rule	(iii) method of tangents
4. Runge-Kutta method	(iv) numerical integration

Options :

1. ✖ (1-i) (2-iii) (3-iv) (4-ii)

2. ✖ (1-iii) (2-i) (3-ii) (4-iv)

3. ✖ (1-i) (2-iii) (3-ii) (4-iv)

4. ✔ (1-iii) (2-i) (3-iv) (4-ii)

Question Number : 107 Question Id : 27028216440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the various phase trajectory motions with their singular points

1. Vortex point	(i) Phase trajectory of an over damped oscillatory motion
2. Saddle point	(ii) Phase trajectory of an under damped oscillatory motion
3. Focal point	(iii) Phase trajectory of linear harmonic oscillatory motion
4. Nodal point	(iv) Phase trajectory of an aperiodic motion

Options :

1. ✔ (i-iii) (2-iv) (3-ii) (4-i)

2. ✖ (1-iii) (2-ii) (3-iv) (4-i)

3. ✖ (1-iv) (2-ii) (3-i) (4-iii)

4. ✖ (1-ii) (2-iv) (3-i) (4-iii)

Question Number : 108 Question Id : 27028216441 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Time period (T) of a non-linear simple harmonic oscillator for relatively small amplitude is

Options :

1. ✖ $T = \frac{1}{T_0}[1 + \frac{\theta_0^2}{16}]$

2. ✔ $T = T_0[1 + \frac{\theta_0^2}{16}]$

3. ✖ $T = \frac{1}{T_0}[1 - \frac{\theta_0^2}{16}]$

4. ✖ $T = T_0[1 - \frac{\theta_0^2}{16}]$

Question Number : 109 Question Id : 27028216442 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If the Poisson bracket [x, p] = -1, then the Poisson bracket $[x^2+p, p]$ is

Options :

1. ✖ x

2. ✖ -x

3. ✔ -2x

4. ✖ 2x

Question Number : 110 Question Id : 27028216443 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Let (p, q) and (P, Q) be two pairs of canonical variables. If Q = q + 4cp, P = q + 2p is canonical, then the value of the constant 'c' is

Options :

1. ✖ 2

2. ✖ 4

3. ✖ $\frac{1}{2}$

4.

$\frac{1}{4}$

Question Number : 111 Question Id : 27028216444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The action variables for the Sommerfield-Wilson's rule of quantization is (Here, $n_k = 1,2,3,...$)

Options :

1. $J_k = \oint p_k \, d\dot{q}_k = n_k h$

2. $J_k = \oint q_k \, d\dot{p}_k = n_k h$

3. $J_k = \oint p_k \, dq_k = n_k h$

4. $J_k = \oint q_k \, dp_k = n_k h$

Question Number : 112 Question Id : 27028216445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If $\varepsilon_r = 26$ and $\sigma = 3 \times 10^{-4}$ mho, then the relaxation time for ethyl alcohol is

Options :

1. ✔ 0.767×10^{-6} S

2. ✖ 8.66×10^{4} S

3. ✖ 76.7×10^{-6} S

4. ✖ 86.6×10^{4} S

Question Number : 113 Question Id : 27028216446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The complex permittivity of the medium is

Options :

1. ✖ $(\sigma+j\varepsilon/\omega)$

2. ✖ $(\varepsilon-j\omega/\sigma)$

3. ✖ $(\varepsilon-\sigma\omega/j)$

4. ✔ $(\varepsilon-j\sigma/\omega)$

Question Number : 114 Question Id : 27028216447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The input impedance (Z_{in}) of a quarter wavelength transmission line is (Z_c is characteristic impedance and Z_L is load impedance)

Options :

1. ✖ Z_c/Z_L

2. ✔ Z_c^2/Z_L

3. ✖ Z_c^2/Z_L^2

4. ✖ Z_L^2/Z_c

Question Number : 115 Question Id : 27028216448 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If a particle of rest mass m_0 is to be accelerated such that its mass quadruples its real mass, then the required speed is

Options :

1. ✖ $\frac{\sqrt{15}}{2}c$

2. ✖ $\frac{\sqrt{15}}{6}c$

3. ✔ $\frac{\sqrt{15}}{4}c$

4. ✖ $\sqrt{\frac{15}{2}}c$

Question Number : 116 Question Id : 27028216449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The cut-off frequency for TM-mode is

Options :

1. ✖ $\frac{c}{2\pi}\sqrt{(\frac{m\pi}{a})^2 - (\frac{n\pi}{b})^2}$

2. ✔ $\frac{c}{2\pi}\sqrt{(\frac{m\pi}{a})^2 + (\frac{n\pi}{b})^2}$

3. ✖ $\frac{c^2}{4\pi^2}\sqrt{(\frac{m\pi}{a})^2-(\frac{n\pi}{b})^2}$

4. ✖ $\frac{c^2}{4\pi^2}\sqrt{(\frac{m\pi}{a})^2+(\frac{n\pi}{b})^2}$

Question Number : 117 Question Id : 27028216450 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In the scattering of particles, the first Born approximation is valid for

Options :

1. ✖ large incident energies and strong scattering potentials

2. ✖ small incident energies and weak scattering potentials

3. ✖ small incident energies and strong scattering potentials

4. ✔ large incident energies and weak scattering potentials

Question Number : 118 Question Id : 27028216451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On

Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The condition of validity for the WKB method is

Options :

1. ✔ $\left|\frac{d\bar{\lambda}(x)}{dx}\right| << 1$

2. ✖ $\left|\frac{d\bar{\lambda}(x)}{dx}\right| >> 1$

3. ✖ $\left|\frac{d\bar{\lambda}(x)}{dx}\right| = 1$

4. ✖ $\left|\frac{d\bar{\lambda}(x)}{dx}\right| = 0$

Question Number : 119 Question Id : 27028216452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The total inelastic scattering cross section is

Options :

1. ✖ $\sigma = \frac{\pi}{k^2}\sum_{l=0}^{\infty}(2l+1)[1-\eta_l(k)]$

2. ✖ $\sigma = \frac{\pi}{k^2}\sum_{l=0}^{\infty}(2l+1)[1+\eta_l(k)]$

3. ✔ $\sigma = \frac{\pi}{k^2} \sum_{l=0}^{\infty}(2l+1)[1-\eta_l^2(k)]$

4. ✖ $\sigma = \frac{\pi}{k^2} \sum_{l=0}^{\infty}(2l+1)[1+\eta_l^2(k)]$

Question Number : 120 Question Id : 27028216453 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following and choose correct answer

(1) Klein-Gordon equation	(i) an unoccupied state of negative energy
(2) Dirac equation	(ii) particle of zero spin
(3) positron	(iii) existence of anti-particle

Options :

1. ✖ (1-i) (2-ii) (3-iii)

2. ✖ (1-ii) (2-i) (3-iii)

3. ✖ (1-i) (2-iii) (3-ii)

4. ✔ (1-ii) (2-iii) (3-i)

Question Number : 121 Question Id : 27028216454 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

According to Dirac's theory, the Hamiltonian is

Options :

1. ✖ $H = c\bar{\alpha}.\bar{p} + \beta m_0 c$

2. ✖ $H = c\bar{\alpha}.\bar{p} - \beta m_0 c^2$

3. ✔ $H = c\bar{\alpha}.\bar{p} + \beta m_0 c^2$

4. ✖ $H = c\bar{\alpha}.\bar{p} + \beta m_0^2 c^4$

Question Number : 122 Question Id : 27028216455 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Covariant form of Dirac's equation is

Options :

1. ✖ $\gamma_\mu \frac{\partial \psi}{\partial x_\mu} + \frac{m_0 c}{\hbar^2} \psi = 0$

2. ✔

$$\gamma_\mu \frac{\partial \psi}{\partial x_\mu} + \frac{m_0 c}{\hbar} \psi = 0$$

3. ✖ $$\gamma_\mu \frac{\partial \psi}{\partial x_\mu} - \frac{m_0 c}{\hbar^2} \psi = 0$$

4. ✖ $$\gamma_\mu \frac{\partial \psi}{\partial x_\mu} - \frac{m_0 c}{\hbar} \psi = 0$$

Question Number : 123 Question Id : 27028216456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The pressure of a non-relativistic free Fermi gas in three-dimensions depends on the density of fermions 'n' as (at T = 0 K)

Options :

1. ✖ $n^{1/3}$

2. ✖ $n^{2/3}$

3. ✖ $n^{4/3}$

4. ✔ $n^{5/3}$

Question Number : 124 Question Id : 27028216457 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The density of bosons in the ground state for $T < T_c$ is

Options :

1. ✖ $\rho_0(T) = \rho[1 - (\frac{T}{T_c})^{1/2}]$

2. ✔ $\rho_0(T) = \rho[1 - (\frac{T}{T_c})^{3/2}]$

3. ✖ $\rho_0(T) = \rho[1 + (\frac{T}{T_c})^{1/2}]$

4. ✖ $\rho_0(T) = \rho[1 + (\frac{T}{T_c})^{3/2}]$

Question Number : 125 Question Id : 27028216458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the type of material with magnetic susceptibilities

(1) Para magnetic	(i) $\chi = \frac{c}{T - T_c}$
(2) Ferro magnetic	(ii) $\chi = \frac{c}{T + T_N}$
(3) Antiferro magnetic	(iii) $\chi = \frac{c}{T}$

Options :

1. ✖ (1-i) (2-ii) (3-iii)

2. ✖ (1-iii) (2-ii) (3-i)

3. ✔ (1-iii) (2-i) (3-ii)

4. ✖ (1-i) (2-iii) (3-ii)

Question Number : 126 Question Id : 27028216459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The coefficient of diffusion (D) depends on parameters P and T as

Options :

1. ✔ $D \alpha P^{-1}$ & $T^{3/2}$

2. ✖ $D \alpha P$ & $T^{3/2}$

3. ✖ $D \alpha P^{3/2}$ & T

4. ✖ $D \alpha P^{1/2}$ & $T^{-1/2}$

Question Number : 127 Question Id : 27028216460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A white-dwarf star is thought to constitute a degenerate electron gas system at a uniform temperature much below the Fermi temperature. Calculate the electron density for which the Fermi momentum is one-tenth of the electron rest mass.

Options :

1. ✖ $2.8 \times 10^{32}\ m^{-3}$

2. ✔ $5.8 \times 10^{32}\ m^{-3}$

3. ✖ $8.6 \times 10^{32}\ m^{-3}$

4. ✖ $1.0 \times 10^{32}\ m^{-3}$

Question Number : 128 Question Id : 27028216461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The normal equations for a straight line $y = ax+b$ are

Options :

1. ✖ $\Sigma y = a\Sigma x + nb$ and $\Sigma xy = a\Sigma x + b\Sigma y$

2. ✖ $\Sigma y = a\Sigma x + nb$ and $\Sigma xy = a\Sigma x^2 + b\Sigma y^2$

3. ✔ $\Sigma y = a\Sigma x + nb$ and $\Sigma xy = a\Sigma x^2 + b\Sigma x$

4. ✖ $\Sigma y = a\Sigma x + nb$ and $\Sigma xy = a\Sigma x^2 + b\Sigma xy$

Question Number : 129 Question Id : 27028216462 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following

1. Capacitive transducer	(i) Crystalline material
2. Electro mechanical	(ii) magnetic coupling
3. piezo-electric	(iii) motion transducer
4. LVDT	(iv) displacement sensitive

Options :

1. ✖ (1-i) (2-ii) (3-iii) (4-iv)

2. ✖ (1-iv) (2-ii) (3-i) (4-iii)

3. ✔ (1-iv) (2-iii) (3-i) (4-ii)

4. ✖ (1-ii) (2-iv) (3-i) (4-iii)

Question Number : 130 Question Id : 27028216463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The effective resistance of a coil at high frequencies is more than its DC resistance on account of

(i) proximity effect
(ii) eddy current losses
(iii) skin effect
(iv) Joule's effect

Options :

1. ✔ (i), (ii) and (iii) only

2. ✖ (i), (iii), and (iv) only

3. ✖ (i), (ii), and (iv) only

4. ✖ (i), (ii), (iii), and (iv)

Question Number : 131 Question Id : 27028216464 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The horizontal amplifier should be designed for

Options :

1. ✖ high amplitude signals with a fast rise time

2. ✖ low amplitude signals with a fast rise time

3. ✔ high amplitude signals with a slow rise time

4. ✖ high frequency signals with a fast rise time

Question Number : 132 Question Id : 27028216465 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following gates can be used as parity checker?

Options :

1. ✖ OR gate

2. ✖ NOR gate

3. ✔ XOR gate

4. ✖ AND gate

Question Number : 133 Question Id : 27028216466 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The power can be controlled in a circuit by

Options :

1. ✖ controlling the current level in the circuit

2. ✖ controlling the voltage applied to load

3. ✖ using pulse modulation of power

4. ✔ All of the above

Question Number : 134 Question Id : 27028216467 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A sodium atom in the first exited 3p states has a life time of 16 ns for returning to the ground 3s state. The corresponding line width of the transition is

Options :

1. ✖ 1.89×10^6 Hz

2. ✖ 2.52×10^7 Hz

3. ✔ 6.25×10^7 Hz

4. ✖ 8×10^6 Hz

Question Number : 135 Question Id : 27028216468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Hypothetically, the electron spin is 3/2 instead of ½. What will be the electronic configuration for an element with atomic number Z = 5?

Options :

1. ✖ $1s^2\ 2s^2\ 2p^1$

2. ✔ $1s^4\ 2s^1$

3. ✖ $1s^3\ 2s^1\ 2p^1$

4. ✖ $1s^4\ 2p^1$

Question Number : 136 Question Id : 27028216469 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The rotational spectrum of a diatomic molecule shows equilibrium lines with spacing 30 cm^{-1}. The position of the first Stokes line in the rotational Raman spectrum is

Options :

1. ✖ $30\ cm^{-1}$

2. ✖ $60\ cm^{-1}$

3. ✖ $80\ cm^{-1}$

4. ✔ $90\ cm^{-1}$

Question Number : 137 Question Id : 27028216470 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The molecule $^{17}O_2$ will be shown by

Options :

1. ✖ Raman active only

2. ✖ Infrared active and NMR active

3. ✔ Raman active and NMR active

4. ✖ NMR active only

Question Number : 138 Question Id : 27028216471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If a laser wavelength 740 nm has coherence length 12 km, then the spectral width is

Options :

1. ✖ 4.5×10^{-16} m

2. ✖ 45×10^{-16} m

3. ✔ 0.45×10^{-16} m

4. ✖ 0.045×10^{-16} m

Question Number : 139 Question Id : 27028216472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A

Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The stimulating radiation in a laser system is

Options :

1. ✔ an electromagnetic wave of suitable frequency with any phase

2. ✖ an electromagnetic wave of any frequency with suitable phase

3. ✖ an electromagnetic wave of any frequency with any phase

4. ✖ any wave with suitable frequency

Question Number : 140 Question Id : 27028216473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Match the following crystal structures with packing fractions

1. Simple cubic structure	(i) 34%
2. Body centred cubic structure	(ii) 52%
3. Face centred cubic structure	(iii) 68%
4. Diamond	(iv) 74%

Options :

1. ✖ (1-i) (2-iii) (3-iv) (4-ii)

2. ✖ (1-ii) (2-iv) (3-iii) (4-i)

3. ✖ (1-i) (2-iv) (3-iii) (4-ii)

4. ✔ (1-ii) (2-iii) (3-iv) (4-i)

Question Number : 141 Question Id : 27028216474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

X-rays of wavelength 1 Å are incident on a simple cubic crystal. The first order Bragg's reflection from plane (311) occurs at an angle of 30^0 from the plane. The lattice parameters of the crystal is

Options :

1. ✖ $\sqrt{3}$ Å

2. ✖ $\sqrt{\left(\frac{3}{2}\right)}$ Å

3. ✔ $\sqrt{11}$ Å

4. ✖ $\sqrt{\left(\frac{11}{2}\right)}$ Å

Question Number : 142 Question Id : 27028216475 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

One dimensional array of atoms having lattice constant 'a' and length 'L', the energy dispersion (E-k) relation for electrons is $E = E_0 - 2\gamma\cos(ka)$, where E_0 and γ are constants, and k is the wave vector. The effective mass of an electron is

Options :

1. ✖ $\frac{2\hbar^2}{\gamma a^2 Cos(ka)}$

2. ✔ $\frac{\hbar^2}{2\gamma a^2 Cos(ka)}$

3. ✖ $\frac{2\hbar^2}{\gamma a^2 Sin(ka)}$

4. ✖ $\frac{\hbar^2}{2\gamma a^2 Sin(ka)}$

Question Number : 143 Question Id : 27028216476 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

μ_n and μ_p are the electron and hole mobility, respectively of a doped semiconductor and its intrinsic carrier density is n_i. The hole concentration 'p' for which the conductivity is minimum at a given temperature is

Options :

1. ✖ $n_i \left(\frac{\mu_p}{\mu_n}\right)$

2. ✖ $n_i \sqrt{\left(\frac{\mu_p}{\mu_n}\right)}$

3. ✔ $n_i \sqrt{\left(\frac{\mu_n}{\mu_p}\right)}$

4. ✖ $n_i \left(\frac{\mu_n}{\mu_p}\right)$

Question Number : 144 Question Id : 27028216477 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

A super conductor has a critical temperature of 4.7 K at zero magnetic field and a critical magnetic field of 0.03 Tesla. The critical field at 2 K is

Options :

1. ✖ 24.7×10^{-2} T

2. ✔ 2.47×10^{-2} T

3. 13.5×10^{-2} T ✖

4. 1.35×10^{-2} T ✖

Question Number : 145 Question Id : 27028216478 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The strain energy per unit length of Screw dislocation is (G is shear modulus and b is Burgers vector)

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

Options :

1. $E_s = Gb^2$

2. $E_s = G^2b$

3. $E_s = G/b^2$

4. $E_s = G^2/b$

Question Number : 146 Question Id : 27028216479 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

If m_e, m_p and m_H are the rest masses of electron, proton and hydrogen atom respectively, in the ground state (with energy -13.6 eV), then which of the following is exactly true? (c is the speed of light in free space)

Options :

1. ✖ $m_H = m_p + m_e$

2. ✔ $m_H = m_p + m_e - \frac{13.6\ eV}{c^2}$

3. ✖ $m_H = m_p + m_e + \frac{13.6\ eV}{c^2}$

4. ✖ $m_H = m_p + m_e \pm \frac{13.6\ eV}{c^2}$

Question Number : 147 Question Id : 27028216480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The stable nucleus that has $\frac{1}{3}rd$ radius of ^{189}Os nucleus is

Options :

1. ✖ ^{4}He

2. ✔ ^{7}Li

3. ✖ ^{14}N

4. ✖ ^{16}O

Question Number : 148 Question Id : 27028216481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

In the β-decay of neutron $n \rightarrow p + \bar{e} + \bar{\nu}_e$, the anti-neutrino $\bar{\nu}_e$, escapes from detection. Its existence is inferred from the measurement of

Options :

1. ✖ asymmetry of electrons

2. ✖ helicity distribution of electrons

3. ✖ angular distribution of electrons

4. ✔ energy distribution of electrons

Question Number : 149 Question Id : 27028216482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

The first three energy levels of $^{228}Th_{90}$, spin-parity and energies are (0^+, 0 keV), (2^+, 57.5 keV)) and (4^+, 187 keV). The expected spin-parity and energy of the next level are

Options :

1. ✖ (6^+, 362.7 keV)

2. ✖ (6^+, 372.7 keV)

3. ✔ (6^+, 392.7 keV)

4. ✖ (6^+, 412.7 keV)

Question Number : 150 Question Id : 27028216483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Allowed Progression : Yes Number of Replay : 999 Play On Load : No Control Enable : Yes Time interval to replay(In Seconds) : 0 Allow Volume Control : No

Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not true in case of nuclear forces?

Options :

1. ✖ velocity dependent

2. ✔ spin independent

3. ✖ charge independent

4. ✖ short range