

Question Paper Preview

Notations :

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

Question Paper Name :	CHEMICAL SCIENCES 24th Dec 2025 Shift 1
Subject Name :	CHEMICAL SCIENCES
Creation Date :	2025-12-24 14:34:40
Duration :	180
Total Marks :	300
Display Marks:	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Group 1

Group Number :	1
Group Id :	898741182
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300

Paper I

Section Id :	898741363
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	42
Number of Questions to be attempted :	42
Section Marks :	100

Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 8987411124
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 89874127550 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The primary purpose of MOOCs (Massive Open Online Courses) is to:
మూక్స్ ప్రాథమిక ఉద్దేశము

Options :

898741108601. ✖ Exclusively offer courses in a physical classroom setting.
భౌతిక తరగతి గదిలో కోర్సులను ఆఫర్ చేయుట
898741108602. ✔ Provide free, high-quality education to a large number of learners worldwide.
ప్రపంచవ్యాప్తంగా పెద్దసంఖ్యలో అభ్యాసకులకు ఉచిత, ఉన్నత, నాణ్యత విద్య అందించుట
898741108603. ✖ Serve as a replacement for traditional university degrees.
సాంప్రదాయక విశ్వ విద్యాలయాల డిగ్రీలకు, ప్రత్యామ్నాయంగా పనిచేయుటం
898741108604. ✖ Focus on a limited number of specialized subjects.
పరిమిత ప్రత్యేక విషయాలపై దృష్టి సారించుట

Question Number : 2 Question Id : 89874127551 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A teacher designs a lesson plan that encourages students to use their prior knowledge and personal experiences to learn a new concept. This approach is aligned with which level of teaching?

విద్యార్థులు తమ పూర్వజ్ఞానాన్ని వ్యక్తిగత అనుభవాలను ఉపయోగించి కొత్త భావనను అభ్యసించుటను ప్రోత్సహించుటకై, ఉపాధ్యాయుడు ఒక పాఠ్య ప్రణాళిక నమూనా తయారు చేయును. ఏ బోధనా స్థాయితో ఈ దృక్పథము సమలేఖనం చేయబడింది?

Options :

Memory Level

జ్ఞాపకశక్తి స్థాయి

898741108605. ✖

Understanding Level

అర్థం చేసుకొనే స్థాయి

898741108606. ✖

Reflective Level

ప్రతిబింబ స్థాయి

898741108607. ✔

Rote Level

కంఠస్థ స్థాయి

898741108608. ✖

Question Number : 3 Question Id : 89874127552 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A teacher uses a variety of charts, diagrams, and models to explain complex concepts.
This is an example of which type of teaching support system?

సంక్లిష్ట భావనలను వివరించుటకు, ఉపాధ్యాయుడు అనేక రకాల చార్టులను, రేఖా చిత్రాలను,
నమూనాలను ఉపయోగిస్తాడు. ఈ బోధనా మద్దతు పద్ధతి ఏ రకానికి ఉదాహరణ.

Options :

ICT-based
ఐసిటి ఆధారిత

898741108609. ✖

Modern
నవీన

898741108610. ✖

Traditional
సాంప్రదాయ

898741108611. ✔

Online
ఆన్‌లైన్

898741108612. ✖

Question Number : 4 Question Id : 89874127553 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following best describes the characteristics of a **cognitive** learner?

ఈ దిగువ వానిలోఏది అభిజ్ఞా అభ్యాసకుని లక్షణాలను చక్కగా వివరించును.

Options :

They prefer to learn through physical activity.

వారు భౌతిక కార్యకలాపాల ద్వారా నేర్చుకొనుటకు ఇష్టపడతారు

898741108613. ✖

They are primarily focused on social interactions.

వారు సామాజిక పరస్పర చర్యలపై ప్రాథమికంగా దృష్టి సారిస్తారు

898741108614. ✖

They are interested in how information is processed and how concepts are mentally organized.

వారు సమాచారము ఎలా ప్రాసెస్ చేయబడినదీ, ఎలా భావనలను మానసికంగా వ్యవస్థీకృతం చేశారు. అను వానిపై ఆసక్తి చూపుతారు.

898741108615. ✔

They are motivated by emotional connections with their teacher.

వారు, వారి ఉపాధ్యాయుల భావోద్వేగ సంబంధాలచే ప్రేరేపించబడతారు.

898741108616. ✖

Question Number : 5 Question Id : 89874127554 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the main purpose of a **Placement Evaluation** in education?

విద్యలో ఉద్యోగ నియామక మూల్యాంకనం ఏవిధంగా ఉపయోగపడుతుంది?

Options :

To assess student learning at the end of a course.

కోర్సు ముగింపులో విద్యార్థి అభ్యాసమును అంచనా వేయడానికి

898741108617. ✖

To identify a student's prior knowledge and skills before beginning a course.

ఒక కోర్సు ప్రారంభించక ముందు విద్యార్థి యొక్క మునుపటి జ్ఞానం మరియు

నైపుణ్యాలను గుర్తించడానికి.

898741108618. ✔

To provide ongoing feedback during a course.

కోర్సు కొనసాగుతున్న సమయంలో నిరంతర ప్రతిస్పందన అందించడానికి

898741108619. ✖

To help students choose a career path.

విద్యార్థులు జీవనోపాధి బాట ఎంచుకొనుటలో సహకరించుట

898741108620. ✖

Question Number : 6 Question Id : 89874127555 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is a key characteristic of the **Experimental** research method?

ప్రయోగాత్మక పరిశోధనా పద్ధతికి ముఖ్య లక్షణం ఈ క్రింది దానిలో ఏది?

Options :

It observes and describes a phenomenon in its natural setting.

ఇది ఒక ఘటనను దాని సహజ పరిసరాల్లో పరిశీలించి వివరిస్తుంది.

898741108621. ✖

It manipulates one or more variables to determine a cause-and-effect relationship.

కారణము, ప్రభావము సంబంధమును నిర్ణయించుటకు ఒకటి లేదా ఎక్కువ

చలాంశములను ప్రేరేపిస్తుంది.

898741108622. ✔

It relies on qualitative data from interviews and case studies.

మౌఖిక పరీక్షల ద్వారాను, కేసు అధ్యయనాల నుండి గుణాత్మక దత్తాంశముపై

ఆధారపడుతుంది.

898741108623. ✖

It explores past events to understand present conditions.

ప్రస్తుత పరిస్థితులను అర్థం చేసుకొనుటకు గత సంఘటనలను అన్వేషిస్తుంది.

898741108624. ✖

Question Number : 7 Question Id : 89874127556 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the context of research, what does the term **referencing** mean?

పరిశోధనా సందర్భంలో సూచీకరణ అనగానేమి?

Options :

Conducting interviews with experts.

నిపుణులచే మౌఖిక పరీక్షలు జరుపుట

898741108625. ✖

Listing all the books and articles the researcher has read.

పరిశోధకుడు చదివిన అన్ని పుస్తకాలు, వ్యాసాల జాబితా తయారుచేయుట

898741108626. ✖

Acknowledging the sources of information used in the research paper.

పరిశోధనా పత్రములో ఉపయోగించిన సమాచారపు మూలాలను గుర్తించుట

898741108627. ✔

Asking for feedback from other researchers.

ఇతర పరిశోధకుల నుండి ప్రతి స్పందన సేకరణ చేయుట

898741108628. ✖

Question Number : 8 Question Id : 89874127557 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A researcher wants to understand the meaning that people attach to a particular social event. Which type of research approach is most suitable for this study?

ఒక సామాజిక సంఘటనకు ప్రజలు జతచేయు అర్థమును ఒక పరిశోధకుడు తెలుసుకోవాలను కుంటున్నాడు. ఈ అధ్యయనమునకు ఏ పరిశోధనా దృక్పథము తగినది?

Options :

Positivism

సానుకూలవాద సిద్ధాంతం

898741108629. ✖

Experimental

ప్రయోగాత్మక

898741108630. ✖

Quantitative

పరిమాణాత్మక

898741108631. ✖

Post-positivistic

పోస్ట్ -సానుకూల వాదం

898741108632. ✔

Question Number : 9 Question Id : 89874127558 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the primary role of a **literature review** in research?
పరిశోధనలో సాహిత్య సమీక్ష ప్రాథమిక పాత్ర ఏమి?

Options :

To provide a summary of the researcher's personal opinion.
పరిశోధకుని వ్యక్తిగత అభిప్రాయ ప్రసారాంశమును ఇచ్చుట

898741108633. ✖

To prove that the research has not been done before.
ఇంతకు ముందు ఆ పరిశోధన జరగలేదని నిరూపించుట

898741108634. ✖

To understand the current state of knowledge and identify gaps in existing research.
ప్రస్తుత జ్ఞాన స్థితిని అర్థం చేసుకొని ప్రస్తుత పరిశోధనలో అంతరాలను గుర్తించుట

898741108635. ✔

To list all the books available in a library.
గ్రంథాలయంలో ఉన్న అన్ని పుస్తకాల జాబితా చేయుట

898741108636. ✖

Question Number : 10 Question Id : 89874127559 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the context of research ethics, what is **informed consent**?
పరిశోధనా నైతికాల సందర్భములో తెలియపరచిన సమ్మతి అనగానేమి?

Options :

A document that allows a researcher to use a participant's personal data without permission.
పాల్గొను వ్యక్తి యొక్క వ్యక్తిగత దత్తాంశము అతని అనుమతి లేకుండా పరిశోధకుడు వాడుకొను పత్రము

898741108637. ✖

An agreement where a participant is fully informed about the research and agrees to participate voluntarily.
పరిశోధన గురించి పూర్తిగా తెలియజేసిన తర్వాత, స్వచ్ఛందంగా పాల్గొనడానికి ఇచ్చే అంగీకారం.

898741108638. ✔

A formal letter from a university approving the research.
పరిశోధనను అంగీకరిస్తూ విశ్వ విద్యాలయము ఇచ్చే అధికారిక లేఖ

898741108639. ✖

A form that proves the researcher has received funding for their project.
పరిశోధకుడు తమ ప్రాజెక్ట్ కు ఆర్థిక మద్దతు పొందినట్లు ధృవీకరించే పత్రం

898741108640. ✖

Sub-Section Number :

2

Sub-Section Id :

8987411125

Question Shuffling Allowed :

No

Question Id : 89874127560 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Question Numbers : (11 to 15)

Question Label : Comprehension

Read the following passage and answer the question that follow (11-15)

There is a pleasure in painting which none but painters know.' In writing, you have to contend with the world; in painting, you have only to carry on a friendly strife with Nature. You sit down to your task, and are happy. From the moment that you take up the pencil, and look Nature in the face, you are at peace with your own heart. No angry passions rise to disturb the silent progress of the work, to shake the hand, or dim the brow: no irritable humours are set afloat: you have no absurd opinions to combat, no point to strain, no adversary to crush, no fool to annoy—you are actuated by fear or favour to no man. There is 'no juggling here,' no sophistry, no intrigue, no tampering with the evidence, no attempt to make black white or white black: but you resign yourself into the hands of a greater power, that of Nature, with the simplicity of a child, and the devotion of an enthusiast--'study with joy her manner, and with rapture taste her style.' The mind is calm, and full at the same time. The hand and eye are equally employed. In tracing the commonest object, a plant or the stump of a tree, you learn something every moment. You perceive unexpected differences, and discover likenesses where you looked for no such thing. You try to set down what you see--find out your error, and correct it. You need not play tricks, or purposely mistake: with all your pains, you are still far short of the mark. Patience grows out of the endless pursuit, and turns it into a luxury.

ఈ క్రింది భాగాన్ని చదివి, తరువాతి ప్రశ్నలకు సమాధానం ఇవ్వండి(11-15)

చిత్రకారులకే తెలిసిన ఒక ప్రత్యేకమైన ఆనందం ఉంటుంది. వ్రాయడం అనే పనిలో రచయిత ప్రపంచంతో పోరాడవలసి వస్తుంది. కానీ చిత్రకళ లో మాత్రం ప్రకృతితో స్నేహపూర్వక పోరాటమే ఉంటుంది. వారు తమ పనిలో నిమగ్నమయ్యే క్షణం నుంచే ఆనందం మొదలవుతుంది. పెన్సిల్ చేతిలోకి తీసుకుని, ప్రకృతిని ప్రత్యక్షంగా చూడగానే వారి హృదయం పూర్తిగా ప్రశాంతమవుతుంది. పని మౌనంగా, సహజంగా ముందుకు సాగుతుంది, చేతి కంపనం లేదు, కనుబొమ్మ మసకబడదు, కోపం, చికాకు, మాయ, వంచన ఏ వీకలగవు. తర్కాల కోసం పోరాటం లేదు, ఒత్తిడి పెట్టాల్సిన అంశాలు లేవు, జయించాల్సిన ప్రత్యర్థి లేదు, బాధించే మూర్ఖుడు లేదు, వారి సృజనను ఎవరి భయం గానీ, ప్రీతి గానీ ప్రభావితం చేయలేవు, ఇక్కడ మోసపూరిత నాటకాలు, వ్యూహాలు, సాక్ష్యాల మార్పులు, నల్లను తెల్లగా తెల్లను నల్లగా చేయాలనే ప్రయత్నాలు ఉండవు. వారు తమను ప్రకృతి గొప్ప శక్తి చేతుల్లో సమర్పించుకుంటారు. బాలుడిలా, భక్తితో కూడిన ప్రేమికుడిలా వారు ప్రకృతిని అధ్యయనం చేస్తారు: అప్పుడు మనసు శాంతిగా, అదే సమయంలో సంపూర్ణంగా ఉంటుంది. చేయి, కన్ను రెండు సమానంగా నిమగ్నమవుతాయి. సాధారణమైన వస్తువునుగానీ ఒక మొక్కను, చెట్టు కాండాన్ని గీయడంలోనూ ప్రతి క్షణం అనుభవం, కొత్త దార్శనికత లభిస్తుంది. అనుకోని భిన్నతలను గమనిస్తారు, పొరపాట్లను సరిదిద్దుతారు. ఉపాయాలు అవసరం లేదు, కావాలనే తప్పులు చేసే అవసరం లేదు, ఎంత ప్రయత్నించినా, లక్ష్యం ఇంకా దూరంగానే ఉంటుంది. కానీ అదే నిరంతర సాధనలో సహనం వుడుతుంది. ఆ సహనమే చివరికి ఒక విలాసంగా మారుతుంది.

Sub questions

Question Number : 11 Question Id : 89874127561 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Options :

it is an interaction with nature

చిత్రకళ ప్రకృతితో స్నేహపూర్వక పరస్పర సంబంధంను కలిగి వుంటుంది

898741108641. ✓

it is lucrative

చిత్రకళ లాభదాయకం

898741108642. ✗

it is inspiring

చిత్రకళ ప్రేరణ కలిగించును

898741108643. ✗

it is less laborious

చిత్రకళ తక్కువ శ్రమతో కూడుకున్నది

898741108644. ✗

Question Number : 12 Question Id : 89874127562 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What does the author refer to in the phrase, “the silent progress of the work”?

“పని యొక్క నిశ్శబ్ద పురోగతి” అనే పదబంధంలో రచయిత ఏమి సూచిస్తారు?

Options :

observing nature

ప్రకృతిని గమనించడం

898741108645. ✗

feeling secluded

ఏకాంత భావన

898741108646. ✗

tranquillity in nature

ప్రకృతిలో ప్రశాంతత

898741108647. ✗

painting nature

ప్రకృతిని చిత్రీకరించుట

898741108648. ✓

Question Number : 13 Question Id : 89874127563 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which phrase in the above passage means- “not trying to destroy truth or reality”?

“సత్యాన్ని లేదా వాస్తవాన్ని నాశనం చేయాలని ప్రయత్నించకపోవడం” అనే అర్థం వచ్చే పదబంధం ఏది?

Options :

no irritable humours are set afloat
చికాకు కలిగించే భావాలు లేవు
898741108649. ✖

no attempt to make black white, or white black
నలుపును తెల్లగా, లేదా తెలుపును నలుపుగా మార్చే ప్రయత్నం లేదు
898741108650. ✔

no adversary to crush
అణిచివేసేందుకు ప్రత్యర్థి లేదు
898741108651. ✖

no fool to annoy
బాధించే మూర్ఖుడు లేదు
898741108652. ✖

Question Number : 14 Question Id : 89874127564 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What does the author mean by the phrase- “The mind is calm, and full at the same time”?

“మనసు శాంతిగా, అదే సమయంలో సంపూర్ణంగా ఉంటుంది” అనే పదబంధానికి రచయిత అర్థం ఏమిటి?

Options :

The mind is wavering and uncertain
మనస్సు ఆందోళనతో మరియు అనిశ్చిత భావంలో ఉంది
898741108653. ✖

The mind is empty and without thought
మనసు ఖాళీగా మరియు ఆలోచనలేమి లేకుండా ఉంది
898741108654. ✖

898741108655. ✓

The mind is disturbed and bored
మనసు కలవరపడి మరియు విసుగు చెందింది.

898741108656. ✖

Question Number : 15 Question Id : 89874127565 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The author learned that perpetual _____ leads to perseverance.
రచయిత తెలుసుకున్నది ఏమిటంటే, నిరంతర _____ సహనాన్ని పెంపొందిస్తుంది

Options :

Pain
నొప్పి

898741108657. ✖

Pleasure
ఆనందం

898741108658. ✖

Perception
అవగాహన

898741108659. ✖

Pursuit
ప్రయత్నం

898741108660. ✓

Sub-Section Number :

3

Sub-Section Id :

8987411126

Question Shuffling Allowed :

Yes

Question Number : 16 Question Id : 89874127566 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is called when the receiver confirms with the sender that he has received the message and understood it?

పంపిన వ్యక్తి (sender) పంపిన సందేశాన్ని స్వీకరించిన వ్యక్తి (receiver) అందుకుని, దాన్ని అర్థం చేసుకున్నాన్ననని ధృవీకరించినప్పుడు దాన్ని ఏమంటారు?

Options :

898741108661. ✖
Transfer
చేరవేయుట

898741108662. ✖
Encode
సాంకేతికరణ

898741108663. ✔
Feedback
ప్రతిస్పందన

898741108664. ✖
Transmission
ప్రసారం

Question Number : 17 Question Id : 89874127567 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a conversation, if a person has crossed his arms, he is showing his_____.

ఒక సంభాషణలో వ్యక్తి తన చేతులను మోకళ్ళపై లేదా ఛాతీపై మడిచిపెట్టుకుని (crossed his arms) ఉంటే, అతను తన_____ను చూపిస్తున్నాడు.

Options :

Excitement

ఉత్సాహం

898741108665. ✖

Nervousness

భయాందోళన

898741108666. ✔

Happiness

సంతోషం

898741108667. ✖

Openness

అసక్తి

898741108668. ✖

Question Number : 18 Question Id : 89874127568 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In an inter-cultural communication, being _____ leads to smooth flow of communication :

పరస్పర సంస్కృతుల మధ్య సందేశములో, ఈ దిగువ సందర్భములో మృదువైన సందేశ ప్రవాహమునకు
దారి తీయును.

Options :

898741108669. ✓ open-minded
నిష్పక్షపాతం

898741108670. ✗ biased
పక్షపాతం

898741108671. ✗ unwilling
అయిష్టత

898741108672. ✗ Prejudiced
ముందస్తు అభిప్రాయంతో

Question Number : 19 Question Id : 89874127569 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

If a sender uses excessive technical knowledge and ignores in his communication on that the receiver is unable to understand, it creates a ____ barrier in communication.

పంపువాడు తన సందేశములో ఎక్కువ సాంకేతిక విజ్ఞానము, పరిభాష ఉపయోగించినపుడు, తీసుకున్నవాడు అర్థం చేసుకోలేకపోతే దాని ఈ దిగువ సందేశము అడ్డంకి అందురు.

Options :

Physical
భౌతిక

898741108673. ✖

Emotional
ఆవేశ

898741108674. ✖

Psychological
మానసిక

898741108675. ✖

Semantic
సిమాంటిక్

898741108676. ✔

Television is an example of
టెలివిజను దీనికి ఉదాహరణ

Options :

Traditional
సంప్రదాయ

898741108677. ✖

Electronic
ఎలక్ట్రానిక్

898741108678. ✔

Social
సాంఘిక

898741108679. ✖

mass
సామూహిక

898741108680. ✖

Question Number : 21 Question Id : 89874127571 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a running race of 750 meters, Qureshi starts 25m ahead of Pramod but Pramod wins the race while Qureshi is still 25m behind. Then the ratio of speeds of Pramod to Qureshi, given that both start at the same time, is

750 మీటర్ల ఒక పరుగు పందెంలో, ప్రమోద్ కన్న ఖుర్రేషీ 25 మీటర్లు ముందుకెళ్ళాక పరుగు పందెం ప్రారంభించినప్పటికీ ఖుర్రేషీని 25 మీటర్లు వెనుకంజ వేయగా ప్రమోద్ గెలిచాడు. ఇద్దరూ ఒకేసారి పరుగుప్రారంభించినచో ప్రమోద్, ఖుర్రేషీల వేగాల నిష్పత్తి

Options :

898741108681. ✖ 15 : 14

898741108682. ✖ 28 : 27

898741108683. ✖ 29 : 28

898741108684. ✔ 30 : 29

Question Number : 22 Question Id : 89874127572 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A water tank is filled by two pipes in 20 hours. One of the pipes fills it alone 30 hours faster than the other. Then the slower pipe fills it in how many hours?

ఒక నీటి తొట్టి రెండు గొట్టాల ద్వారా 20 నిమిషాలలో నింపబడినది. వాటిలో ఒక గొట్టం ఒక్కడే దానిని మరోగొట్టం కన్న 30 గంటలు వేగంగా నింపగలదు. అప్పుడు నెమ్మదిగా నింపే గొట్టం ఒక్కడే ఆ తొట్టిని ఎన్ని గంటలలో నింపగలదు?

Options :

898741108685. ✖ 50

898741108686. ✔ 60

898741108687. ✖ 70

898741108688. ✖ 65

Question Number : 23 Question Id : 89874127573 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Four persons A,B,C and D are related to each other as follows:

A is the son of B,

B is the daughter of C, and

C is the father of D. Then which of the following statements is true?

నలుగురు వ్యక్తులైన A,B,C మరియు Dల మధ్య బంధుత్వం క్రింది విధంగా ఉంది:

B యొక్క కుమారుడు A,

C యొక్క కుమార్తె B, మరియు

D యొక్క తండ్రి C. అప్పుడు క్రింది ప్రవచనాలలో ఏది నిజం?

Options :

898741108689. ✓
C is the grand father of A
A యొక్క తాత C

898741108690. ✗
A is the son of D
D యొక్క కుమారుడు A

898741108691. ✗
B,D are sisters
B,Dలు సోదరీమణులు

898741108692. ✗
D is the son of C
C యొక్క కుమారుడు D

Question Number : 24 Question Id : 89874127574 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A number when increased by some percent equals 4000 and when decreased by same percent yields 3600. Then the number is

ఒక సంఖ్యను కొంత శాతం పెంచగా 4000కు సమానం అయింది మరియు అంతే శాతం తగ్గించగా అది 3600 అయింది. అప్పుడు ఆ సంఖ్య

Options :

898741108693. ✖ 3200

898741108694. ✖ 3500

898741108695. ✖ 3600

898741108696. ✔ 3800

Question Number : 25 Question Id : 89874127575 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Find the missing term in the following.
C A K E : N H P H :: K I N G : _____

క్రింది వానిలో లుప్తపదం కనుక్కోండి.
C A K E : N H P H :: K I N G : _____

Options :

898741108697. ✖ UORI

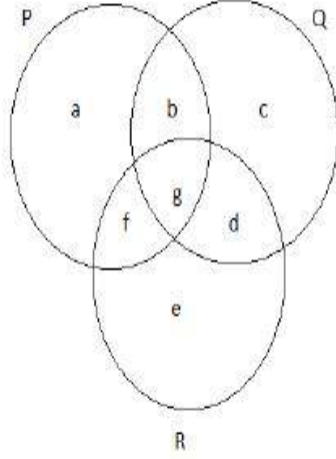
898741108698. ✖ VPTI

898741108699. ✖ VPSK

898741108700. ✔ VPSJ

In the following venn diagram, three circles represent the three elective subjects P,Q and R to be opted by the students in a course. The lower case letters in different regions of P,Q and R represent the number of students who opted for those subjects in different combinations, and they satisfy the relation $a > b > c > g > f > d > e > 5$.

ఒక కోర్సులో విద్యార్థులు ఎంచుకోవలసిన మూడు ఐచ్ఛిక విషయాలైన P,Q మరియు Rలను క్రింది వెన్ చిత్రంలోని మూడు వృత్తాలు సూచిస్తాయి. P,Q మరియు Rలలోని విభిన్న ప్రాంతాలు సూచించే అయా విషయాలకలయికలతో ఎంచుకున్న విద్యార్థుల సంఖ్యలను చిన్న అక్షరాలు సూచిస్తాయి మరియు అవి $a > b > c > g > f > d > e > 5$ సంబంధాన్ని తృప్తిపరుస్తాయి.



The number of students who opted for P and also for R but not Q is the arithmetic mean of the number of students who opted for P and also for Q but not R; and the number of students who opted for Q and also for R but not P. If $f=10$ and $a=15$, then the sum of the number of students who opted for P alone, Q alone, R alone is

P మరియు R లను ఎంచుకుంటూ Qను ఎంచుకోని విద్యార్థుల సంఖ్య అనేది P మరియు Q లను ఎంచుకుంటూ R ను ఎంచుకోని విద్యార్థుల సంఖ్య మరియు Q మరియు R లను ఎంచుకుంటూ P ను ఎంచుకోని విద్యార్థుల సంఖ్యల సగటుకు సమానం. $f=10$ మరియు $a=15$ అయినప్పుడు P మాత్రమే, Q మాత్రమే మరియు R మాత్రమే ఎంచుకున్న విద్యార్థుల సంఖ్యల మొత్తం..

Options :

898741108701. ✓ 33

898741108702. ✗ 36

898741108703.

898741108704. ✖

30

Question Number : 27 Question Id : 89874127577 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Select the suitable entry from the given options that fills the blank space in the following analogy

“EOPSOLIXN: EXPLOSION: : HEARTBEAT: -----

క్రింది సారూప్యతలోని ఖాళీని ఇచ్చిన ఐచ్ఛికాల నుండి సరైన దానితో పూరించండి.

“EOPSOLIXN: EXPLOSION: :HEARTBEAT: -----

Options :

HEERTBAAT

898741108705. ✖

HAERTBAET

898741108706. ✖

HAABTREEET

898741108707. ✔

HAABRTEET

898741108708. ✖

Question Number : 28 Question Id : 89874127578 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In argumentation, what is the primary effect of using emotive language?

వాదనలో భావోద్వేగ భాషను వాడటం వల్ల కలిగే ప్రాథమిక ప్రభావం ఏది?

Options :

898741108709. ✖ Increases logical validity
తార్కిక ప్రామాణికత పెరుగుతుంది

898741108710. ✖ Appeals to factual accuracy
వాస్తవ ఖచ్చితత్వానికి దారి తీస్తుంది

898741108711. ✔ Influences audience's feelings
ప్రేక్షకుల మనోభావాలను ప్రభావితం చేస్తుంది

898741108712. ✖ Clarifies ambiguous terms
సంశయాత్మకమైన పదాలను స్పష్టంగా వివరిస్తుంది

Question Number : 29 Question Id : 89874127579 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which pair of categorical statements cannot both be true but can both be false?

రెండూ నిజం కాకుండా ఆ రెండూ అసత్యం కాగలిగేట్లు ఉండే వర్గీకృత ప్రవచనాల యుగ్మం ఏది?

Options :

Universal affirmative and particular negative
సార్వత్రిక అన్వయం మరియు ప్రత్యేక నిరాకరణ

898741108713. ✖

Universal negative and particular affirmative
సార్వత్రిక నిరాకరణ మరియు ప్రత్యేక అన్వయం

898741108714. ✖

Universal affirmative and universal negative
సార్వత్రిక అన్వయం మరియు సార్వత్రిక నిరాకరణ

898741108715. ✔

Particular affirmative and particular negative
ప్రత్యేక అన్వయం మరియు ప్రత్యేక నిరాకరణ

898741108716. ✖

Question Number : 30 Question Id : 89874127580 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following cannot be established solely by 'Pratyaksha' and necessarily requires another Pramana?

క్రింది వాటిలో తప్పని సరిగా మరొక 'ప్రమాణ' అవసరమై 'ప్రత్యక్ష'తో మాత్రమే రుజువు చేయ
లేనిది ఏది?

Options :

898741108717. ✖ Existence of sweetness in sugar
చక్కెరలోని తీయదనం

898741108718. ✖ Presence of fire in front of the eyes
నీ కళ్ళముందే అగ్ని ఉండటం

898741108719. ✔ Absence of water in a dry pot
పొడికుండలో నీళ్ళు లేకపోవడం

898741108720. ✖ Blue colour of a flower
ఒక పువ్వు యొక్క నీలి రంగు

Sub-Section Number :

4

Sub-Section Id :

8987411127

Question Shuffling Allowed :

No

Question Id : 89874127581 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

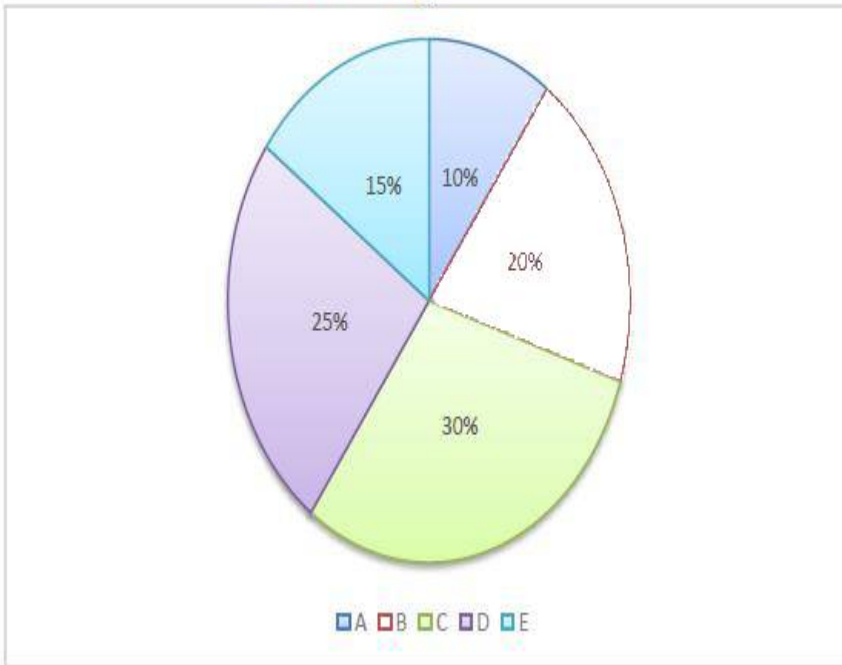
Question Numbers : (31 to 35)

Question Label : Comprehension

Answer the question from 31 to 35 based on the following information. The Pie chart below shows the sales of five different articles, A,B,C,D and E, totaling 2,000 units. The cost price of each unit of the article is Rs.200, Rs.100, Rs.300, Rs.500, and Rs.400, respectively. By selling all 2,000 articles, a profit of 10%, 20% and 30% is achieved on articles. A, B and C, whereas for articles D and E, there is a loss of 25% and 15% respectively.

క్రింది పటం ఆధారంగా 31 నుండి 35 వరకు గల ప్రశ్నలకు జవాబులివ్వండి. ఈ డేటా యొక్క స్వభావం క్రింది వాటిలో ఏదై ఉంటుంది? 2000 యూనిట్ల ఐదు విభిన్న రకాలైన A,B,C,D మరియు E అనే వస్తువుల అమ్మకాలను క్రింది పై చిత్రం చూపుతుంది. వీటి యొక్క ఒక్కో యూనిట్ కొన్న ధరలు వరుసగా రూ.200, రూ.100, రూ.300, రూ.500 మరియు రూ.400. అన్ని 2000 యూనిట్లను అమ్మగా A,B మరియు Cల పై వరుసగా 10%, 20% మరియు 30% లాభాలను పొందగా D మరియు Eలపై వరుసగా 25% మరియు 15% నష్టాలను పొందిరి.

Sale of Articles
వస్తువుల అమ్మకాలు



Sub questions

Question Number : 31 Question Id : 89874127582 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The total loss (in rupees) incurred by selling the articles D and E is

D మరియు E వస్తువుల అమ్మకంలో నష్టపోయిన మొత్తం (రూపాయలలో)

Options :

898741108721. ✖ 78500

898741108722. ✔ 79500

898741108723. ✖ 80000

898741108724. ✖ 81000

Question Number : 32 Question Id : 89874127583 Question Type : MCQ Option Shuffling : No

Correct Marks : 2 Wrong Marks : 0

The total profit (in rupees) earned by selling the articles A and B is

A మరియు B వస్తువుల అమ్మకం లభించిన మొత్తం లాభం (రూపాయలలో)

Options :

898741108725. ✖ 10000

898741108726. ✖ 8000

898741108727. ✔ 12000

898741108728. ✖ 11200

Question Number : 33 Question Id : 89874127584 Question Type : MCQ Option Shuffling : No

Correct Marks : 2 Wrong Marks : 0

What is the absolute difference between the total selling prices of articles A and C?

A మరియు C వస్తువుల మొత్తం అమ్మకాల పరమ భేదం

Options :

898741108729. ✖
Rs.1,10,000
రూ. 1,10,000

898741108730. ✖
Rs.2,15,000
రూ. 2,15,000

898741108731. ✖
Rs.1,12,000
రూ. 1,12,000

898741108732. ✔
Rs.1,90,000
రూ. 1,90,000

Question Number : 34 Question Id : 89874127585 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the net profit or loss earned by selling the articles B and D?

B మరియు D వస్తువులను అమ్మడంలో పొందిన నికర లాభం లేదా నష్టం

Options :

898741108733. ✖
Rs. 29,500 profit
రూ.29,500 లాభం

898741108734. ✔
Rs.29,500 loss
రూ. 29,500 నష్టం

898741108735. ✖
Rs.11,000 loss
రూ. 11,000, నష్టం

898741108736.

Question Number : 35 Question Id : 89874127586 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The difference in the loss incurred by selling D and E and the profit incurred by selling A,B and C is

D మరియు E లను అమ్మడంలో పొందిన నష్టం A,B మరియు C లను అమ్మడంలో పొందిన లాభాల భేదం

Options :

Rs.23,500
రూ. 23,500

898741108737. ✖

Rs.13,500
రూ. 13,500

898741108738. ✔

Rs.43,000
రూ. 43,000

898741108739. ✖

Rs.33,000
రూ. 33,000

898741108740. ✖

Sub-Section Number : 5
Sub-Section Id : 8987411128
Question Shuffling Allowed : Yes

Question Number : 36 Question Id : 89874127587 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following best describes a LAN?

క్రింది వాటిలో LANని బాగా వివరించేది ఏది ?

Options :

A network connecting cities or countries

898741108741. ✖ నగరాలు లేదా దేశాలను అనుసంధానించే నెట్‌వర్క్

A network within a small area like an office or school
కార్యాలయం లేదా పాఠశాల వంటి చిన్న ప్రాంతంలోని నెట్‌వర్క్

898741108742. ✔

A network designed for transferring large files
పెద్ద ఫైల్‌లను బదిలీ చేయడానికి రూపొందించబడిన నెట్‌వర్క్

898741108743. ✖

A network that uses satellite communication
ఉపగ్రహ కమ్యూనికేషన్‌ను ఉపయోగించే నెట్‌వర్క్

898741108744. ✖

Question Number : 37 Question Id : 89874127588 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What does FTP stand for?

FTP అంటే ఏమిటి ?

Options :

898741108745. ✖ Folder Text Protocol
ఫోల్డర్ టెక్స్ట్ ప్రోటోకాల్

898741108746. ✖ File Transfer Push
ఫైల్ ట్రాన్స్ఫర్ పుష్

898741108747. ✖ Fixed Terminology Placement
ఫిక్సిడ్ టర్మినాలజీ ప్లేస్మెంట్

898741108748. ✔ File Transfer Protocol
ఫైల్ ట్రాన్స్ఫర్ ప్రోటోకాల్

Question Number : 38 Question Id : 89874127589 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What does a "mute" button on a video conferencing app do?

వీడియో కాన్ఫరెన్సింగ్ యాప్‌లోని “మ్యూట్” బటన్ ఏమి చేస్తుంది ?

Options :

Stops the video feed for all participants
పాల్గొనే వారందరికీ వీడియో ఫీడ్‌ను ఆపివేస్తుంది

898741108749. ✖

Turns off the user's microphone so others cannot hear them
ఇతరులు వినలేని విధంగా వినియోగదారు మైక్రోఫోన్‌ను ఆపివేస్తుంది

898741108750. ✔

Disconnects the user from the call
వినియోగదారుని కాల్ నుండి డిస్‌కనెక్ట్ చేస్తుంది

898741108751. ✖

Mutes the entire call for everyone
మొత్తం అందరి కాల్ ధ్వని నిలిపివేస్తుంది.

898741108752. ✖

Question Number : 39 Question Id : 89874127590 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the primary purpose of the SWAYAM PRABHA initiative?

స్వయం ప్రభ (SWAYAM PRABHA) చొరవ యొక్క ప్రాథమిక ఉద్దేశ్యం ఏమిటి ?

Options :

To provide access to digital libraries
డిజిటల్ లైబ్రరీలకు ప్రాప్యతను అందించడం

898741108753. ✖

To offer Massive Open Online Courses
భారీ ఓపెన్ ఆన్లైన్ కోర్సులను అందించడం

898741108754. ✖

To broadcast educational programs via DTH channels
డిటిహెచ్ ఛానెల్ ద్వారా విద్యా కార్యక్రమాలను ప్రసారం చేయడం

898741108755. ✔

To connect researchers and faculty
పరిశోధకులు మరియు అధ్యాపకులను అనుసంధానించడం

898741108756. ✖

Question Number : 40 Question Id : 89874127591 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

e-PG Pathshala is an initiative for:

e-PG పాఠశాల అనేది వీటి కోసం ఒక చొరవ:

Options :

School education
పాఠశాల విద్య

898741108757. ✖

Postgraduate education
పోస్ట్ గ్రాడ్యుయేట్ విద్య

898741108758. ✔

Vocational training
వృత్తి శిక్షణ

898741108759. ✖

Teacher training
ఉపాధ్యాయ శిక్షణ

898741108760. ✖

Question Number : 41 Question Id : 89874127592 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

When did the phrase “Sustainable Development” first appear?

“ సుస్థిర అభివృద్ధి” అనే పదబంధం మొదట ఎప్పుడు కనిపించింది?

Options :

1987

898741108761. ✖

1980

898741108762. ✔

1978

898741108763. ✖

1992

898741108764. ✖

Question Number : 42 Question Id : 89874127593 Question Type : MCQ Option Shuffling : No

Correct Marks : 2 Wrong Marks : 0

What does the term "anthropogenic" refer to in the context of human-environment interaction?

మానవ-పర్యావరణ పరస్పర చర్య సందర్భంలో “మనవజన్య” అనే పదం దేనిని సూచిస్తుంది?

Options :

Natural environmental changes caused by human activity
మానవ కార్యకలాపాల వల్ల కలిగే సహజ పర్యావరణ మార్పులు

898741108765. ✖

Environmental damage caused by natural forces
సహజ శక్తుల వల్ల కలిగే పర్యావరణ నష్టం

898741108766. ✖

Environmental changes or activities that are caused by human actions.
పర్యావరణ మార్పులు లేదా మానవ చర్యల వల్ల కలిగే కార్యకలాపాలు

898741108767. ✔

The process of humans adapting to natural changes in the environment.
పర్యావరణంలో సహజ మార్పులకు మానవులు అనుగుణంగా మారే ప్రక్రియ

898741108768. ✖

Question Number : 43 Question Id : 89874127594 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which international agreement was the primary agenda to control anthropogenic sources of greenhouse gases and mitigate climate change?

గ్రీన్ హౌస్ వాయువుల మానవ జన్యవనరులను నియంత్రించడానికి మరియు వాతావరణ మార్పులను తగ్గించడానికి ఏ అంతర్జాతీయ ఒప్పందం ప్రాథమిక ఎజెండాగా ఉంది ?

Options :

The Kyoto Protocol
క్యోటో ప్రోటోకాల్

898741108769. ✓

The Montreal Protocol
మాంట్రీయల్ ప్రోటోకాల్

898741108770. ✗

The Paris Agreement
పారిస్ ఒప్పందం

898741108771. ✗

The Basel Convention
బాసెల్ కన్వెన్షన్

898741108772. ✗

Question Number : 44 Question Id : 89874127595 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Nuclear energy is classified as a non-renewable resource because:

అణుశక్తిని పునరుత్పాదక వనరుగా వర్గీకరించారు ఎందుకంటే:

Options :

It is derived from a star

ఇది ఒక నక్షత్రం నుండి ఉద్భవించింది

898741108773. ✖

It relies on the finite supply of nuclear fuel (like uranium)

ఇది పరిమిత అణు ఇంధన సరఫరాపై ఆధారపడి ఉంటుంది(యురేనియం వంటివి)

898741108774. ✔

It is replenished by the sun's energy

ఇది సూర్యుని శక్తి ద్వారా తిరిగి నింపబడుతుంది

898741108775. ✖

It is a form of biological energy

ఇది జీవ శక్తి యొక్క ఒక రూపం

898741108776. ✖

Question Number : 45 Question Id : 89874127596 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Under the Paris Agreement, the climate action plans that countries are required to submit are called?

పారిస్ ఒప్పందం ప్రకారం, దేశాలు సమర్పించాల్సిన వాతావరణ కార్యాచరణ ప్రణాళికలను ఏమంటారు ?

Options :

Nationally Determined Contributions (NDCs)
జాతీయంగా నిర్ణయించబడిన సహకారాలు(NDCలు)

898741108777. ✓

Global Stocktakes (GSTs)
గ్లోబల్ స్టాక్ టేక్స్ (GSTలు)

898741108778. ✗

Climate Change Commitments (CCCs)
వాతావరణ మార్పు నిబద్ధతలు (CCCలు)

898741108779. ✗

Sustainable Development Goals (SDGs)
స్థిరమైన అభివృద్ధి లక్ష్యాలు (SDGలు)

898741108780. ✗

Question Number : 46 Question Id : 89874127597 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The famous Sanskrit grammarian Kautilya, author of the Arthashastra, was a professor at which ancient university?

ప్రసిద్ధ సంస్కృత వ్యాకరణవేత్త, అర్థశాస్త్ర రచయిత కౌటిల్యుడు ఏ పురాతన విశ్వవిద్యాలయంలో
అచార్యునిగా ఉన్నారు ?

Options :

Nalanda
నలంద

898741108781. ✖

Takshashila
తక్ష్శశిల

898741108782. ✔

Mithila
మిథిలా

898741108783. ✖

Vallabhi
వల్లభి

898741108784. ✖

Question Number : 47 Question Id : 89874127598 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What was the primary aim of the University Education Commission (1948-49), also known as the Radhakrishnan Commission?

రాధాకృష్ణన్ కమిషన్ అని కూడా పిలువబడే విశ్వవిద్యాలయ విద్యా కమిషన్ (1948-49) యొక్క ప్రాథమిక లక్ష్యం ఏమిటి ?

Options :

To focus exclusively on primary education reforms.
ప్రాథమిక విద్యా సంస్కరణలపై ప్రత్యేకంగా దృష్టి పెట్టడం

898741108785. ✖

To recommend reforms for the improvement of higher education.
ఉన్నత విద్య మెరుగుదలకు సంస్కరణలను సిఫార్సు చేయడం

898741108786. ✔

To promote vocational training in rural areas.
గ్రామీణ ప్రాంతాల్లో వృత్తి శిక్షణను ప్రోత్సహించడం

898741108787. ✖

To establish technical institutes for large-scale industrialization.
పెద్ద ఎత్తున పారిశ్రామికీకరణ కోసం సాంకేతిక సంస్థలను స్థాపించడం

898741108788. ✖

Question Number : 48 Question Id : 89874127599 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Non-conventional learning programs are designed to:

సాంప్రదాయేతర అభ్యాస కార్యక్రమాలు వీటి కోసం రూపొందించబడ్డాయి:

Options :

Separate the time and space between the learner and the teacher

అభ్యాసకుడికి మరియు ఉపాధ్యాయుడికి మధ్య సమయం మరియు స్థలాన్ని వేరు చేయడం

898741108789. ✓

Exclusively focus on spiritual and philosophical studies.

అధ్యాత్మిక మరియు తాత్విక అధ్యయనాలపై ప్రత్యేకంగా దృష్టి పెట్టడం

898741108790. ✗

Require fixed classroom times and schedules.

నిశ్చిత తరగతి సమయాలు మరియు షెడ్యూల్ ఉండాలి

898741108791. ✗

Promote rote memorization of lessons.

పాఠాలను కంఠస్థం చేయడాన్ని ప్రోత్సహించడం

898741108792. ✗

Which is the correct order of the "3R" principle for waste management?

వ్యర్థాల నిర్వహణకు “3R” సూత్రం యొక్క సరైన క్రమం ఏది ?

Options :

Reuse, Recycle, Reduce
మళ్లీ ఉపయోగం, పునర్వినియోగం, తగ్గింపు

898741108793. ✖

Reduce, Reuse, Recycle
తగ్గింపు, మళ్లీ ఉపయోగం, పునర్వినియోగం

898741108794. ✔

Recycle, Reduce, Reuse
పునర్వినియోగం, తగ్గింపు, మళ్లీ ఉపయోగం

898741108795. ✖

Recycle, Reuse, Reduce
పునర్వినియోగం, మళ్లీ ఉపయోగం, తగ్గింపు

898741108796. ✖

Question Number : 50 Question Id : 89874127601 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a parliamentary system of government, the executive is responsible to the:

పార్లమెంటరీ ప్రభుత్వ వ్యవస్థలో, కార్యనిర్వహక వర్గం వీటికి బాధ్యత వహిస్తుంది:

Options :

Judiciary
న్యాయవ్యవస్థ

898741108797. ✖

Head of State
దేశాధినేత

898741108798. ✖

President
అధ్యక్షుడు

898741108799. ✖

Legislature
శాసనసభ

898741108800. ✔

Paper II

Section Id :	898741364
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	200
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	8987411129
Question Shuffling Allowed :	Yes

Match the following:

List I	List II
Element	Group
a. Flerovium	i. XIII
b. Livermorium	ii. XVII
c. Tennessine	iii. XV
d. Nihonium	iv. XVI
	v. XIV

The correct option is

Options :

898741108801. ✓ a-v, b-iv, c-ii, d-i

898741108802. ✗ a-v, b-ii, c-iv, d-i

898741108803. ✗ a-iii, b-iv, c-i, d-ii

898741108804. ✗ a-iii, b-v, c-iv, d-ii

Question Number : 52 Question Id : 89874127603 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following orders are correct for the property stated against them?

- A) $\text{Zn}^{2+} > \text{Ni}^{2+} > \text{Cu}^{2+}$ ----- Ionic radii
B) $\text{Al} > \text{Si} > \text{P}$ ----- Electron affinity
C) $\text{As}_2\text{O}_5 > \text{BeO} > \text{Rb}_2\text{O}$ ----- Acidic nature

Options :

898741108805. ✖ A, B only

898741108806. ✔ A, C only

898741108807. ✖ B, C only

898741108808. ✖ A, B, C

Question Number : 53 Question Id : 89874127604 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The data given below is the four successive ionization energies of three representative elements A, B, C.

Element	Ionization Energies (kJ/mole)			
	I	II	III	IV
A	738.1	1450	7730	10500
B	577.9	1820	2750	11600
C	495.9	4560	6900	9540

A, B, C respectively are

Options :

898741108809. ✓ Mg, Al, Na

898741108810. ✗ Na, Mg, Al

898741108811. ✗ Al, Mg, Na

898741108812. ✗ Mg, Na, Al

Question Number : 54 Question Id : 89874127605 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The decreasing order of stability of ScN , NaCl and MgO is

Options :

898741108813. ✗ $\text{ScN} > \text{NaCl} > \text{MgO}$

898741108814. ✗ $\text{NaCl} > \text{MgO} > \text{ScN}$

898741108815. ✗ $\text{NaCl} > \text{ScN} > \text{MgO}$

898741108816. ✓ $\text{ScN} > \text{MgO} > \text{NaCl}$

Question Number : 55 Question Id : 89874127606 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Using Lewis representation of the following molecules, BeCl_2 , BrF_3 , TeCl_4 , ClF_3 , and XeF_4 , identify the number of lone pairs on the central atom in each case.

Options :

898741108817. ✖ 2, 1, 0, 1, 2

898741108818. ✖ 1, 1, 2, 1, 2

898741108819. ✔ 0, 1, 1, 2, 2

898741108820. ✖ 3, 2, 1, 2, 3

Question Number : 56 Question Id : 89874127607 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following sets consist of isoelectric species?

A. $(\text{S}_2\text{O}_7)^{2-}$, $(\text{P}_2\text{O}_7)^{4-}$, $(\text{Si}_2\text{O}_7)^{6-}$, Cl_2O_7

B. $(\text{SiO}_4)^{4-}$, $(\text{SO}_4)^{2-}$, $(\text{PO}_4)^{3-}$, $(\text{ClO}_4)^-$

C. $(\text{P}_3\text{O}_9)^{3-}$, $(\text{Si}_3\text{O}_9)^{6-}$, $(\text{SO}_3)_3$, $(\text{PNF}_2)_3$

Options :

898741108821. ✖ A, B only

898741108822. ✖ A only

898741108823. ✖ B, C only

898741108824. ✔ A, B, C

Question Number : 57 Question Id : 89874127608 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not correct?

Options :

898741108825. ✖ Acetic acid behaves as a strong acid in ammonia

898741108826. ✖ The order of strength of halogen acids is $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$

898741108827. ✖ Among K^+ , Ag^+ , Ba^{2+} and Ca^{2+} , Ag^+ is strong Lewis acid

898741108828. ✔ Auto-ionization of liquid SO_2 is due to its dielectric constant

Question Number : 58 Question Id : 89874127609 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the following

List I	List II
a. Al^{3+}	i. Hard base
b. N_2H_4	ii. Soft acid
c. Br^+	iii. Hard acid
d. SCN^-	iv. Soft base

The correct option is

Options :

898741108829. ✖ a-iii, b-iv, c-ii, d-i

898741108830. ✔ a-iii, b-i, c-ii, d-iv

898741108831. ✖ a-ii, b-iv, c-iii, d-i

898741108832. ✖ a-ii, b-iii, c-i, d-iv

Question Number : 59 Question Id : 89874127610 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements are correct?

A) Crystal structure of CaC_2 resembles that of NaCl

B) NaNH_2 adopts a zinc blende structure

C) Silicon crystallize in the graphite structure

The correct option is

Options :

898741108833. ✓ A, B only

898741108834. ✗ B, C only

898741108835. ✗ A, C only

898741108836. ✗ A, B, C

Question Number : 60 Question Id : 89874127611 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Addition of certain amounts of boron and aluminium oxides to the ordinary glass gives

Options :

898741108837. ✓ Pyrex glass

898741108838. ✗ Flint glass

898741108839. ✗ Crown glass

898741108840. ✗ Jena glass

Question Number : 61 Question Id : 89874127612 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following pairs are correctly matched?

Compound	Used in
A. NH_4ClO_4	Rocket fuels
B. GaAs	LEDs that emit red light
C. NO	Aerosol propellant
D. KO_2	Breathing masks

Correct option is

Options :

898741108841. ✖ A, B, C only

898741108842. ✖ B, D only

898741108843. ✔ A, B, D only

898741108844. ✖ C, D only

Question Number : 62 Question Id : 89874127613 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Iodine reacts with excess of fluorine and gives 'X' which forms an oxofluoride (Z) on reacting with Y. Z decomposes when heated at 110°C giving back 'X' and 'L'. What is 'L'?

Options :

898741108845. ✔ I_2O_5

898741108846. ✖ IOF_3

898741108847. ✖ IO_2F

898741108848. ✖ IF_3

Question Number : 63 Question Id : 89874127614 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the following

Complex	$\Delta_{oh}/\text{cm}^{-1}$
a. $[\text{Cr}(\text{CN})_6]^{3-}$	i. 17400
b. $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$	ii. 15400
c. $[\text{Cr}(\text{NH}_3)_6]^{3+}$	iii. 26600
d. $[\text{CrF}_6]^{3-}$	iv. 21600

The correct option is

Options :

898741108849. ✖ a-iii, b-iv, c-i, d-ii

898741108850. ✔ a-iii, b-i, c-iv, d-ii

898741108851. ✖ a-ii, b-i, c-iv, d-iii

898741108852. ✖ a-ii, b-iv, c-i, d-iii

Question Number : 64 Question Id : 89874127615 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following has monocapped trigonal prismatic structure?

Options :

898741108853. ✖ $[\text{Mo}(\text{CH}_3)_7]^-$

898741108854. ✖ $[\text{W}(\text{CH}_3)_7]^-$

898741108855. ✖ $[\text{NbF}_7]^{3-}$

898741108856. ✔ $[\text{TaF}_7]^{2-}$

Question Number : 65 Question Id : 89874127616 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which among (A) $[\text{Cr}(\text{H}_2\text{O})_6]^{2+}$, (B) $[\text{Co}(\text{en})_3]^{2+}$, (C) $[\text{MnF}_6]^{3-}$, exhibit Jahn-Teller distortion?

Options :

898741108857. ✖ A, B only

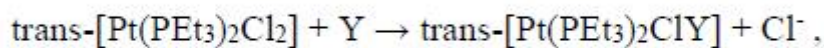
898741108858. ✖ B, C only

898741108859. ✖ A, C only

898741108860. ✔ A, B, C

Question Number : 66 Question Id : 89874127617 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the following reaction



the rate of this reaction is more when Y is

Options :

898741108861. ✖ SCN^-

898741108862. ✔ I^-

898741108863. ✖ Br^-

898741108864. ✖ N_3^-

Question Number : 67 Question Id : 89874127618 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The number of paramagnetic ions of the following:
 Eu^{3+} , Dy^{3+} , Gd^{3+} , Ho^{3+} , Ce^{4+} , Yb^{2+} , La^{3+}

Options :

898741108865. ✖ 3

898741108866. ✔ 4

898741108867. ✖ 5

898741108868. ✖ 2

Question Number : 68 Question Id : 89874127619 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The ground state term symbol for Pm^{3+} is

Options :

898741108869. ✖ $^3\text{H}_4$

898741108870. ✔ $^5\text{I}_4$

898741108871. ✖ $^5\text{I}_8$

898741108872. ✖ $^3\text{H}_6$

Question Number : 69 Question Id : 89874127620 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

$\text{Fe}(\text{CO})_5$ on reaction with OH^- forms complex X which gives Y on oxidation with MnO_2 . With an excess of sodium, Y gets reduced and forms a carbonylate ion which is not isoelectronic with

Options :

898741108873. ✖ $[\text{Ni}(\text{CO})_4]$

898741108874. ✔ $[\text{Mn}(\text{CO})_5]^+$

898741108875. ✖ $[\text{Cr}(\text{CO})_6]$

898741108876. ✖ $[\text{V}(\text{CO})_6]^-$

Question Number : 70 Question Id : 89874127621 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The highest occupied molecular orbital in ferrocene is

Options :

898741108877. ✔ e_{2g}

898741108878. ✖ e_{1g}^*

898741108879. ✖ a_{1g}

898741108880. ✖ e_{2u}

Question Number : 71 Question Id : 89874127622 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not correct?

Options :

898741108881. ✖ Nb-Nb bond order in $[\text{Nb}_6\text{Cl}_{12}]^{2+}$ is 2/3
898741108882. ✖ $[\text{Sb}_7]^{3-}$ is a naked cluster
898741108883. ✖ PbMo_6S_8 is a super conductor below 13.3° K
898741108884. ✔ The chloro groups in $[\text{Os}_2\text{Cl}_8]^{2-}$ are eclipsed

Question Number : 72 Question Id : 89874127623 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the following

Carbonyl cluster

- a. $\text{Os}_6(\text{CO})_{18}\text{Py}$
- b. $\text{H}_2\text{Os}_5(\text{CO})_{16}$
- c. $\text{H}_2\text{Os}_7(\text{CO})_{21}$
- d. $\text{Os}_5\text{C}(\text{CO})_{12}$

Structure

- i. Monocapped octahedron
- ii. Edge capped trigonal bipyramidal
- iii. Edged capped tetrahedron
- iv. Bicapped square pyramid
- v. Square pyramid

The correct option is

Options :

898741108885. ✖ a-iv, b-iii, c-i, d-v
898741108886. ✖ a-ii, b-iv, c-iii, d-i
898741108887. ✔ a-ii, b-iii, c-iv, d-v
898741108888. ✖ a-iv, b-iii, c-ii, d-i

Question Number : 73 Question Id : 89874127624 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is/ are correct as per significant figure convention?

A. $3.4 + 0.020 + 7.31 = 10.73$

B. $(2.5 \times 10^3) + (3.5 \times 10^2) = 2.9 \times 10^3$

C. $\log 4 \times 10^{-5} = -4.39$ ($\log 4 = 0.6021$)

The correct option is

Options :

898741108889. ✖ A only

898741108890. ✔ B only

898741108891. ✖ B, C

898741108892. ✖ A, C

Question Number : 74 Question Id : 89874127625 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Identify the correct statement regarding the detectors of Gas Chromatograph?

Options :

898741108893. ✔ Flame ionization detector destroys the sample during the combustion step

898741108894. ✖ Thermal conductivity detector is highly sensitive detector

898741108895. ✖ Electron capture detector destroys the sample

898741108896. ✖ Mass spectrometry cannot be used to acquire information about incompletely separated components.

Match the following

List I

Thermoanalytical technique

- a. TGA
- b. DTA
- c. DSC
- d. TMA

List II

Plot

- i. ΔL Vs temperature
- ii. ΔE Vs temperature
- iii. ΔT Vs temperature
- iv. Weight Vs temperature

The correct option is

Options :

898741108897. ✖ a-i, b-iii, c-ii, d-iv

898741108898. ✖ a-i, b-ii, c-iii, d-iv

898741108899. ✔ a-iv, b-iii, c-ii, d-i

898741108900. ✖ a -iv, b- iii, c-i, d-ii

Question Number : 76 Question Id : 89874127627 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements are correct regarding Arginase enzyme?

- A. Its catalytic metal centre is dimeric Mn(II) unit bridged by a hydroxide
- B. It consists of four homologous polypeptide subunits
- C. It is a Lewis acid catalyst

The correct option is

Options :

898741108901. ✖ A, B only

898741108902. ✖ A, B, C

898741108903. ✖ B, C only

898741108904. ✔ A, C only

Question Number : 77 Question Id : 89874127628 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following pairs is not correctly matched?

Metalloprotein

Metal

Options :

898741108905. ✖ Plastocyanin Cu

898741108906. ✔ Insulin Co

898741108907. ✖ Liver alcohol dehydrogenase Zn

898741108908. ✖ Rubredoxin Fe

Question Number : 78 Question Id : 89874127629 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The geometry of Cu (II) in the type I copper protein azurin is

Options :

898741108909. ✖ Tetrahedral

898741108910. ✖ Octahedral

898741108911. ✔ Trigonal bipyramidal

898741108912. ✖ Square planar

Question Number : 79 Question Id : 89874127630 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Isotope shift is observed in

Options :

898741108913. ✖ ^1H NMR spectrum of $[\text{BH}_4]^-$ ion

898741108914. ✔ ^{19}F NMR spectrum of $[\text{BF}_4]^-$ ion

898741108915. ✖ $^{31}\text{P}[^1\text{H}]$ NMR spectrum of Wilkinson's catalyst

898741108916. ✖ ^1H NMR spectrum of $^{11}\text{B}_2\text{H}_6$

Question Number : 80 Question Id : 89874127631 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements are correct regarding the IR spectra of inorganic compounds?

- A. $\text{cis-}[\text{Ir}(\text{py})_4\text{Cl}_2]^+$ gives two $\nu_{\text{Ir-Cl}}$ bands whereas its trans isomer gives one band
- B. In IR spectra of metal complexes of thiocyanato, CN stretching frequencies are generally lower in N-bonded complexes than in S-bonded complexes
- C. Higher the coordination number of metal, higher the ν_{CN} frequency in IR spectra of cyano complexes.

The correct option is

Options :

898741108917. ✖ A, B only

898741108918. ✖ B, C only

898741108919. ✔ A, B, C

898741108920. ✖ A, C only

Question Number : 81 Question Id : 89874127632 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following elements has number of protons equal to magic number?

Options :

898741108921. ✔ Ca

898741108922. ✖ Ba

898741108923. ✖ Ce

898741108924. ✖ Zr

Question Number : 82 Question Id : 89874127633 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following isotopes is used in brain imaging?

Options :

898741108925. ✓ ^{18}F

898741108926. ✗ ^{43}K

898741108927. ✗ ^{51}Cr

898741108928. ✗ ^{125}I

Question Number : 83 Question Id : 89874127634 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the following

Cryptand	Metal ion
a. C-211	i. K^+
b. C-322	ii. Li^+
c. C-222	iii. Na^+
d. C-221	iv. Rb^+

The correct option is

Options :

898741108929. ✗ a-iv, b-i, c-iii, d-ii

898741108930. ✗ a-iv, b-ii, c-i, d-iii

898741108931. ✓ a-ii, b-iv, c-i, d-iii

898741108932. ✗ a-ii, b-i, c-iv, d-iii

Question Number : 84 Question Id : 89874127635 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following statements.

Statement I: If a diatomic molecule is considered as harmonic oscillator, the energy difference between successive vibrational energy levels is constant.

Statement II: If a diatomic molecule is considered as anharmonic oscillator, the energy difference between successive vibrational energy levels decreases with increasing vibrational quantum number.

The correct answer is

Options :

898741108933. ✓ Both statement I and statement II are correct

898741108934. ✗ Both statement I and statement II are not correct

898741108935. ✗ Statement I is correct but statement II is not correct

898741108936. ✗ Statement I is not correct but statement II is correct

Question Number : 85 Question Id : 89874127636 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

For a harmonic oscillator, if $x = A \sin \left[\left(\frac{k}{m} \right)^{\frac{1}{2}} t + b \right]$ then $m \frac{d^2x}{dt^2}$ is equal to

Options :

898741108937. ✓ $-kx$

898741108938. ✗ kx

898741108939. ✗ $-kx^2$

898741108940. ✗ kx^2

Question Number : 86 Question Id : 89874127637 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The ground state energy (E_1) of hydrogen atom in atomic units (a. u) is $E = -\frac{1}{2}a.u.$

The energy of second excited state ($n = 3$ state) is

Options :

898741108941. ✖ $-\frac{3}{2}a.u$

898741108942. ✔ $-\frac{1}{18}a.u$

898741108943. ✖ $-\frac{1}{9}a.u$

898741108944. ✖ $-\frac{1}{8}a.u$

Question Number : 87 Question Id : 89874127638 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

If $\hat{x}$ and $\hat{p}_x$ are multiplied by x and $\frac{\hbar}{i} \frac{d}{dx}$ respectively, then $[\hat{x}, \hat{p}_x]$ is equal to

Options :

898741108945. ✖ $+\frac{\hbar}{i}$

898741108946. ✖ $-\frac{\hbar}{2i}$

898741108947. ✔ $2i\hbar(\hat{x}\hat{p}_x + \hat{p}_x\hat{x})$

898741108948. ✖ $-i\hbar$

Question Number : 88 Question Id : 89874127639 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A trial wave function, $\psi = K \cdot x(a - x)$ ($K = \text{constant}$; $0 < x < a$) is used to calculate the ground state energy (E_1) of particle in a one-dimensional box using variation theorem. The energy (E_1) is

Options :

898741108949. ✖ $\frac{0.95h^2}{8ma^2}$

898741108950. ✖ $\frac{0.9h^2}{8ma^2}$

898741108951. ✖ $\frac{h^2}{8ma^2}$

898741108952. ✔ $\frac{1.1h^2}{8ma^2}$

Question Number : 89 Question Id : 89874127640 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

According to Hund's rule the order of energy of 1S , 1D and 3P states of carbon is

Options :

898741108953. ✖ $^1S < ^1D < ^3P$

898741108954. ✖ $^1D < ^1S < ^3P$

898741108955. ✔ $^3P < ^1D < ^1S$

898741108956. ✖ $^3P < ^1S < ^1D$

Question Number : 90 Question Id : 89874127641 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Identify the allowed transitions of hydrogen atom from the following

(A) $1s \rightarrow 2s$ (B) $1s \rightarrow 2p$ (C) $1s \rightarrow 3d$ (D) $2p \rightarrow 3s$

Options :

898741108957. ✖ A, B, C, D

898741108958. ✖ A, B, D only

898741108959. ✖ B, C only

898741108960. ✔ B, D only

Question Number : 91 Question Id : 89874127642 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The atomic emission spectrum of sodium consists of a doublet. One of the transition corresponds to $^2P_{1/2} \rightarrow ^2S_{1/2}$. The other transition is

Options :

898741108961. ✖ $^2S_{1/2} \rightarrow ^2P_{3/2}$

898741108962. ✖ $^2P_{3/2} \rightarrow ^1S_{1/2}$

898741108963. ✖ $^2P_{3/2} \rightarrow ^1S_{3/2}$

898741108964. ✔ $^2P_{3/2} \rightarrow ^2S_{1/2}$

Question Number : 92 Question Id : 89874127643 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

According to Huckel MOT, the number of nodes in ψ_1 , ψ_2 , ψ_3 and ψ_4 of butadiene is respectively

Options :

898741108965. ✖ 0, 0, 1, 2

898741108966. ✖ 1, 0, 0, 1

898741108967. ✖ 0, 1, 0, 3

898741108968. ✔ 0, 1, 2, 3

Question Number : 93 Question Id : 89874127644 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The π -energy of allyl cation (A_x), allyl radical (A_y) and allyl anion (A_z) are given below

$$A_x = 2\alpha + 2\sqrt{2}\beta$$

$$A_y = 3\alpha + 2\sqrt{2}\beta$$

$$A_z = 4\alpha + 2\sqrt{2}\beta$$

The Huckels molecular orbital (HMO) delocalization energy of A_x , A_y and A_z follow the order

Options :

898741108969. ✔ $A_x > A_z > A_y$

898741108970. ✖ $A_z > A_y > A_x$

898741108971. ✖ $A_x = A_y = A_z$

898741108972. ✖ $A_y > A_z = A_x$

Question Number : 94 Question Id : 89874127645 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following pairs

- (A) NO, O_2^+
- (B) CO, O_2^+
- (C) NO^+ , O_2^{2-}
- (D) O_2^- , CN
- (E) CO, CN^-

Which pairs have the same bond order?

Options :

898741108973. ✖ A, C, E only

898741108974. ✖ A, D, E only

898741108975. ✖ B, C, E only

898741108976. ✔ A, E only

Question Number : 95 Question Id : 89874127646 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following statements.

Statement I: S_6 is present in staggered form of ethane.

Statement II: S_2 is absent in allene

The correct answer is

Options :

898741108977. ✓ Both statement I and statement II are correct

898741108978. ✗ Both statement I and statement II are not correct

898741108979. ✗ Statement I is correct but statement II is not correct

898741108980. ✗ Statement I is not correct but statement II is correct

Question Number : 96 Question Id : 89874127647 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following molecules

(A) H_2O ; (B) NH_3 ; (C) CH_4 ; (D) BF_3 ; (E) $[PtCl_4]^{2-}$ (square planar)

Molecules possessing symmetry element S are

Options :

898741108981. ✗ A, B, C, D, E

898741108982. ✓ C, D, E only

898741108983. ✗ B, C, D only

898741108984. ✗ A, B, C, E only

Question Number : 97 Question Id : 89874127648 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

For a molecule belonging to C_{2v} point group, the following data is obtained.

	E	C ₂	σ_v	σ_v'
Γ_{red}	27	-1	1	5
A ₁	1	1	1	1
A ₂	1	1	-1	-1
B ₁	1	-1	1	-1
B ₂	1	-1	-1	1

How many times each irreducible representation is present in Γ_{red} ?

Options :

898741108985. ✖ $6A_1 + 5A_2 + 8B_1 + 8B_2$

898741108986. ✖ $8A_1 + 5A_2 + 8B_1 + 6B_2$

898741108987. ✔ $8A_1 + 5A_2 + 6B_1 + 8B_2$

898741108988. ✖ $8A_1 + 6A_2 + 5B_1 + 8B_2$

Question Number : 98 Question Id : 89874127649 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Identify the correct relationship for heteronuclear diatomic molecule (μ = reduced mass;
 r = bond length; B = rotational constant)

Options :

898741108989. ✖ $r \propto \frac{B}{\mu}$

898741108990. ✖ $r \propto \mu B$

898741108991. ✔ $r \propto (\mu B)^{-\frac{1}{2}}$

898741108992. ✖ $r \propto \frac{\mu}{B}$

Question Number : 99 Question Id : 89874127650 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following molecules

HCl(g), H₂(g), CO(g), HF(s), NO(g), C₂(s), N₂(g), I₂(s), I₂(g)

The number of molecules which can give rotational spectrum is

Options :

898741108993. ✖ 4

898741108994. ✔ 3

898741108995. ✖ 5

898741108996. ✖ 6

Question Number : 100 Question Id : 89874127651 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The equilibrium vibrational frequency ($\bar{\nu}_e$) of I_2 is 215 cm^{-1} . The anharmonicity constant (x_e) of I_2 is 0.003. What is the first overtone (in cm^{-1}) of I_2 molecule?

Options :

898741108997. ✓ 426.13

898741108998. ✗ 431.29

898741108999. ✗ 430.00

898741109000. ✗ 433.87

Question Number : 101 Question Id : 89874127652 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following Maxwell's relation.

$$\left(\frac{\partial T}{\partial V}\right)_S = -\left(\frac{\partial P}{\partial S}\right)_V$$

This relation can be derived from

Options :

898741109001. ✗ $dG = -SdT + VdP$

898741109002. ✗ $dA = -SdT - PdV$

898741109003. ✗ $dH = TdS + VdP$

898741109004. ✓ $dU = TdS - PdV$

Question Number : 102 Question Id : 89874127653 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following statements.

Statement I: For a first order transition, $\Delta H_{\text{tr}} = 0$ and $\Delta V_{\text{tr}} = 0$ at the transition point.

Statement II: For a second order transition, $\Delta H_{\text{tr}} \neq 0$ and $\Delta V_{\text{tr}} \neq 0$ at the transition point.

The correct answer is

Options :

898741109005. ✖ Both statement I and statement II are correct

898741109006. ✔ Both statement I and statement II are not correct

898741109007. ✖ Statement I is correct but statement II is not correct

898741109008. ✖ Statement I is not correct but statement II is correct

Question Number : 103 Question Id : 89874127654 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

An ideal solution is prepared by mixing A and B liquids. The free energy change (ΔG_{mix}) for this solution at T(K) is: (x = mole fraction, n is total numbers of moles of A & B)

Options :

898741109009. ✖ $\Delta G_{\text{mix}} = T(x_A \ln x_A + x_B \ln x_B)$

898741109010. ✖ $\Delta G_{\text{mix}} = \frac{n}{RT}(x_A \ln x_A + x_B \ln x_B)$

898741109011. ✔ $\Delta G_{\text{mix}} = nRT(x_A \ln x_A + x_B \ln x_B)$

898741109012. ✖ $\Delta G_{\text{mix}} = \frac{1}{T}(x_A \ln x_A + x_B \ln x_B)$

Question Number : 104 Question Id : 89874127655 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the internal energy (U in J) of one mole of helium gas at 300 K?
($R = 8.3 \text{ J mol}^{-1} \text{ K}^{-1}$)

Options :

898741109013. ✖ 7470

898741109014. ✔ 3735

898741109015. ✖ 22410

898741109016. ✖ 11205

Question Number : 105 Question Id : 89874127656 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The correct relationship between internal energy (U) and partition function (q) of one mole of substance is

Options :

898741109017. ✖ $U = RT^2 \left(\frac{\partial \ln q}{\partial T} \right)_p$

898741109018. ✖ $U = \frac{1}{RT^2} \left(\frac{\partial \ln q}{\partial T} \right)_v$

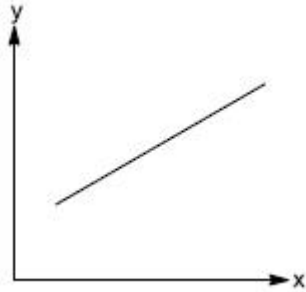
898741109019. ✔ $U = RT^2 \left(\frac{\partial \ln q}{\partial T} \right)_v$

898741109020. ✖ $U = RT \left(\frac{\partial \ln q}{\partial T} \right)_v$

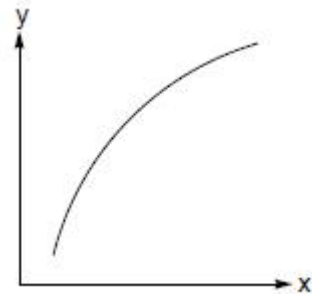
Question Number : 106 Question Id : 89874127657 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

XY is a strong electrolyte and follows Debye-Huckel equation. Identify the correct graph for this electrolyte. (y= molar conductance; $x=\sqrt{c}$; c = concentration)

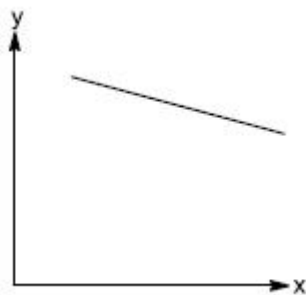
Options :



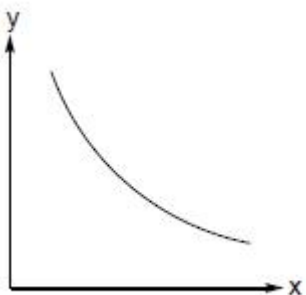
898741109021. ✖



898741109022. ✖



898741109023. ✔



898741109024. ✖

Question Number : 107 Question Id : 89874127658 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the electrode potential (in V) of quinhydrone electrode in 10^{-3}M HCl solution at 25°C ? ($E^\circ = 0.7\text{V}$) ($2.303RT/F = 0.06$)

Options :

898741109025. ✖ 0.88

898741109026. ✖ 0.7

898741109027. ✔ 0.52

898741109028. ✖ 4.061

Question Number : 108 Question Id : 89874127659 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

For the reaction, $2\text{A} + \text{B} \rightarrow \text{C}$, the value of $-\frac{d[\text{A}]}{dt}$ is found to be $4 \times 10^{-2} \text{ mol L}^{-1} \text{ min}^{-1}$.
What is the rate of this reaction? (in $\text{mol L}^{-1} \text{ min}^{-1}$)

Options :

898741109029. ✖ 4×10^{-2}

898741109030. ✔ 2×10^{-2}

898741109031. ✖ -2×10^{-2}

898741109032. ✖ -4×10^{-2}

Question Number : 109 Question Id : 89874127660 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

At 25°C the rate constant of $AB + C^- \rightarrow \text{product}$ is $10^{-3} \text{ L mol}^{-1} \text{ min}^{-1}$. What will be its rate constant (in $\text{L mol}^{-1} \text{ min}^{-1}$) in the presence of 0.1M KCl solution at the same temperature?
[$\exp(-0.316) = 0.724$]

Options :

898741109033. ✖ 2×10^{-3}

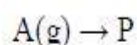
898741109034. ✖ 10^{-4}

898741109035. ✔ 10^{-3}

898741109036. ✖ 0.33×10^{-3}

Question Number : 110 Question Id : 89874127661 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the two statements given for the following reaction, which follows Lindemann's theory.



Statement I: At high pressure of A, the reaction follows first order kinetics.

Statement II: A plot of $\frac{1}{k_{uni}}$ versus $\frac{1}{[A]}$ gives a straight line passing through origin

The correct answer is

Options :

Both statement I and statement II are correct

898741109037. ✖

Both statement I and statement II are not correct

898741109038. ✖

Statement I is correct but statement II is not correct

898741109039. ✔

Statement I is not correct but statement II is correct

898741109040. ✖

Question Number : 111 Question Id : 89874127662 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following terms

- A. Tyndall effect
- B. Dialysis
- C. Colligative property
- D. Brownian movement
- E. Ultrafiltration

The intrinsic colloidal properties are

Options :

898741109041. ✓ A, C, D only

898741109042. ✗ B, D, E only

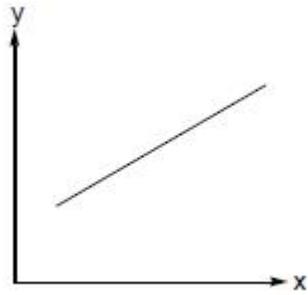
898741109043. ✗ A, D, E only

898741109044. ✗ A, B, C, only

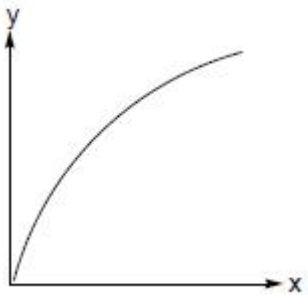
Question Number : 112 Question Id : 89874127663 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Adsorption of N_2 on charcoal at $-180^\circ C$ follows Type I isotherm. Identify the isotherm from the following. (y = amount of N_2 adsorbed; x = pressure of N_2)

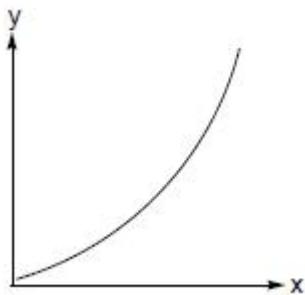
Options :



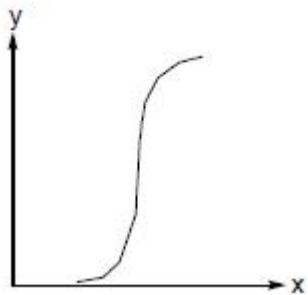
898741109045. ✖



898741109046. ✔



898741109047. ✖



898741109048. ✖

Question Number : 113 Question Id : 89874127664 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A metal crystallizes in X lattice. The observed d-lines correspond to, $h + k + l = 2n$
($n = \text{integer}$) What is X-lattice?

Options :

898741109049. ✖ fcc

898741109050. ✔ Bcc

898741109051. ✖ Hexagonal

898741109052. ✖ Triclinic

Match the following

List I

- a. Light scattering
- b. Number average molar mass
- c. Mass average molar mass
- d. Kinetic chain length of addition polymerization

List II

- i. Overall rate = $\frac{\text{rate of chain propagation}}{\text{rate of initiation}}$
- ii. Zimm plot
- iii. $\frac{\sum niMi}{\sum ni}$
- iv. $\frac{\sum niMi^2}{\sum niMi}$

Options :

898741109053. ✖ a-iv, b-iii, c-ii, d-i

898741109054. ✖ a-ii, b-iv, c-iii, d-i

898741109055. ✖ a-i, b-iii, c-iv, d-ii

898741109056. ✔ a-ii, b-iii, c-iv, d-i

Question Number : 115 Question Id : 89874127666 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A standard solution of 20 ppm Fe (III) is prepared. Iron in the solution was determined by six students. The results obtained are 19.4, 19.5, 19.6, 19.8, 20.1 and 20.3 ppm. What is the relative error?

Options :

898741109057. ✖ -10%

898741109058. ✔ -1%

898741109059. ✖ +10%

898741109060. ✖ +2%

Question Number : 116 Question Id : 89874127667 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following techniques

- A. TEM
- B. SEM
- C. AFM
- D. Powder XRD

The size of nano material can be identified by

Options :

898741109061. ✖ A, C, D only

898741109062. ✖ B, C, D only

898741109063. ✔ A, B, C, D

898741109064. ✖ A, B, C, only

Question Number : 117 Question Id : 89874127668 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The common components of photochemical smog which act as powerful eye irritants are

Options :

898741109065. ✔ Ozone, Peroxyacetyl nitrate

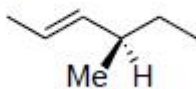
898741109066. ✖ Nitric oxide, Acrolein

898741109067. ✖ Ozone, Nitric oxide

898741109068. ✖ Peroxyacetyl nitrate, Acrolein

Question Number : 118 Question Id : 89874127669 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

IUPAC name of the following compound is



Options :

898741109069. ✓ (2E, 4R)-4-methylhex-2-ene

898741109070. ✗ (2E, 4S)-4-methylhex-2-ene

898741109071. ✗ (2Z, 4R)-4-methylhex-2-ene

898741109072. ✗ (4E, 3S)-3-methylhex-4-ene

Question Number : 119 Question Id : 89874127670 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The number of stereoisomers possible for the following compounds X and Y respectively
are

4-Methylcyclohexanol
X

Hex-4-en-2-ol
Y

Options :

898741109073. ✗ 4, 4

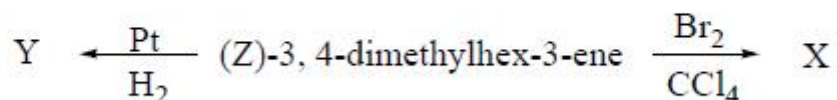
898741109074. ✗ 2, 2

898741109075. ✓ 2, 4

898741109076. ✗ 4, 2

Question Number : 120 Question Id : 89874127671 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What are X and Y respectively in the following set of reactions?



Options :

898741109077. ✓ Racemic-3,4-dimethyl-3,4-dibromohexane; meso-3,4-dimethylhexane

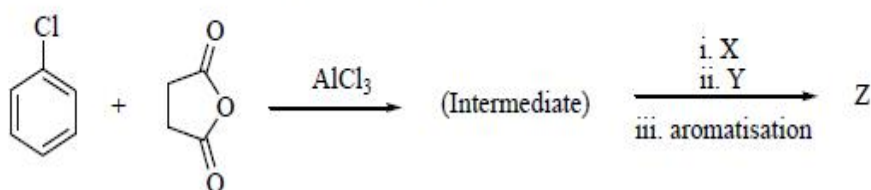
898741109078. ✗ Meso-3,4-dimethyl-3,4-dibromohexane; meso-3,4-dimethylhexane

898741109079. ✗ Racemic-3,4-dimethyl-3,4-dibromohexane; racemic-3,4-dimethylhexane

898741109080. ✗ Meso-3,4-dimethyl-3,4-dibromohexane; racemic-3,4-dimethylhexane

Question Number : 121 Question Id : 89874127672 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What are X, Y and Z (major product) respectively in the following reaction sequence?



Options :

898741109081. ✖ Zn-Hg/HCl; Conc. H₂SO₄; 1-chloronaphthalene

898741109082. ✔ Zn-Hg/HCl; Conc. H₂SO₄; 2-chloronaphthalene

898741109083. ✖ Conc. H₂SO₄; Zn-Hg/HCl; 1-chloronaphthalene

898741109084. ✖ NaBH₄, H₂O; Conc. H₂SO₄; 2-chloronaphthalene

Question Number : 122 Question Id : 89874127673 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the following

List I

- a. Antiaromatic
- b. Non aromatic
- c. Aromatic

List II

- i. Cyclooctatetraene
- ii. Dehydro[14]annulene
- iii. [10] Annulene
- iv. Cyclobutadiene

Correct answer is

Options :

898741109085. ✖ a-ii, b-iii, c-i

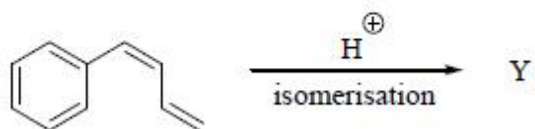
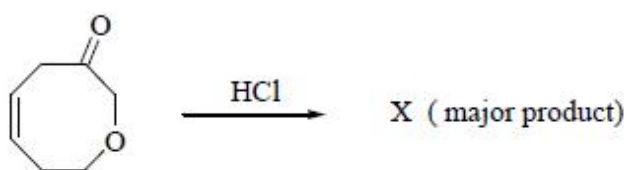
898741109086. ✖ a-iv, b-ii, c-iii

898741109087. ✖ a-i, b-iii, c-iv

898741109088. ✔ a-iv, b-i, c-ii

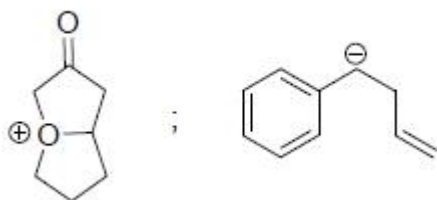
Question Number : 123 Question Id : 89874127674 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following set of reactions.

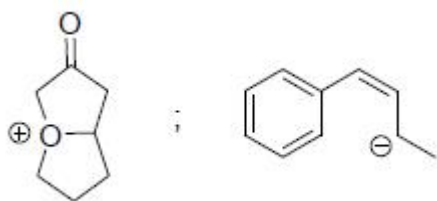


Intermediates involved in the formation of X and Y respectively are

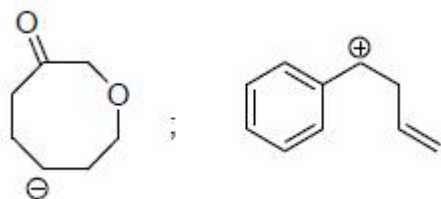
Options :



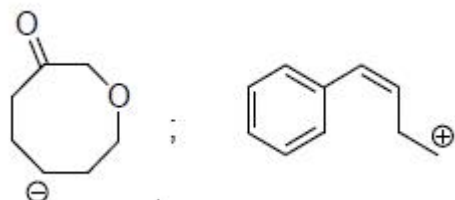
898741109089. ✖



898741109090. ✔



898741109091. ✖



898741109092. ✖

Question Number : 124 Question Id : 89874127675 Question Type : MCQ Option Shuffling : No
 Correct Marks : 2 Wrong Marks : 0

Among the following, which are arranged in correct order of stability?

A.	 > $(\text{CH}_3)_2\dot{\text{C}}\text{H}$ > $\text{CH}_3\text{CO}\dot{\text{C}}\text{H}_2$
B.	 < $\text{CH}_3\dot{\text{C}}\text{H}\text{CN}$ < $(\text{CH}_3)_3\dot{\text{C}}$
C.	$\text{CH}_3\text{CO}\overset{\ominus}{\text{C}}\text{H}_2$ > $\text{CH}_3\overset{\ominus}{\text{C}}\text{H}\text{CN}$ > $\text{CH}_3\overset{\ominus}{\text{C}}\text{HBr}$

The correct answer is

Options :

898741109093. ✓ B, C only

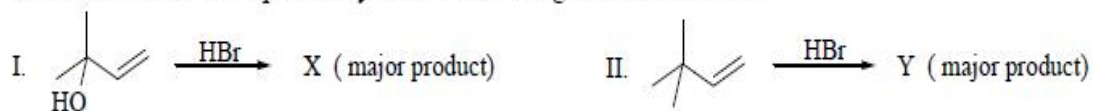
898741109094. ✗ A, B only

898741109095. ✗ A, C only

898741109096. ✗ A, B, C

Question Number : 125 Question Id : 89874127676 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What are X and Y respectively in the following set of reactions?



Options :

898741109097. ✖ 3-Bromo-3-methylbut-1-ene; 2-bromo-2,3-dimethylbutane

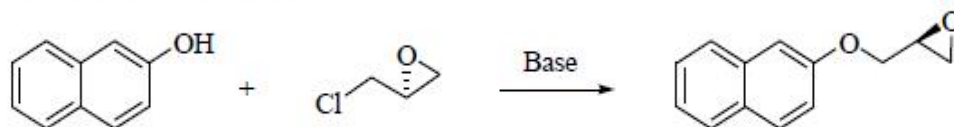
898741109098. ✔ 1-Bromo-3-methylbut-2-ene; 2-bromo-2,3-dimethylbutane

898741109099. ✖ 3-Bromo-3-methylbut-1-ene; 3-bromo-2,2-dimethylbutane

898741109100. ✖ 1-Bromo-3-methylbut-2-ene; 3-bromo-2,2-dimethylbutane

Question Number : 126 Question Id : 89874127677 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following reaction



The correct statement regarding its reaction mechanism is

Options :

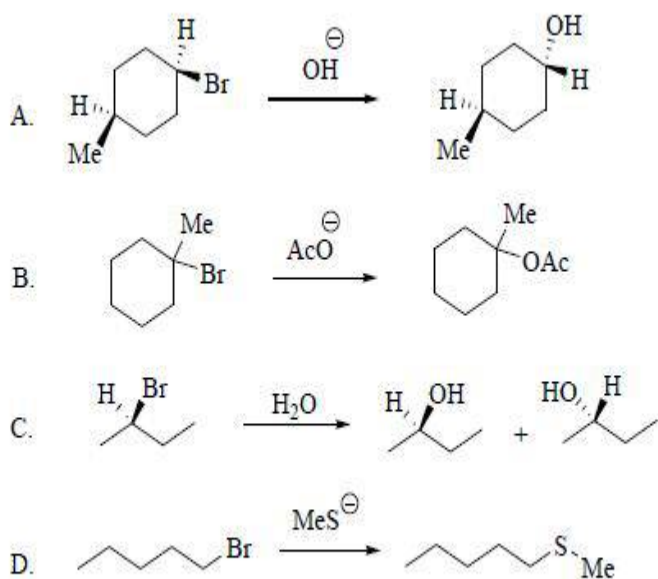
898741109101. ✖ Naphthoxide attacks at CH_2Cl by $\text{S}_{\text{N}}1$ mechanism

898741109102. ✖ Naphthoxide attacks at CH_2Cl by $\text{S}_{\text{N}}2$ mechanism

898741109103. ✔ Naphthoxide attacks at CH_2O by $\text{S}_{\text{N}}2$ mechanism

898741109104. ✖ Naphthoxide attacks at CH_2O by $\text{S}_{\text{N}}1$ mechanism

Observe the following reactions



Rate of which reactions will not increase, if the concentration of nucleophile is increased?

Options :

898741109105. ✓ B, C

898741109106. ✗ A, B

898741109107. ✗ A, D

898741109108. ✗ C, D

Question Number : 128 Question Id : 89874127679 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Predict the major products X and Y respectively in the following set of reactions.



Options :

898741109109. ✖ Pent-2-ene; 2,5-heptadiene

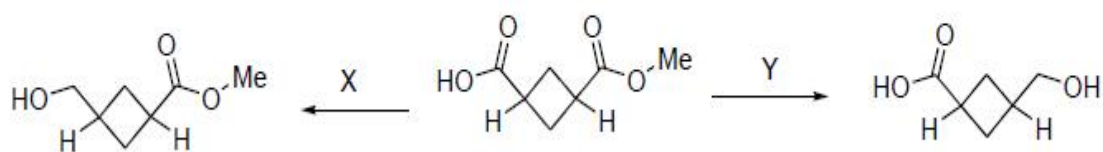
898741109110. ✖ Pent-2-ene; 2,4-heptadiene

898741109111. ✖ Pent-1-ene; 2,5-heptadiene

898741109112. ✔ Pent-1-ene; 2,4-heptadiene

Question Number : 129 Question Id : 89874127680 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Identify the required reagents X and Y respectively, for the following transformations.



Options :

898741109113. ✓ BH_3 ; LiBH_4

898741109114. ✗ LiBH_4 ; LiBH_4

898741109115. ✗ LiBH_4 ; BH_3

898741109116. ✗ BH_3 ; NaCNBH_4

Question Number : 130 Question Id : 89874127681 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

An alkene Z (C_6H_{12}) obtained from Wittig reaction of X and Y displayed the following signals in 1H NMR spectrum: δ 0.95(d, 6H, $J=7Hz$), 1.60 (d, 3H, $J=5Hz$), 2.65 (double septet, 1H, $J=4$ & $7Hz$), 5.10 (dd, 1H, $J=10$ & $4Hz$), 5.35(dq, 1H, $J=10$ & $5Hz$). What are X and Y?

Options :

898741109117. ✖ $Ph_3P^+CH_2CH_3$, $CH_3COCH_2CH_3$

898741109118. ✔ $Ph_3P^+CH_2CH_3$, $(CH_3)_2CHCHO$

898741109119. ✖ $Ph_3P^+CH_2CH_2CH_3$, CH_3CH_2CHO

898741109120. ✖ $Ph_3P^+CH_2CH_2CH_3$, CH_3COCH_3

Question Number : 131 Question Id : 89874127682 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A reagent X oxidizes 2,2-dimethyl-4-pentenal to the compound Y. IR spectrum of Y exhibited peaks at 1730 cm^{-1} , 1710 cm^{-1} and 1H NMR spectrum displayed signals at δ 9.4 (s, 1H), 2.6(s, 2H), 2.0 (s, 3H), 1.0 (s, 6H). The reagent X is

Options :

898741109121. ✖ $PhCO_2Ag/I_2$; KOH, H_2O

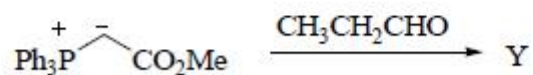
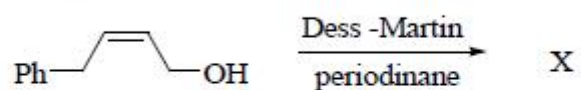
898741109122. ✖ 3-ClC₆H₄CO₃H

898741109123. ✖ SeO_2 , H_2O

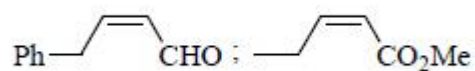
898741109124. ✔ $PdCl_2$, $CuCl_2$, O_2

Question Number : 132 Question Id : 89874127683 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

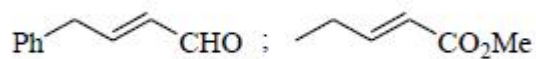
Predict the products X and Y in the following set of reactions.



Options :



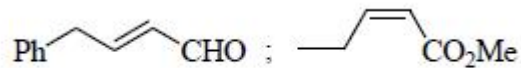
898741109125. ✖



898741109126. ✖



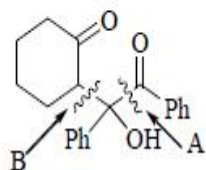
898741109127. ✔



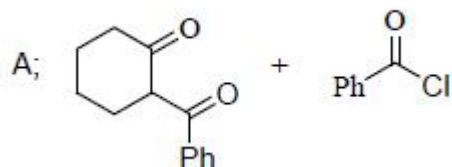
898741109128. ✖

Question Number : 133 Question Id : 89874127684 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

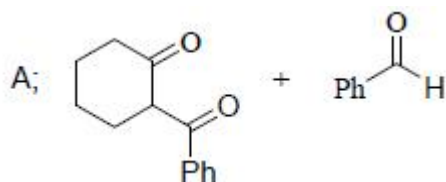
The preferred disconnection and its synthetic equivalents of the following target molecule are



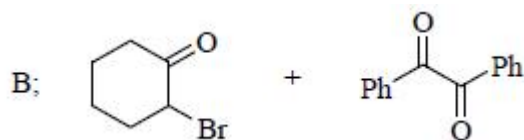
Options :



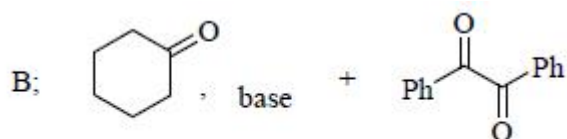
898741109129. ✖



898741109130. ✖



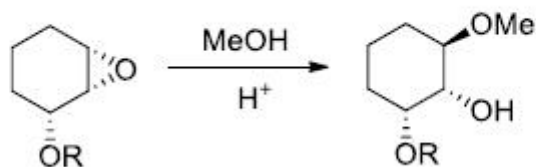
898741109131. ✖



898741109132. ✔

Question Number : 134 Question Id : 89874127685 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the protecting group (R) used for the following transformation?



Options :

898741109133. ✖ TBDMS

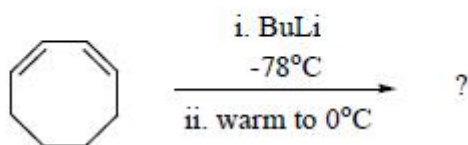
898741109134. ✔ Bn

898741109135. ✖ THP

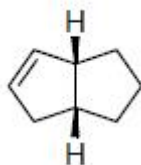
898741109136. ✖ TMS

Question Number : 135 Question Id : 89874127686 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

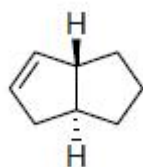
Predict the product of the following reaction.



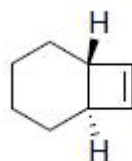
Options :



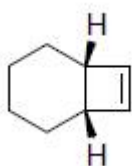
898741109137. ✓



898741109138. ✗



898741109139. ✗

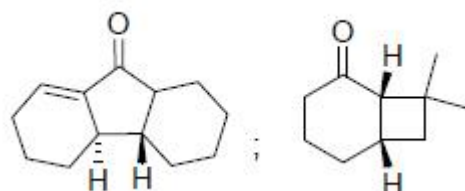


898741109140. ✗

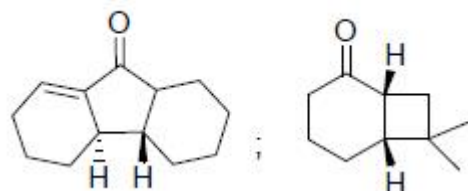
Predict the products X and Y in the following set of reactions.



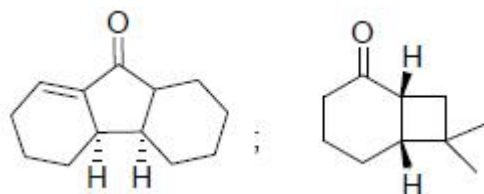
Options :



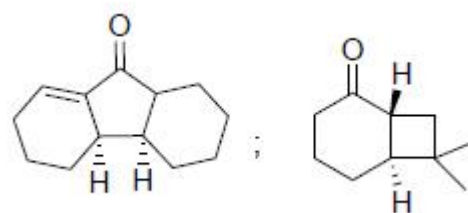
898741109141. ✖



898741109142. ✖



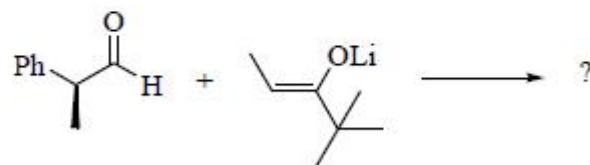
898741109143. ✔



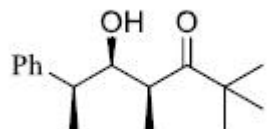
898741109144. ✖

Question Number : 137 Question Id : 89874127688 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

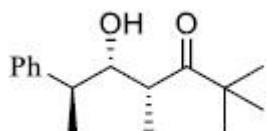
Major product formed from the following reaction is



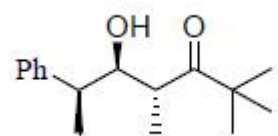
Options :



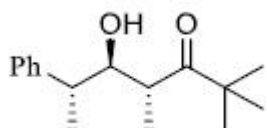
898741109145. ✓



898741109146. ✗

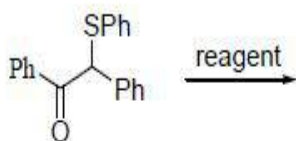


898741109147. ✗



898741109148. ✗

Observe the following reaction



Two statements are given related to the reaction

Statement I: With the reagent ZnBH_4 , major product is formed via the conformer of reactant in which SPh group is perpendicular to $\text{C}=\text{O}$.

Statement II: With the reagent Et_3BHLi , major product is formed via the conformer of reactant in which SPh group is almost eclipsed with $\text{C}=\text{O}$.

The correct answer is

Options :

Both statement I and statement II are correct

898741109149. ✖

Both statement I and statement II are not correct

898741109150. ✔

Statement I is correct but statement II is not correct

898741109151. ✖

Statement I is not correct but statement II is correct

898741109152. ✖

Question Number : 139 Question Id : 89874127690 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Major product formed from the reaction of indole with DMF/ POCl_3 is

Options :

898741109153. ✖ 2-Chloroindole

898741109154. ✖ 3-Chloroindole

898741109155. ✖ 2-Formylindole

898741109156. ✔ 3-Formylindole

Question Number : 140 Question Id : 89874127691 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Two statements are given below

Statement I: Reaction of 2,4-dichloropyrimidine with ammonia in ethanol at room temperature gives 4-amino-2-chloropyrimidine as major product

Statement II: Reactivity of 4-chloropyridazine is greater than that of 4-chloropyridine towards nucleophilic substitution

The correct answer is

Options :

898741109157. ✓ Both statement I and statement II are correct

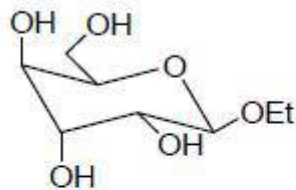
898741109158. ✗ Both statement I and statement II are not correct

898741109159. ✗ Statement I is correct but statement II is not correct

898741109160. ✗ Statement I is not correct but statement II is correct

Question Number : 141 Question Id : 89874127692 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Correct statements regarding the following are



- A. It represents ethyl glycoside of C-3 epimer of D-glucose
- B. It exhibits mutarotation in acidic medium
- C. It is non reducing sugar

The correct answer is

Options :

898741109161. ✖ A, B, C

898741109162. ✖ A, B only

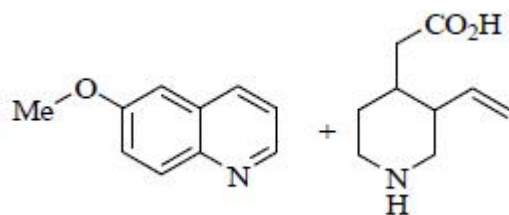
898741109163. ✔ B, C only

898741109164. ✖ A, C only

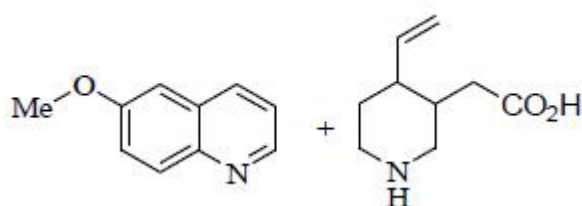
Question Number : 142 Question Id : 89874127693 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Products obtained from oxidation of quinine with chromic acid are

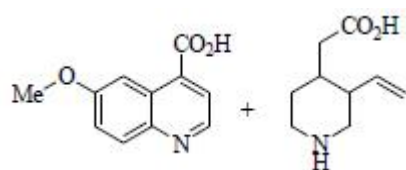
Options :



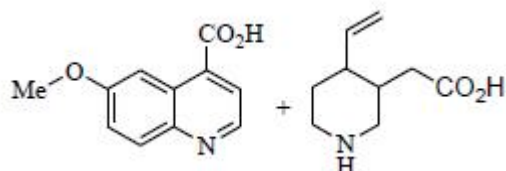
898741109165. ✖



898741109166. ✖



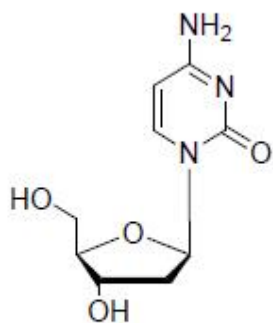
898741109167. ✔



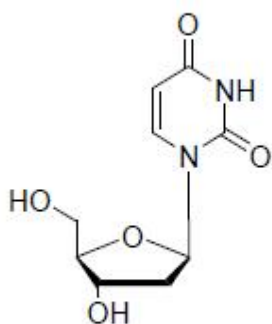
898741109168. ✖

Question Number : 143 Question Id : 89874127694 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

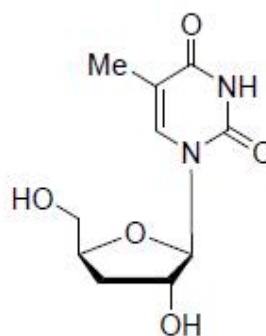
Which of the following represents nucleoside(s) of DNA?



A



B



C

The correct answer is

Options :

898741109169. ✓ A only

898741109170. ✗ C only

898741109171. ✗ A, C only

898741109172. ✗ A, B, C

Question Number : 144 Question Id : 89874127695 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Identify the correctly matched pairs from the following

- A. Acetaminophen-----Analgesic
- B. Isoniazid-----Antileprotic
- C. Primaquin-----Antimalarial

The correct answer is

Options :

898741109173. ✖ A, B, C

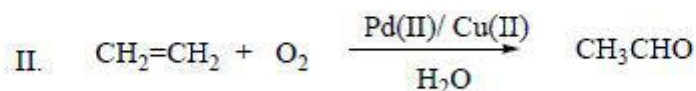
898741109174. ✖ A, B only

898741109175. ✖ B, C only

898741109176. ✔ A, C only

Question Number : 145 Question Id : 89874127696 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the following two reactions



The correct statement about the reactions is

Options :

898741109177. ✖ Both reactions I and II represent green syntheses

898741109178. ✖ Both reactions I and II are not green syntheses

898741109179. ✖ Reaction I is green synthesis but reaction II is not

898741109180. ✔ Reaction II is green synthesis but reaction I is not

Question Number : 146 Question Id : 89874127697 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

An organic compound ($\text{C}_4\text{H}_8\text{O}$) shows a strong peak in IR spectrum at 1730cm^{-1} . Mass spectrum shows Peaks at m/z 44 (base peak), 43, 29. Find out the structure.

Options :

898741109181. ✖ 2-Butanone

898741109182. ✔ Butanal

898741109183. ✖ 2-Methylpropanal

898741109184. ✖ But-3-en-2-ol

Question Number : 147 Question Id : 89874127698 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

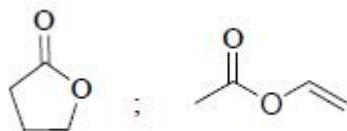
IR and ^{13}C NMR spectral data for the isomers X and Y of $\text{C}_4\text{H}_6\text{O}_2$ is given below.

Isomer X: IR: 1770 cm^{-1} ; ^{13}C NMR: δ 178, 86, 40, 27

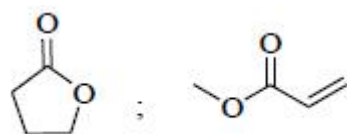
Isomer Y: IR: $1720, 1650\text{ cm}^{-1}$; ^{13}C NMR: δ 165, 131, 133, 54

What are X and Y?

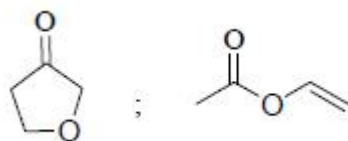
Options :



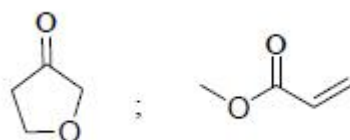
898741109185. ✖



898741109186. ✔



898741109187. ✖



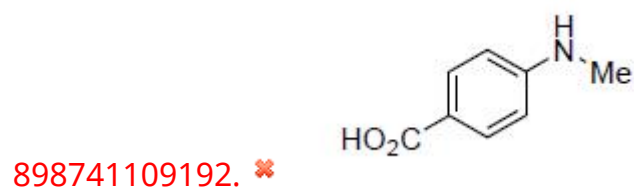
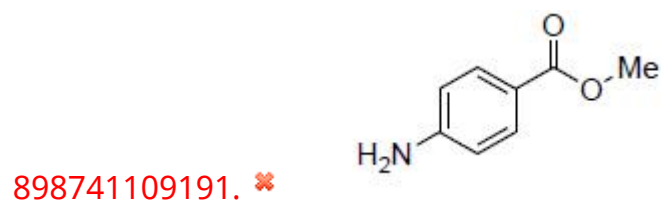
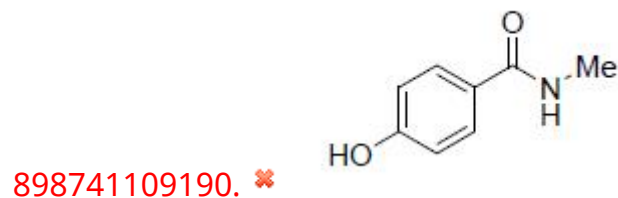
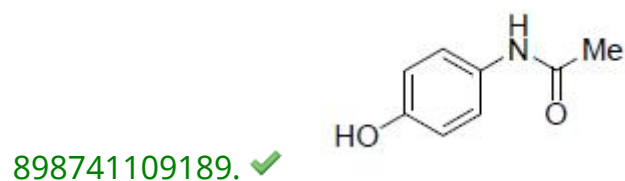
898741109188. ✖

Question Number : 148 Question Id : 89874127699 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Spectral data for the compound X ($C_8H_9NO_2$) given below. From the data find out the structure of X.

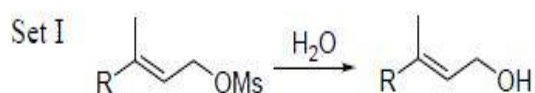
IR: $3332, 1667\text{ cm}^{-1}$; MS: 151, 109 (Base peak); $^1\text{H NMR}$: δ 2.0 (s, 3H), 6.7(d, 2H), 7.4 (d, 2H), 9.2 (s, 1H, D_2O exchangeable), 9.6 (s, 1H, D_2O exchangeable).

Options :



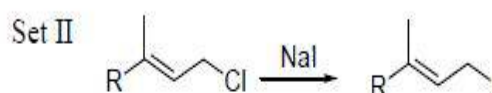
Question Number : 149 Question Id : 89874127700 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Observe the data given for the following two sets of reactions



If $R = \text{CH}_3$; reaction rate = 1.0

$R = \text{CF}_3$; reaction rate = 1.8×10^{-6}



If $R = \text{CH}_3$; reaction rate = 1.0

$R = \text{CF}_3$; reaction rate = 11.0

The correct statement regarding the mechanism of two sets is

Options :

Reaction sets, both I and II take place by $\text{S}_{\text{N}}1$ mechanism

898741109193. ✖

Reaction sets, both I and II take place by $\text{S}_{\text{N}}2$ mechanism

898741109194. ✖

Set I reactions take place by $\text{S}_{\text{N}}1$, but set II reactions take place by $\text{S}_{\text{N}}2$ Mechanism

898741109195. ✔

Set I reactions take place by $\text{S}_{\text{N}}2$, but set II reactions take place by $\text{S}_{\text{N}}1$ mechanism

898741109196. ✖

Question Number : 150 Question Id : 89874127701 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Pick up the two correct statements from the following

- A. Hydroboration-oxidation of 1-methylcyclohexene gives trans-2-methylcyclohexanol
- B. Oxymercuration-demercuration of 1-methylcyclohexene gives cis-2-methylcyclohexanol
- C. Lindlar reduction of 4-t-butylcyclohexanone gives cis-4-t-butylcyclohexanol
- D. Birch reduction of 4-t-butylcyclohexanone gives cis-4-t-butylcyclohexanol

The correct answer is

Options :

898741109197. ✓ A, C

898741109198. ✗ A, B

898741109199. ✗ B, C

898741109200. ✗ C, D