

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 :

COMPUTER SCIENCE AND APPLICATIONS
24th Dec 2025 Shift 2

Subject Name :

COMPUTER SCIENCE AND APPLICATIONS

Creation Date :

2025-12-24 20:25:58

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 :

898741187

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 :

898741373

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 :	8987411155
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 89874128311 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is a key requirement for effective teaching?
సమర్థవంతమైన బోధనకు ఈ దిగువ వానిలో ఏది అవసరము?

Options :

898741111601. ✖ A teacher with a great sense of humor.
ఉపాధ్యాయునికి హాస్యభావం ఉంది
898741111602. ✖ A teacher who exclusively uses a lecture-based approach.
ఉపాధ్యాయుడు ప్రత్యేకంగా ఉపన్యాస ఆధారిత దృక్పథాన్ని ఎంచుకొనుట
898741111603. ✔ A teacher with clear communication skills and mastery of the subject matter.
ఉపాధ్యాయునికి చక్కటి కమ్యూనికేషన్ నైపుణ్యాలు ఉండి, ఆ సబ్జెక్ట్‌లో పాండిత్యం ఉండుట
898741111604. ✖ A teacher who gives students very difficult assignments.
ఉపాధ్యాయుడు, విద్యార్థులకు కష్టతరమైన అసైన్‌మెంట్లు ఇచ్చుట

Question Number : 2 Question Id : 89874128312 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the context of evaluation, what is the main benefit of the Choice Based Credit System (CBCS)?

మూల్యాంకన సందర్భములో ఛాయిస్ ఆధారిత క్రెడిటు పద్ధతి ముఖ్య ప్రయోజనమేమి?

Options :

It forces students to take all the courses offered by a department.

ఆ విభాగము ఇచ్చు అన్ని కోర్సులలోనూ విద్యార్థులను చేరమని బలవంతం చేయుట

898741111605. ✖

It allows students to choose courses according to their interests and aptitudes.

విద్యార్థులను తమ ఆసక్తి, అభిరుచిలనుబట్టి కోర్సుల ఎంపికలో విద్యార్థులను అనుమతించుట

898741111606. ✔

It eliminates the need for any examinations.

పరీక్షల అవసరం లేకుండా చేస్తుంది

898741111607. ✖

It makes the curriculum less flexible.

పాఠ్య ప్రణాళిక తక్కువ మార్పిడి చేయదగ్గదిగా చేస్తుంది

898741111608. ✖

Question Number : 3 Question Id : 89874128313 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is a characteristic of a **Traditional** teaching support system?
ఈదిగువ వానిలో ఏ లక్షణము సాంప్రదాయక భోధనా మద్దతు పద్ధతికి సంబంధించినది?

Options :

A virtual reality (VR) headset for a science class.
సైన్స్ తరగతికి వర్చువల్ రియాలిటీ హెడ్సెట్

898741111609. ✖

An online interactive whiteboard.
ఆన్లైన్ పరస్పర క్రియాశీలక వైట్బోర్డు

898741111610. ✖

A blackboard and chalk.
నల్లబోర్డు, సుద్ద

898741111611. ✔

A computer-based simulation.
కంప్యూటరుఆధారిత అనుకరణ

898741111612. ✖

Question Number : 4 Question Id : 89874128314 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is a characteristic of a learner at the **Understanding** level?
అర్థం చేసుకొను స్థాయిలో ఈ దిగువ ఏ లక్షణము అభ్యాసకునిది?

Options :

They can only memorize definitions.

వారు నిర్వచనములను మాత్రమే గుర్తు పెట్టుకొనగలరు

898741111613. ✖

They can only repeat what the teacher says.

వారు ఉపాధ్యాయుడు చెప్పినవి మాత్రమే తిరిగి చెప్పగలరు

898741111614. ✖

They can explain a concept in their own words.

వారు ఒక భావనను వారి స్వంత మాటలలో మాత్రమే వివరించగలరు

898741111615. ✔

They can only answer multiple-choice questions.

వారు బహుళ ఎంపిక ప్రశ్నలకు మాత్రమే సమాధానమివ్వగలరు

898741111616. ✖

Question Number : 5 Question Id : 89874128315 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A teacher uses a **formative** evaluation. What is the primary goal of this type of evaluation?

ఒక ఉపాధ్యాయుడు ఫార్మేటివ్ మూల్యాంకనం ఉపయోగిస్తాడు. ఈ మూల్యాంకన ప్రాథమిక లక్ష్యమేమి?

Options :

To determine if the learning objectives have been met at the end of a unit.
ఒక యూనిట్ ముగింపులో అభ్యాసము లక్ష్యాలను పొందారా అని నిర్ణయించుటకు

898741111617. ✖

To provide feedback to students while they are learning.
విద్యార్థులు వారు నేర్చుకునే సమయంలోనే అభిప్రాయం ఇచ్చు సౌకర్యం

898741111618. ✔

To compare a student's performance with that of others.
ఒక విద్యార్థి పనితీరును, ఇతరులతో పోల్చి చూచుట

898741111619. ✖

To help students decide on their future careers.
విద్యార్థులు తమ భవిష్యత్తు ఉద్యోగ నిర్ణయంలో సహకరించుట

898741111620. ✖

Question Number : 6 Question Id : 89874128316 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following best describes the **Descriptive** research method?

వర్ణనా పరిశోధన పద్ధతిని ఈ దిగువ నివేదన సరిగా వివరిస్తుంది

Options :

It explains a cause-and-effect relationship between variables.

చలాంశాల మధ్య కార్యకారక సంబంధాలను వివరిస్తుంది

898741111621. ✖

It provides a detailed account of a phenomenon or a group.

ఒక దృగ్విషయము, సమూహము గురించి వివరాలతో కూడిన నివేదిక ఇస్తుంది

898741111622. ✔

It seeks to predict future outcomes.

భవిష్యత్తు ఫలితాలను అంచనా వేయగలదు

898741111623. ✖

It involves the manipulation of variables.

చలాంశాలు మానిపులేషన్ ఇందులో ఇమిడి ఉంది

898741111624. ✖

Question Number : 7 Question Id : 89874128317 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is the primary purpose of writing a **thesis**?

థీసిస్ వ్రాయు ప్రాథమిక ఉద్దేశమేమి.

Options :

To prove that the researcher's initial hypothesis was wrong.

పరిశోధకుని ప్రాథమిక పరికల్పన తప్పు అని నిరూపించుటకు

898741111625. ✖

To present the findings and conclusions of a research study in a formal document.

పరిశోధన ఫలితాలు, ముగింపులు ఒక అధికారిక పత్రము ద్వారా తెలియచేయుట

898741111626. ✔

To collect data from a sample group.

ప్రతి నమూనా సమూహం నుండి దత్తాంశ సేకరణ

898741111627. ✖

To publish a book for a general audience.

సాధారణ పాఠకుల కోసం ఒక పుస్తకాన్ని ప్రచురించుట

898741111628. ✖

Question Number : 8 Question Id : 89874128318 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In research, which of the following is a key ethical consideration?
పరిశోధనలో ఈ దిగువ ఏ విషయం కీలక నైతిక పరిశీలన?

Options :

898741111629. ✖ Publishing the research in a prestigious journal.
పరిశోధన ప్రతిష్టాత్మక జర్నల్‌లో ప్రచురించుట

898741111630. ✔ Ensuring the anonymity of participants.
పరిశోధనలో భాగస్వాముల గోప్యతను రక్షించటం

898741111631. ✖ Keeping the research findings a secret from the public.
ప్రజానీకం నుండి పరిశోధనా ఫలితాలను రహస్యంగా ఉంచుట

898741111632. ✖ Making sure that the research is very expensive to conduct.
పరిశోధన చేయుట చాలా ఖర్చుతో కూడుకున్నదని నిరూపించుట

Question Number : 9 Question Id : 89874128319 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What is a key difference between a **Qualitative** and a **Quantitative** research approach?
గుణాత్మక, పరిమాణాత్మక పరిశోధనా దృక్పథంలో ముఖ్య భేదమేమి?

Options :

Qualitative research is based on numerical data, while quantitative research uses interviews.

గుణాత్మక పరిశోధన సంఖ్యా దత్తాంశముపై ఆధారపడి ఉంటుంది. పరిమాణాత్మక పరిశోధన ఇంటర్వ్యూలను ఉపయోగిస్తుంది

898741111633. ✖

Qualitative research focuses on depth and non-numerical data, while quantitative research focuses on breadth and numerical data.

గుణాత్మక పరిశోధన సంఖ్యేతర దత్తాంశము లోతుపై దృష్టిపెడితే, పరిమాణాత్మక పరిశోధన సంఖ్యా దత్తాంశముపైన, వెడల్పుపైన దృష్టిపెడుతుంది.

898741111634. ✔

Qualitative research is more objective than quantitative research.

పరిమాణాత్మక పరిశోధనకంటే గుణాత్మక పరిశోధన ఎక్కువ నిష్పక్షపాతకమైనది.

898741111635. ✖

Qualitative research always involves an experiment, while quantitative research does not.

గుణాత్మక పరిశోధనలో ఎప్పుడూ ఒక ప్రయోగం ఉంటుంది, పరిమాణాత్మక పరిశోధనలో ఉండదు.

898741111636. ✖

Question Number : 10 Question Id : 89874128320 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the context of Thesis and Article writing, what is the purpose of the introduction section?

థీసిస్ మరియు వ్యాసరచన సందర్భంలో, పరిచయ భాగము అవసరమేమి?

Options :

To present the final results and conclusions.

తుది ఫలితాలు, ముగింపులను నివేదించుట

898741111637. ✖

To introduce the research problem, background, and objectives.

పరిశోధనా సమస్య, నేపథ్యం, లక్ష్యాలను తెలియపరచుట

898741111638. ✔

To list all the sources that were used in the research.

పరిశోధనలో వాడిన అన్ని వనరులను జాబితా చేయుట

898741111639. ✖

To provide a detailed explanation of the research methodology.

పరిశోధనా పద్ధతిపై వివరాలతో వివరణ ఇచ్చుట

898741111640. ✖

Sub-Section Number :

2

Sub-Section Id :

8987411156

Question Shuffling Allowed :

No

Question Id : 89874128321 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)

The landscape, like our literature, is apt to grow and to get itself formed under too luxurious ideals. This is the evil work of that little more which makes its insensible but persistent additions to styles, to the arts, to the ornaments of life to nature, when unluckily man becomes too explicitly conscious of her beauty, and too deliberate in his arrangement of it. The landscape has need of moderation, of that fast-disappearing grace of unconsciousness, and, in short, of a return towards the ascetic temper. The English way of landowning, above all, has made for luxury. Naturally the country is fat. The trees are thick and round--a world of leaves; the hills are round; the forms are all blunt; and the grass is so deep as to have almost the effect of snow in smoothing off all points and curving away all abruptness. England is almost as blunt as a machine-made moulding or a piece of Early-Victorian cast-iron work. And on all this we have, of set purpose, improved by our invention of the country park. There all is curves and masses. A little more is added to the greenness and the softness of the forest glade, and for increase of ornament the fat land is devoted to idleness. Not a tree that is not impenetrable, inarticulate. Thick soil below and thick growth above cover up all the bones of the land, which in more delicate countries show brows and hollows resembling those of a fine face after mental experience. By a very intelligible paradox, it is only in a landscape made up for beauty that beauty is so ill achieved. Much beauty there must needs be where there are vegetation and the seasons. But even the seasons, in park scenery, are marred by the little too much: too complete a winter, too emphatic a spring, an ostentatious summer, an autumn too demonstrative.

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

ప్రకృతి దృశ్యం కూడ సాహిత్యంలాగానే ఘనమైన సిద్ధాంతాల ప్రభావాల బలంతో రూపుదిద్దుకొంటుంది, పెరుగుతుంది. 'మరికొంచెం' అనుకొనే మానవస్వభావం వల్ల కలిగే దుష్ఫలితం ఇది. కళలలో నిరంతరం శైలులు, కళలు, సజీవ అలంకారాలు, సౌందర్యం పట్ల అతి శ్రద్ధ-వీటిపట్ల ఉద్దేశపూర్వక వ్యవహారశైలి మొదలైన వాటిపట్ల కృత్రిమత కొంచెం తెలియకుండానే పెరుగుతుంది. ప్రకృతికి కూడ 'మితత్వం' అవసరం. స్వరూపజ్ఞానంలేని, సహజ సౌందర్యభరితమైన ఒక ప్రశాంతరూపం వేగంగా కనుమరుగైపోతున్నది. తిరిగి అది ఒక తాపసధోరణికి మళ్ళాలి. ఇంగ్లీష్ భూస్వామ్య విధానం, ముఖ్యంగా వైభవం వైపు దారితీసింది. సారవంతమైన, సమృద్ధమైన ఆ దేశం దట్టమైన చెట్లు, బలమైన కొమ్మలు, అకుల పచ్చదనంతో నిండిఉంది. కొండలు, అడవులు కూడ నిండుగా రూపొందినాయి. మంచు ప్రభావం వల్ల కొనదేరిన కొమ్మలు రెమ్మలు కూడ కప్పబడి అస్పష్టంగా గుండ్రంగా మారాయి. ఇంగ్లండ్ మొత్తం విక్టోరియన్ యుగపు ఇనుప అలంకారం ద్విగుణీకృతం కావడానికి సారవంతమైన నేలను వదిలేసినట్లు అయింది. ఒక్క దట్టమైన చెట్టు కూడ సహజత్వం లేకుండా మౌనం వహించినట్లుంది. అందం ఇనుమడించడం కోసం చేసిన కృషిలో మాత్రమే ప్రకృతి అందం ఇమిడి ఉండదు. అకారంలేని నేలపై మొలిచిన దట్టపు అడవుల్లో, వృక్షాల్లో ఒక రూపం, తీరు ఉండొచ్చు. కాని అందంగా తయారుచేసిన పార్కుల్లో, ప్రకృతిదృశ్యంలో అన్నీ ఎక్కువే- అతి కఠిన శీతాకాలం, ఉత్సాహం వెల్లివిరిసే వసంతం, మితిమీరిన వేసవి, అంతట నిండిపోయే ప్రదర్శించే శరదృతువు - అన్నీ.

Sub questions

Question Number : 11 Question Id : 89874128322 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Why is the author comparing landscape with literature?

రచయిత భూప్రకృతిదృశ్యం సాహిత్యంతో ఎందుకు సరిపోల్చారు?

Options :

they are too deliberate and lose natural simplicity
వాటి ఉద్దేశపూర్వకత వల్ల,సహజ సరళత తగ్గిపోతుంది

898741111641. ✓

they both are man-made
ఇవి మానవకృషితో సృష్టించబడ్డాయి

898741111642. ✖

they belong to humanities
ఇవి మానవీయ విద్యలకు చెందుతాయి

898741111643. ✖

they are both deliberate and spontaneous
సహజత్వం మరియు సహజస్ఫూర్తితో రెండు కనిపిస్తాయి

898741111644. ✖

Question Number : 12 Question Id : 89874128323 Question Type : MCQ Option Shuffling : No

Correct Marks : 2 Wrong Marks : 0

The author describes England's landscape as a _____piece of work.

రచయిత ఇంగ్లాండు భూదృశ్యాన్ని ----- కృషి అని వివరిస్తాడు.

Options :

man-made
మానవకృషితో తయారైన

898741111645. ✖

natural
సహజమైన

898741111646. ✖

wild
అడవి ప్రాకృతికమైన

898741111647. ✖

machine made
యంత్రం తయారుచేసిన

898741111648. ✓

Question Number : 13 Question Id : 89874128324 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What does the author means by the following phrase-“Not a tree that is not impenetrable inarticulate”?

“ అక్కడ ఒక్క దట్టమైన చెట్టు కూడా సహజత్వం లేకుండా మౌనం వహించినట్లుంది” అనే వాక్యం ద్వారా రచయిత ఏమి చెప్పాలనుకుంటున్నాడు.

Options :

898741111649. ✖ the trees interact
చెట్లు పరస్పరం స్పందిస్తాయి

898741111650. ✔ the trees are dull and don't communicate
చెట్లు నిశ్శబ్దంగా, చైతన్యం లేకుండా ఉన్నాయి

898741111651. ✖ the trees are friendly
చెట్లు స్నేహపూర్వకంగా ఉంటాయి

898741111652. ✖ the trees are unintelligent
చెట్లు చైతన్యంతో, అవగాహనతో ఉన్నాయి

Question Number : 14 Question Id : 89874128325 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What does the phrase “ it is only in a landscape made up for beauty that beauty is so ill achieved,” suggest?

“అందాన్ని చూపించాలనే ఉద్దేశంతో రూపొందించిన భూప్రకృతిదృశ్యం సహజ అందాన్ని కోల్పోతుంది” అనే పదబంధం ఏమి సూచిస్తుంది?

Options :

898741111653. ✖ ornamental landscapes look aesthetic
అలంకార భూప్రకృతిదృశ్యంలో సమన్వయం ఉంటుంది

898741111654. ✖ made-up landscapes have an element of peace
కృత్రిమంగా రూపొందించిన భూప్రకృతిదృశ్యాలు కొంత శాంతిని కలిగిస్తాయి

artificial landscapes aren't truly beautiful
కృత్రిమ భూప్రకృతిదృశ్యంలో నిజమైన అందం ఉండదు
898741111655. ✓

made-up landscapes are beautiful
తయారుచేసిన భూప్రకృతిదృశ్యం సుందరంగా కనిపిస్తాయి
898741111656. ✗

Question Number : 15 Question Id : 89874128326 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The author feels that the seasons in man-made landscapes are _____
మానవ నిర్మిత భూప్రకృతిదృశ్యం రుతువులు ----- అని రచయిత భావించారు

Options :

under represented
తక్కువ ప్రతిబింబిస్తాయి
898741111657. ✗

not represented
ప్రతిబింబించబడవు
898741111658. ✗

neutral in representation
సగటుగా ప్రతిబింబిస్తాయి
898741111659. ✗

over represented
అధికంగా ప్రతిబింబిస్తాయి
898741111660. ✓

Sub-Section Number :

3

Sub-Section Id :

8987411157

Question Shuffling Allowed :

Yes

Question Number : 16 Question Id : 89874128327 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the process of communication, the encoded message is transmitted through
like telephone, internet, post, etc.

సంప్రేషణ (కమ్యూనికేషన్) ప్రక్రియలో, పంపిన వ్యక్తి సందేశాన్ని సంకేతీకరించిన తర్వాత, ఆ
సందేశం టెలిఫోన్, ఇంటర్నెట్, తపాలా మొదలైన ద్వారా స్వీకర్తకు పంపబడుతుంది.

Options :

Mode
విధానం

898741111661. ✖

Manner
తీరుశైలి

898741111662. ✖

Media
మాధ్యమం

898741111663. ✔

Model
నమూనా

898741111664. ✖

Question Number : 17 Question Id : 89874128328 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a conversation, if a person is not maintaining eye-contact, he is showing his

ఒక సంభాషణలో వ్యక్తి కళ్లలోకి చూడకుండా మాట్లాడితే, అతను తన _____ ని చూపిస్తున్నాడు .

Options :

Confidence
ఆత్మవిశ్వాసం

898741111665. ✖

Nervousness
అందోళన

898741111666. ✔

Happiness
అనందం

898741111667. ✖

Excitement
ఉత్సాహం

898741111668. ✖

Question Number : 18 Question Id : 89874128329 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In an inter- cultural communication, being _____ to the other culture
avoids miscommunication.

అంతర్-సంస్కృతుల సంప్రేషణలో, ఇతర సంస్కృతికి పట్ల _____ ఉండటం ద్వారా అపార్థాలు
నివారిస్తుంది.

Options :

Open- minded
విస్తృత దృక్పథం కలిగినవాడుగా

898741111669. ✓

Biased
పక్షపాతిగా

898741111670. ✗

Unwilling
ఇష్టంలేకుండా

898741111671. ✗

Prejudiced
ముందస్తు అభిప్రాయంతో

898741111672. ✗

Question Number : 19 Question Id : 89874128330 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

If two people do not trust each other, the communication between them is hindered by _____ barrier.

ఇద్దరు వ్యక్తులు ఒకరినొకరు నమ్మకపోతే వారి మధ్య సంప్రేషణ _____ అడ్డంకి వల్ల ఆటంకం కలుగుతుంది.

Options :

898741111673. ✖ Physical
భౌతిక

898741111674. ✖ Environmental
పర్యావరణ

898741111675. ✖ Semantic
అర్థ సంబంధమైన

898741111676. ✔ Psychological
మానసిక

Question Number : 20 Question Id : 89874128331 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Magazines, newspapers, periodicals are examples of _____media
పత్రికలు, వార్తా పత్రికలు, మాసపత్రికలు ఇవన్నీ _____మాధ్యమాల ఉదాహరణలు

Options :

Electronic
సాంకేతిక ఆధారిత

898741111677. ✖

Print
ముద్రిత

898741111678. ✔

Social
సామాజిక

898741111679. ✖

Traditional
సాంప్రదాయ

898741111680. ✖

A man drives car from home to his office, which is located at a distance of 51km, with usual speed. On a day he starts to his office 15 minutes late from home and reaches office 30 minutes late by driving car 15% slower than his usual speed. Then his usual speed (in kmph) is

తన ఇంటి నుండి 51 కి.మీ. దూరంలోనున్న కార్యాలయానికి ఒక వ్యక్తి రోజూ సాధారణ వేగంతో కారును నడుపుకుంటూ వెళతాడు. ఒకరోజు సాధారణ వేగం కన్న కారును 15% మెల్లగానడుపు కుంటూ 15 నిమిషాలు ఆలస్యంగా బయలుదేరి 30 నిమిషాలు ఆలస్యంగా కార్యాలయానికి చేరు కున్నాడు. అప్పుడు అతని సాధారణ వేగం (గంటకు కి.మీ.లలో)

Options :

898741111681. ✖ 24

898741111682. ✖ 30

898741111683. ✔ 36

898741111684. ✖ 42

Working efficiencies of the three persons A,B and C in completing a job are as follows:

A finishes 20% of the job in 70 days,

B finishes 30% of the job in 60 days and

C finishes 40% of the job in 50 days.

In how many days (approximately) they all together can finish the job?

ఒక పనిని పూర్తిచేయడంలో ముగ్గురు వ్యక్తులు A,B మరియు C ల పని తనం క్రింది విధంగా ఉంది:

20% పనిని A 70 రోజులలో పూర్తి చేయగలరు,

30% పనిని B 60 రోజులలో పూర్తి చేయగలరు, మరియు

40% పనిని C 50 రోజులలో పూర్తిచేయగలరు.

అందరూ కలిసి ఆ పనిని సుమారుగా ఎన్ని రోజులలో పూర్తిచేయగలరు?

Options :

898741111685. ✓ 63

67

898741111686. ✗

68

898741111687. ✗

66

898741111688. ✗

With the following notations answer the question that follows.

$A+B$ means A is the father of B,

$A-B$ means A is the son of B,

$A \times B$ means A is the mother of B, and

$A \div B$ means A is the sister of B.

Given $P+Q-R \times S \div T$, how is P related to R?

క్రింది సంకేతాల దృష్ట్యా దాని క్రిందనీయబడిన ప్రశ్నకు జవాబునీయండి.

$A+B$ అంటే B యొక్క తండ్రి A అని,

$A-B$ అంటే B యొక్క కొడుకు A అని,

$A \times B$ అంటే B యొక్క తల్లి A అని, మరియు

$A \div B$ అంటే B యొక్క సోదరి A అనీ అర్థం.

అప్పుడు $P+Q-R \times S \div T$ అని ఇస్తే, R తో P కు గల బంధుత్వమేమి?

Options :

P is the brother of R

R యొక్క సోదరుడు P

898741111689. ✖

P is the husband of R

R యొక్క భర్త P

898741111690. ✔

R is the sister of P

P యొక్క సోదరి R

898741111691. ✖

R is the daughter of P

P యొక్క కుమార్తె R

898741111692. ✖

Question Number : 24 Question Id : 89874128335 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A person P sells an article to another person Q at a profit of 20%. Later P wants to retain it, and purchases from Q. Q sells it to P at a loss of 20% on his purchase price from P. Then in the process P gets

P అనే ఒక వ్యక్తి ఒక వస్తువును మరొక వ్యక్తి Q కు 20% లాభానికి అమ్ముతాడు. ఆ తరువాత P ఆ వస్తువును తిరిగి కావాలనుకుంటాడు. అప్పుడు Q తను కొన్న ధరపై 20% నష్టానికి P కు తిరిగి అమ్ముతాడు. ఈ వ్యవహారంలో P పొందేది

Options :

898741111693. ✓
a loss of 4%
4% నష్టం

898741111694. ✗
a loss of 5%
5% నష్టం

898741111695. ✗
a profit of 4%
4% లాభం

898741111696. ✗
a loss of 6%
6% నష్టం

Question Number : 25 Question Id : 89874128336 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a code language JACK is written as ZJGL. Then in the same code language IBEX is coded as

ఒక కోడ్ పరిభాషలో JACK ను ZJGLగా వ్రాసారు. అప్పుడు అదే కోడ్ పరిభాషలో IBEX యొక్క కోడ్ పదం

Options :

898741111697. ✖ YKJX

898741111698. ✔ YKIY

898741111699. ✖ YKIZ

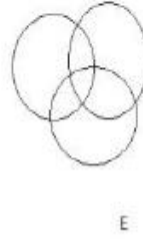
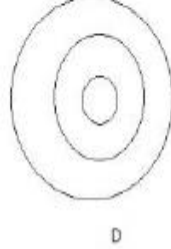
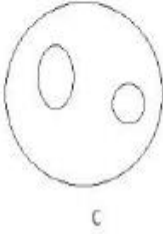
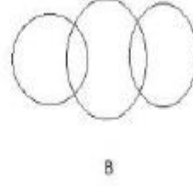
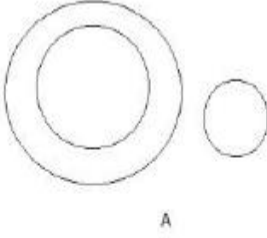
898741111700. ✖ YIKY

Consider the following Venn diagrams

In each of the below given four options, three words are given. Identify the option having the three words which are not related among themselves in any of the five ways represented by (A), (B), (C), (D) and (E) above.

క్రింది వెన్ చిత్రాలను గైకొనుము.

క్రింద ఇవ్వబడిన నాలుగు ఐచ్ఛికాలలో ప్రతిదానిలో మూడు పదాలు ఇవ్వబడినవి. పైన ఇవ్వబడిన ఐదు A,B,C,D మరియు E విధాలలో వేటితో సంబంధంలేని పదాలను కలిగిన ఐచ్ఛికాన్ని గుర్తించండి.



Options :

Piston, engine, wheel
పిస్టన్, ఇంజను, చక్రం

898741111701. ✖

Star, moon, mars

నక్షత్రం, చంద్రుడు, అంగారకుడు

898741111702. ✔

Mineral, copper, wood
ఖనిజం, రాగి, కలప

898741111703. ✖

898741111704. ✖

Book, page, paragraph

పుస్తకం, పేజీ, పేరా

Question Number : 27 Question Id : 89874128338 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 analogy

Sphygmomanometer: Blood pressure: : Fathometer: -----

క్రింది సారూప్యతలో ఖాళీలో ఇమిడిపోయే సరైన పదంతో పూరించండి.

స్పెగ్మోమానోమీటరు : రక్తపోటు :: ఫాతోమీటరు :-----

Options :

Depth of sea
సముద్రపు లోతు

898741111705. ✓

Intensity of sound
ధ్వని తీవ్రత

898741111706. ✖

Electric voltage
విద్యుత్ వోల్టేజీ

898741111707. ✖

Earthquake
భూకంపం

898741111708. ✖

Question Number : 28 Question Id : 89874128339 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is not a type of Inference (Anumana)

క్రింది వాటిలో 'అనుమాన' రకానికి చెందనిది ఏది?

Options :

Purvavat
పూర్వావత్

898741111709. ✖

Sheshavat
శేషావత్

898741111710. ✖

Samanyathodrista
సామాన్యతోద్రిష్ట

898741111711. ✖

Pratyaksha
ప్రత్యక్ష

898741111712. ✔

Question Number : 29 Question Id : 89874128340 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In syllogistic logic, what does the “mood” of a syllogism represent?

సిలాజిక్ తర్కంలో ఒక సిలాజిసం యొక్క ‘మానసిక స్థితి’ ఏమి తెలియపరుస్తుంది?

Options :

The emotional feeling expressed
భావోద్వేగ స్థితిని వ్యక్తపరుస్తుంది

898741111713. ✖

The arrangement of major and minor premises
మేజర్ మరియు మైనర్ అవరణల అమరిక

898741111714. ✖

The types of categorical propositions in order
ఒక క్రమంలో వివిధ రకాల వర్గీకృత ప్రతిపాదనలు

898741111715. ✔

The validity of the conclusion
ముగింపు యొక్క చెల్లుబాటు

898741111716. ✖

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

రెండూ నిజం కాకుండా ఆ రెండూ అసత్యం కాగలిగే విధంగా ఉండే వర్గీకృత ప్రవచనాల యుగ్మం ఏది?

Options :

Universal affirmative and particular negative
సార్వత్రిక అన్వయం మరియు ప్రత్యేక నిరాకరణ

898741111717. ✖

Universal negative and particular affirmative
సార్వత్రిక నిరాకరణ మరియు ప్రత్యేక అన్వయం

898741111718. ✖

Universal affirmative and universal negative
సార్వత్రిక అన్వయం మరియు సార్వత్రిక నిరాకరణ

898741111719. ✔

Particular affirmative and particular negative
ప్రత్యేక అన్వయం మరియు ప్రత్యేక నిరాకరణ

898741111720. ✖

Sub-Section Number :

4

Sub-Section Id :

8987411158

Question Shuffling Allowed :

No

Question Id : 89874128342 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 questions from 31 to 35 based on the following information.

A college has 2780 students belonging to various branches, whose details are shown in the following table.

క్రింది పటం ఆధారంగా 31 నుండి 35 వరకు గల ప్రశ్నలకు జవాబులనివ్వండి.

విభిన్న విభాగాలకు చెందిన 25 కళాశాలలోని 2780 మంది విద్యార్థుల వివరాలను క్రింది పట్టిక చూపుతుంది.

Branch విభాగం	ECE	CSE	EEE	Mech
Number of students విద్యార్థుల సంఖ్య	750	990	270	770
Ratio between boys and girls బాలురు, బాలికల నిష్పత్తి	3:2	4:1	5:4	4:3

Sub questions

Question Number : 31 Question Id : 89874128343 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The total number of girl students in CSE and EEE is

CSE మరియు EEE లలో మొత్తం మహిళా విద్యార్థుల సంఖ్య

Options :

898741111721. ✖ 316

898741111722. ✖ 328

898741111723. ✖ 320

898741111724. ✔ 318

Question Number : 32 Question Id : 89874128344 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The ratio between the total number of girls to total number of boys in CSE, EEE and Mech is

CSE, EEE మరియు Mech లలోని మహిళా విద్యార్థుల సంఖ్యకు మరియు పురుష విద్యార్థుల సంఖ్యకు గల నిష్పత్తి

Options :

314:691

898741111725. ✖

324 : 691

898741111726. ✔

324 : 693

898741111727. ✖

324 : 695

898741111728. ✖

Question Number : 33 Question Id : 89874128345 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What is the difference between the number of boys and girls in the college?

కళాశాలలోని బాలురు మరియు బాలికల సంఖ్యల భేదం

Options :

885

898741111729. ✖

880

898741111730. ✖

884

898741111731. ✔

882

898741111732. ✖

Question Number : 34 Question Id : 89874128346 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

If A,B,C and D represent the number of girls in the branches Mech, ECE, EEE, and CSE respectively, then which of the following is correct?

Mech, ECE, EEE మరియు CSE లలో బాలికల సంఖ్యలను వరుసగా A,B,C మరియు Dలు చూపితే, క్రింది వాటిలో ఏది నిజం?

Options :

898741111733. ✖ $D > A > B > C$

898741111734. ✖ $C > D > A > B$

898741111735. ✔ $A > B > D > C$

898741111736. ✖ $B > A > D > C$

Question Number : 35 Question Id : 89874128347 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The number of girls in ECE is less than the number of boys in Mech by

Mech విభాగంలోని బాలుర సంఖ్య కన్న ECE విభాగంలోని బాలికల సంఖ్య ఎంత తక్కువ?

Options :

898741111737. ✖ 120

898741111738. ✖ 125

898741111739. ✖ 130

898741111740. ✔ 140

Sub-Section Number : 5
Sub-Section Id : 8987411159
Question Shuffling Allowed : Yes

Question Number : 36 Question Id : 89874128348 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What does RAM stand for?

RAM అంటే ఏమిటి ?

Options :

898741111741. ✖
Read Access Memory
రీడ్ యాక్సెస్ మెమరీ

898741111742. ✔
Random Access Memory
రాండమ్ యాక్సెస్ మెమరీ

898741111743. ✖
Real-time Application Memory
రియల్-టైమ్ అప్లికేషన్ మెమరీ

898741111744. ✖
Remote Access Memory
రిమోట్ యాక్సెస్ మెమరీ

Question Number : 37 Question Id : 89874128349 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of these is the correct email address?
వీటిలో ఏది సరైన ఇమెయిల్ చిరునామా?

Options :

898741111745. ✖ userName@website@com

898741111746. ✖ userName.website.com

898741111747. ✖ userName.website@com

898741111748. ✔ userName@website.com

Question Number : 38 Question Id : 89874128350 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which technology allows real-time audio conversations over the internet?
ఇంటర్నెట్ ద్వారా రియల్-టైమ్ ఆడియో సంభాషణలను అనుమతించే టెక్నాలజీ ఏది ?

Options :

898741111749. ✖ Traditional telephony
సాంప్రదాయ టెలిఫోనీ

898741111750. ✖ Email
ఇమెయిల్

898741111751. ✔ Voice over Internet Protocol (VoIP)
వాయిస్ ఓవర్ ఇంటర్నెట్ ప్రోటోకాల్ (VoIP)

898741111752. ✖ Social media platforms
సోషల్ మీడియా ప్లాట్‌ఫామ్లు

Question Number : 39 Question Id : 89874128351 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following is an Indian national digital learning platform?
కింది వాటిలో ఏది భారత జాతీయ డిజిటల్ లెర్నింగ్ ప్లాట్‌ఫామ్?

Options :

Future Learn
ఫ్యూచర్‌లెర్న్

898741111753. ✖

Connectivism
కనెక్టివిజం

898741111754. ✖

DIKSHA
దీక్ష

898741111755. ✔

Mindomo
మిండోమో

898741111756. ✖

Question Number : 40 Question Id : 89874128352 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

ShodhGanga is primarily for:
శోధగంగా ప్రధానంగా వీటి కోసం:

Options :

Publishing Ph.D. theses
పిహెచ్డి థీసిస్లను ప్రచురించడం

898741111757. ✓

Providing online classes
ఆన్లైన్ తరగతులను అందించడం

898741111758. ✖

Developing coding skills
కోడింగ్ నైపుణ్యాలను అభివృద్ధి చేయడం

898741111759. ✖

Offering vocational courses
వృత్తిపరమైన కోర్సులను అందించడం

898741111760. ✖

Question Number : 41 Question Id : 89874128353 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the below is the seventh of the United Nations' eight-millennium goals?

ఐక్యరాజ్యసమితి ఎనిమిది సహస్రాబ్ది లక్ష్యాలలో ఈ క్రింది వాటిలో ఏడవది ఏది ?

Options :

To end extreme poverty and hunger

తీవ్ర పేదరికం మరియు ఆకలిని అంతం చేయడం

898741111761. ✖

To ensure environmental sustainability

పర్యావరణ స్థిరత్వాన్ని నిర్ధారించడం

898741111762. ✔

To minimise child mortality

పిల్లల మరణాలను తగ్గించడం

898741111763. ✖

To establish global development cooperation.

ప్రపంచ అభివృద్ధి సహకారాన్ని ఏర్పాటు చేయడం

898741111764. ✖

Question Number : 42 Question Id : 89874128354 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of these is a direct human dependence on the environment?

వీటిలో ఏది మానవుల ప్రత్యక్ష పర్యావరణ ఆధారాన్ని సూచిస్తుంది ?

Options :

The use of technology to alter the environment.

పర్యావరణాన్ని మార్చడానికి సాంకేతికతను ఉపయోగించడం

898741111765. ✖

The mining of resources for industrial use.

పారిశ్రామిక అవసరాల కోసం వనరులను తవ్వడం

898741111766. ✖

Relying on the environment for food, water, and fuel.

ఆహారం, నీరు మరియు ఇంధనం కోసం పర్యావరణంపై ఆధారపడటం

898741111767. ✔

Building artificial structures to create urban environments.

పట్టణ వాతావరణాలను సృష్టించడానికి కృత్రిమ నిర్మాణాలను నిర్మించడం

898741111768. ✖

Question Number : 43 Question Id : 89874128355 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The political dimension of international climate change negotiations primarily concerns:
అంతర్జాతీయ వాతావరణ మార్పు చర్చల రాజకీయ కోణం ప్రధానంగా వీటికి సంబంధించినది:

Options :

The technical aspects of carbon capture technology
కార్బన్ సంగ్రహణ సాంకేతికత యొక్క సాంకేతిక అంశాలు

898741111769. ✖

The shared responsibility for historical emissions and development goals
చారిత్రక ఉద్గాకాలు మరియు అభివృద్ధి లక్ష్యాలకు ఉమ్మడి బాధ్యత

898741111770. ✔

The establishment of protected marine areas
రక్షిత సముద్ర ప్రాంతాల స్థాపన

898741111771. ✖

A global carbon tax on all emissions
అన్ని ఉద్గారాలపై ప్రపంచ కార్బన్ పన్ను

898741111772. ✖

Question Number : 44 Question Id : 89874128356 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which renewable resource is often used in large arrays on mountain ridges or in open water?

పర్వత శిఖరాలపై లేదా బహిరంగ నీటిలో పెద్ద శ్రేణులలో తరచుగా ఉపయోగించే
పునరుత్పాదక వనరు ఏది ?

Options :

Biomass
బయోమాస్

898741111773. ✖

Solar
సౌరశక్తి

898741111774. ✖

Geothermal
భూఉష్ణశక్తి

898741111775. ✖

Wind
గాలి

898741111776. ✔

Question Number : 45 Question Id : 89874128357 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The Rio Earth Summit of 1992 led to the creation of which significant environmental agreement?

1992లో జరిగిన రియో ఎర్త్ సమ్మిట్ ఏ ముఖ్యమైన పర్యావరణ ఒప్పందాన్ని రూపొందించడానికి దారితీసింది?

Options :

Kyoto Protocol
క్యోటో ప్రోటోకాల్

898741111777. ✖

Paris Agreement
పారిస్ ఒప్పందం

898741111778. ✖

Convention on Biological Diversity
జీవ వైవిధ్యంపై సమావేశం

898741111779. ✔

Minamata Convention
మినామాటా సమావేశం

898741111780. ✖

Question Number : 46 Question Id : 89874128358 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The University of Vikramashila was established during the reign of which Indian dynasty?
విక్రమశిల విశ్వవిద్యాయం ఏ భారతీయ రాజవంశం పాలనలో స్థాపించబడింది ?

Options :

Maurya
మౌర్య

898741111781. ✖

Gupta
గుప్త

898741111782. ✖

Kushan
కుషన్

898741111783. ✖

Pala
పాలా

898741111784. ✔

Question Number : 47 Question Id : 89874128359 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which commission, established in 1948, recommended the creation of the University Grants Commission (UGC) to oversee university education?

1948లో స్థాపించబడిన ఏ కమిషన్, విశ్వవిద్యాలయ విద్యను పర్యవేక్షించడానికి విశ్వవిద్యాలయ గ్రాంట్స్ కమిషన్ (UGC) ఏర్పాటుకు సిఫార్సు చేసింది ?

Options :

Kothari Commission

కొఠారి కమిషన్

898741111785. ✖

University Education Commission (Radha Krishnan Commission)

విశ్వవిద్యాలయ విద్యా కమిషన్ (రాధా కృష్ణన్ కమిషన్)

898741111786. ✔

Secondary Education Commission

మాధ్యమిక విద్యా కమిషన్

898741111787. ✖

National Policy on Education

విద్యపై జాతీయ విధానం

898741111788. ✖

Question Number : 48 Question Id : 89874128360 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A key characteristic of conventional learning programmes is:

సాంప్రదాయ అభ్యాస కార్యక్రమాల యొక్క ముఖ్య లక్షణం:

Options :

Learner-centric and flexible schedules.

అభ్యాస-కేంద్రీకృత మరియు సౌకర్యవంతమైన షెడ్యూల్లు

898741111789. ✖

Online and distance education modes.

ఆన్‌లైన్ మరియు దూర విద్య రీతులు

898741111790. ✖

On-campus, face-to-face instruction with fixed schedules.

క్యాంపస్‌లో, స్థిర షెడ్యూల్‌లతో ముఖాముఖి బోధన

898741111791. ✔

Emphasis on vocational and skill-based training.

వృత్తి మరియు నైపుణ్య ఆధారిత శిక్షణపై ప్రాధాన్యత

898741111792. ✖

Question Number : 49 Question Id : 89874128361 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Environmental education is essential for children because it helps them to:

పిల్లలకు పర్యావరణ విద్య చాలా అవసరం ఎందుకంటే అది వారికి ఈ క్రింది వాటికి
సహాయపడుతుంది

Options :

To Learn about various environmental issues without the need for action
చర్య అవసరం లేకుండా వివిధ పర్యావరణ సమస్యల గురించి తెలుసుకోవడానికి

898741111793. ✖

To Develop skills and attitudes to address environmental challenges
పర్యావరణ సవాళ్లను పరిష్కరించడానికి నైపుణ్యాలు మరియు వైఖరులను అభివృద్ధి చేయడానికి

898741111794. ✔

To Understand their cultural heritage
వారి సాంస్కృతిక వారసత్వాన్ని అర్థం చేసుకోవడానికి

898741111795. ✖

To Acquire knowledge about different countries
వివిధ దేశాల గురించి జ్ఞానాన్ని పొందడానికి

898741111796. ✖

Question Number : 50 Question Id : 89874128362 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which constitutional body was formed in 2005 under the chairmanship of Veerappa Moily to recommend measures for a more responsive and efficient administration?

మరింత బాధ్యతయుతమైన మరియు సమర్థవంతమైన పరిపాలన కోసం చర్యలను సిఫార్సు

చేయడానికి వీరప్ప మొయిలీ అధ్యక్షతన 2005లో ఏర్పాటైన రాజ్యాంగ సంస్థ ఏది ?

Options :

The Planning Commission

ప్రణాళిక సంఘం

898741111797. ✖

The First Administrative Reforms Commission

మొదటి పరిపాలన సంస్కరణల కమిషన్

898741111798. ✖

The Second Administrative Reforms Commission

రెండవ పరిపాలన సంస్కరణల కమిషన్

898741111799. ✔

The National Human Rights Commission

జాతీయ మానవ హక్కుల కమిషన్

898741111800. ✖

Paper II

Section Id :	898741374
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 :	8987411160
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 89874128363 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is true about a *Ring*?

Options :

898741111801. ✖ Every nonzero element of a group has a multiplicative inverse.

898741111802. ✔ Every nonzero element of a field has a multiplicative inverse.

898741111803. ✖ Every element of an Abelian group has an inverse.

898741111804. ✖ Every nonzero element of a field has an additive inverse.

Question Number : 52 Question Id : 89874128364 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider a set G with a binary operation "*" satisfying the following properties:

- I. Closure: For all a, b in G , $a * b$ is also in G .
- II. Associativity: $(a * b) * c = a * (b * c)$ for all a, b, c in G .
- III. Identity element: There exists an element e in G such that $a * e = e * a = a$ for all a in G .
- IV. Inverse element: For each a in G , there exists a^{-1} in G such that $a * a^{-1} = a^{-1} * a = e$.
- V. Commutative: $a * b = b * a$

Which combination of the above properties defines an Abelian Group

Options :

898741111805. ✖ I, II, III, IV

898741111806. ✖ I, II, III, V

898741111807. ✖ I, II, III

898741111808. ✔ I, II, III, IV, V

Question Number : 53 Question Id : 89874128365 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the relation "is a descendant of" on the set of all people. Which of the following properties hold?

Options :

898741111809. ✖ Reflexive, Symmetric, Transitive

898741111810. ✖ Reflexive, Not symmetric, Transitive

898741111811. ✔ Not reflexive, Not symmetric, Transitive

898741111812. ✖ Reflexive, Transitive

Question Number : 54 Question Id : 89874128366 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the domain $\{1,2,3,4\}$ and the following relations defined on it:

- I. $f_1 = \{(1,1), (2,1), (3,1), (4,1), (3,2)\}$
- II. $f_2 = \{(1,1), (2,1), (3,1), (4,1)\}$
- III. $f_3 = \{(1,1), (2,1)\}$
- IV. $f_4 = \{(1,2), (2,1), (1,3)\}$

Which of the following statements correctly describes which of the relations are functions from a subset of D to D?

Options :

898741111813. ✖ f_1, f_2, f_3 are functions, but f_4 is not a function

898741111814. ✔ f_2 and f_3 are functions, but not f_1 and f_4

898741111815. ✖ f_3 and f_4 functions, but not f_1 and f_2

898741111816. ✖ f_1 and f_4 are functions, but not f_2 and f_3

Question Number : 55 Question Id : 89874128367 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Using only the digits 1, 3, 4, and 9, how many two-digit or three-digit numbers can be formed (repetition of digits allowed)?

Options :

898741111817. ✖ 100

898741111818. ✖ 16

898741111819. ✖ 64

898741111820. ✔ 80

Question Number : 56 Question Id : 89874128368 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider two events A and B with probabilities $P(A)$ and $P(B)$. We want to compute $P(A|B)$ in the following two cases:

- 1) When A and B are independent events
- 2) When $A \subseteq B$

Which of the following correctly defines $P(A|B)$ in the two cases respectively

Options :

898741111821. ✖ $P(A|B) = P(A), P(A|B) = P(A)P(B)$

898741111822. ✔ $P(A|B) = P(A), P(A|B) = P(A)/P(B)$

898741111823. ✖ $P(A|B) = P(A)P(B), P(A|B) = P(A),$

898741111824. ✖ $P(A|B) = P(A), P(A|B) = P(B)P(A)$

Question Number : 57 Question Id : 89874128369 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the following events related to emails received:

- A: The email is spam
- B: The email contains the word "lottery"

Given that:

- $(P(A) = 0.2)$ (Probability that an email is spam)
- $(P(B | A) = 0.6)$ (Probability that a spam email contains "lottery")
- $(P(B | A') = 0.05)$ (Probability that a normal email contains "lottery")

What is $(P(A | B))$: the probability that an email is spam given that it contains the word "lottery"?

Options :

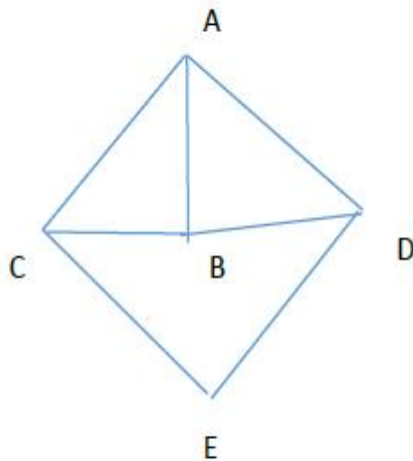
898741111825. ✖ 16%

898741111826. ✖ 60%

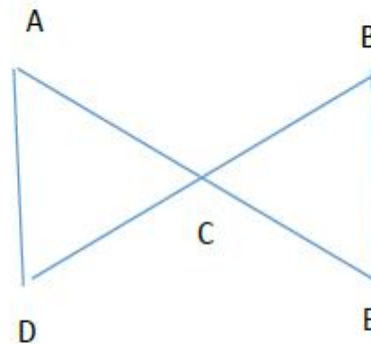
898741111827. ✖ 75%

898741111828. ✔ 80%

Consider the two graphs G1 and G2 shown below.



Graph G1



Graph G2

Which of the following statements is true regarding their Hamiltonian property?

Options :

898741111829. ✖ Both G1 and G2 are Hamiltonian

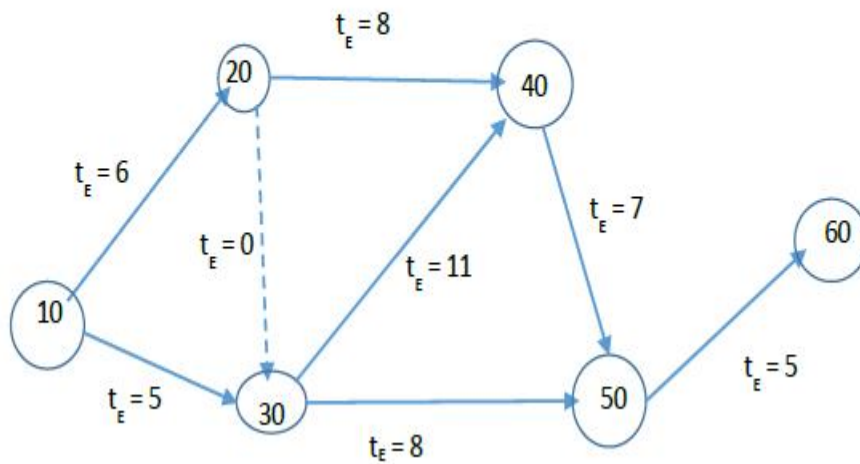
898741111830. ✖ Neither G1 nor G2 is Hamiltonian

898741111831. ✔ G1 is Hamiltonian, but G2 is not

898741111832. ✖ G2 is Hamiltonian, but G1 is not

Question Number : 59 Question Id : 89874128371 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

For the project represented by the network in the figure below, the value of expected time(t_E) is shown along the arrows. If the scheduled completion time is 30 hours, what is the critical path?



Options :

898741111833. ✓ 10-20-30-40-50-60

898741111834. ✗ 10-30-20-40-50-60

898741111835. ✗ 10-20-40-50-60

898741111836. ✗ 10-20-30-50-60

Question Number : 60 Question Id : 89874128372 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Suppose an edge of a connected graph G belongs to every spanning tree of G . Which of the following statements is true about G ?

Options :

- 898741111837. ✖ G is a tree with one of the vertices of that edge as the root
- 898741111838. ✖ G is Hamiltonian
- 898741111839. ✖ That edge is part of a critical path
- 898741111840. ✔ Removing that edge makes G disconnected

Question Number : 61 Question Id : 89874128373 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Listed below are some Operating System abstractions and their corresponding hardware components:

Operating System Abstraction	Hardware Component
(i) Thread	(p) Interrupt
(ii) Virtual Address Space	(q) Memory
(iii) File System	(r) CPU
(iv) Signal	(s) Disk

Which of the following correctly relates the Operating System abstractions to their corresponding hardware components?

Options :

898741111841. ✖ i-p, ii-q, iii-r, iv-s

898741111842. ✖ i-r, ii-s, iii-q, iv-p

898741111843. ✔ i-r, ii-q, iii-s, iv-p

898741111844. ✖ i-r, ii-p, iii-q, iv-s

Question Number : 62 Question Id : 89874128374 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Arrange the following memory components in the order of their increasing access time (from fastest to slowest).

- (P) RAM
- (Q) Hardware Cache
- (R) Tape
- (S) Disk

Choose the correct option:

Options :

898741111845. ✖ P,Q,R,S

898741111846. ✖ Q,P,R,S

898741111847. ✖ S,R,P,Q

898741111848. ✔ Q,P,S,R

Question Number : 63 Question Id : 89874128375 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Using a 4-bit 2's complement arithmetic, which of the following additions will result in an overflow?

- (i) $1100 + 1100$
- (ii) $0011 + 0111$
- (iii) $1111 + 0111$

Options :

(i) only

898741111849. ✖

(ii) only

898741111850. ✔

(iii) only

898741111851. ✖

(i) and (iii) only

898741111852. ✖

Question Number : 64 Question Id : 89874128376 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A computer system has a main memory consisting of 1M 16-bit words. It also has a 4K-word cache organized in the block-set-associative manner, with 4 blocks per set and 64 words per block. How many bits are required in each of the TAG, SET, and WORD fields of the main memory address format?

Options :

12,2,8

898741111853. ✖

12,2,6

898741111854. ✖

10,4,6

898741111855. ✔

8,6,6

898741111856. ✖

Question Number : 65 Question Id : 89874128377 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider a virtual memory system in which a page is of size 4 KB and logical address space of 4 GB. What would be its page table size if each entry in it occupies 2 bytes?

Options :

1 MB

898741111857. ✖

2 MB

898741111858. ✔

3 MB

898741111859. ✖

4 MB

898741111860. ✖

Question Number : 66 Question Id : 89874128378 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following is true for a normalized floating-point number, where $|M|$ represents the magnitude of the mantissa

Options :

$1/2 < |M| \leq 1$

898741111861. ✖

$1/2 \leq |M| < 1$

898741111862. ✔

$0 < |M| < 1$

898741111863. ✖

$0 \leq |M| < 1$

898741111864. ✖

Question Number : 67 Question Id : 89874128379 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A 4 bit biased base -2 exponent is used to represent a floating point number. What would be the representation of an exponent value of -7 ?

Options :

898741111865. ✖ 0111

898741111866. ✖ 1111

898741111867. ✔ 0000

898741111868. ✖ 1000

Match each register in List-I with its corresponding function in List-II.

List – I

List – II

- | | |
|--------------------------|--|
| (P) Program Counter | (i) Relocating a program in memory |
| (Q) Base Register | (ii) Implementation of array |
| (R) Index Register | (iii) Temporarily holds the instruction that is currently being executed |
| (S) Instruction Register | (iv) Address the of the next instruction to be fetched |

Choose the correct option:

Options :

898741111869. ✖ P-i, Q-ii, R-iii, S-iv

898741111870. ✔ P-iv, Q-i, R-ii, S-iii

898741111871. ✖ P-iii, Q-ii, R-iv, S-i

898741111872. ✖ P-ii, Q-iv, R-i, S-iii

Question Number : 69 Question Id : 89874128381 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In a horizontal microprogrammed control unit, each machine instruction has an opcode of 9 bits divided into two control fields — one of 5 bits and the other of 4 bits. If one combination in each field is reserved for no operation (NOP), what is the maximum number of distinct micro-operations that can be specified by such a scheme?

Options :

898741111873. ✓ 46

898741111874. ✗ 512

898741111875. ✗ 511

898741111876. ✗ 48

Question Number : 70 Question Id : 89874128382 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What would be the speed of a processor in terms of Million Instructions Per Second(MIPS) if the processor has two types of instructions A and B. Type A instructions take 16 clock cycles and type B instructions take 8 clock cycles. Programs on an average use 25% of type A and 75% of type B instructions. The clock rate is of 2.5 GHz.

Options :

898741111877. ✓ 250 MIPS

898741111878. ✗ 2500 MIPS

898741111879. ✗ 100 MIPS

898741111880. ✗ 1000 MIPS

Question Number : 71 Question Id : 89874128383 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What does the following function do for a given linked list with first node as head?

```
void fun1(struct node* head)
{
    if (head == NULL)
        return;
    fun1(head->next);
    printf("%d ", head->data);
}
```

Options :

- 898741111881. ✖ Prints all nodes of linked lists
- 898741111882. ✔ Prints all nodes of linked list in reverse order
- 898741111883. ✖ Prints alternate nodes of Linked List
- 898741111884. ✖ Prints alternate nodes in reverse order

Question Number : 72 Question Id : 89874128384 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider two objects, Object A and Object B, within a program. If Object A directly modifies an attribute (data member) of Object B by accessing it directly, which fundamental principle of Object-Oriented Programming (OOP) is being violated?

Options :

898741111885. ✖ Polymorphism

898741111886. ✔ Encapsulation

898741111887. ✖ Persistence

898741111888. ✖ Inheritance

Question Number : 73 Question Id : 89874128385 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The collection of variables, possibly of different data types connected in various arrays is called _____

Options :

898741111889. ✔ Data structure

898741111890. ✖ Identifier

898741111891. ✖ Data name

898741111892. ✖ Structure

Question Number : 74 Question Id : 89874128386 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Objects of the same class share the values of _____ while they maintain separate values for _____

Options :

898741111893. ✖ their super class, their sub class

898741111894. ✖ super class variables, class variables

898741111895. ✔ class variables, data members

898741111896. ✖ data members, attributes

Question Number : 75 Question Id : 89874128387 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statements about the lifetime of a variable is incorrect?

Options :

898741111897. ✖ The lifetime of a global variable is the entire run-time of the program.

898741111898. ✔ The lifetime of a heap variable is limited to a block.

898741111899. ✖ The lifetime of a local variable corresponds to the execution (activation) of the block in which it is defined.

898741111900. ✖ The lifetime of a persistent variable is arbitrary and may extend beyond the run-time of any particular program.

Question Number : 76 Question Id : 89874128388 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The transformation in which an object is first rotated about the x-axis and then about the y-axis is called:

Options :

898741111901. ✓ ☒ Rotation

898741111902. ✗ ☐ Moving

898741111903. ✗ ☐ Shearing

898741111904. ✗ ☐ Translation

Question Number : 77 Question Id : 89874128389 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

In computer graphics, the perspective transformation that maps 3D object coordinates to 2D image coordinates can be represented as:

Options :

898741111905. ✗ ☐ a linear 3 x 3 transformation

898741111906. ✓ ☒ a linear 4 x 4 transformation

898741111907. ✗ ☐ a nonlinear 3 x 3 transformation

898741111908. ✗ ☐ a nonlinear 4 x 4 transformation

Question Number : 78 Question Id : 89874128390 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

What will be the output of the program?

```
#include<stdio.h>
int main()
{
    const char *s = "";
    char str[] = "Test";
    s = str;
    while(*s)
        printf("%c", *s++);

    return 0;
}
```

Options :

898741111909. ✖ Error

898741111910. ✖ T

898741111911. ✔ Test

898741111912. ✖ Est

Question Number : 79 Question Id : 89874128391 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the following C code:

```
void test(float& v1, float& v2, float v)
```

```
{
```

```
    v1 -= v;
```

```
    v2 += v;
```

```
}
```

Suppose x, y and z are set to 4.0, 6.0, and 1.0 respectively, and the above procedure is invoked by the call test(x, y, x). Which of the following statement best describes the above scenario?

Options :

The invocation results in dangling pointer problem

898741111913. ✖

The invocation results in aliasing problem

898741111914. ✖

The invocation results in side effect

898741111915. ✔

The invocation results in run-time error

898741111916. ✖

Question Number : 80 Question Id : 89874128392 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following HTML code snippets opens a link in a new browser window (or tab)?

Options :

898741111917. ✖ `<a href="url" new>`

898741111918. ✔ `<a href="url" target="_blank">`

898741111919. ✖ `<a href="url" target="_parent">`

898741111920. ✖ `<a href="url" target="new">`

Question Number : 81 Question Id : 89874128393 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statements about an SQL query are TRUE?

P: An SQL query can contain a HAVING clause even if it does not use a GROUP BY clause

Q: An SQL query can contain a HAVING clause only if it has a GROUP BY clause

R: All attributes used in the GROUP BY clause must appear in the SELECT clause

S: Not all attributes used in the GROUP BY clause need to appear in the SELECT clause

Options :

898741111921. ✖ P and R

898741111922. ✖ P and S

898741111923. ✔ Q and R

898741111924. ✖ Q and S

Database table by name Loan_Records is given below:

Borrower	Bank_Manager	Loan_Amount
Ramesh	Sundar	100000.00
Suresh	Ramgopal	50000.00
Maresh	Sundar	70000.00

What is the output of the following SQL query?

```
SELECT Count(*)  
FROM  
(SELECT Borrower, Bank_Manager FROM Loan_Records) AS S  
NATURAL JOIN  
(SELECT Bank_Manager, Loan_Amount FROM Loan_Records) AS T);
```

Options :

898741111925. ✖ 3

898741111926. ✖ 9

898741111927. ✖ 5

898741111928. ✔ 6

Question Number : 83 Question Id : 89874128395 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Match the following SQL commands in List-I with their corresponding categories in List-II.

List-I (SQL Command)	List-II (Category)
(P). SELECT	i. DML (Data Manipulation Language)
(Q). COMMIT	ii. DCL (Data Control Language)
(R). REVOKE	iii. DDL (Data Definition Language)
(S). CREATE	iv. TCL (Transaction Control Language)

Choose the correct option:

Options :

898741111929. ✓ P-i, Q-iv, R-ii, S-iii

898741111930. ✗ P-i, Q-ii, R-iv, S-iii

898741111931. ✗ P-iv, Q-iii, R-i, S-ii

898741111932. ✗ P-iii, Q-iv, R-ii, S-i

Question Number : 84 Question Id : 89874128396 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider two transactions T1 and T2, and four schedules S1, S2, S3, S4 of T1 and T2 as given below:

T1 = R1[X] W1[X] W1[Y] and T2 = R2[X] R2[Y] W2[Y]

S1 = R1[X] R2[X] R2[Y] W1[X] W1[Y] W2[Y]

S2 = R1[X] R2[X] R2[Y] W1[X] W2[Y] W1[Y]

S3 = R1[X] W1[X] R2[X] W1[Y] R2[Y] W2[Y]

S4 = R1[X] R2[Y] R2[X] W1[X] W1[Y] W2[Y]

Which of the above schedules are conflict-serializable?

Options :

898741111933. ✖ S1 and S2

898741111934. ✔ S2 and S3

898741111935. ✖ S3 only

898741111936. ✖ S4 only

Question Number : 85 Question Id : 89874128397 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statement is incorrect?

Options :

A relation always can be decomposed into dependency preserving BCNF

898741111937. ✓

A relation in 3NF may have some redundancies

898741111938. ✗

If the decompositions is dependency preserving all functional dependencies can be derived from the individual relations

898741111939. ✗

There are relations for which there is no dependency preserving BCNF decomposition

898741111940. ✗

Question Number : 86 Question Id : 89874128398 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statement is correct about serializability

Options :

Checking for view serializability is np-complete.

898741111941. ✓

Checking for conflict serializability is np- complete

898741111942. ✗

2PL ensures view Serializability

898741111943. ✗

Serialization graph ensures view serializability

898741111944. ✗

Question Number : 87 Question Id : 89874128399 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A transaction is a _____ unit of work that must be either entirely completed or aborted.

Options :

898741111945. ✖ timed

898741111946. ✖ practical

898741111947. ✔ logical

898741111948. ✖ None of the above

Question Number : 88 Question Id : 89874128400 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The American National Standards Institute has defined standards that govern SQL database transactions. Transaction support is provided by two SQL statements: _____ and Rollback.

Options :

898741111949. ✖ RETRIEVE

898741111950. ✖ ASSIGN

898741111951. ✖ UPDATE

898741111952. ✔ COMMIT

Question Number : 89 Question Id : 89874128401 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The _____ establishes the order in which the operations within concurrent transactions are executed.

Options :

898741111953. ✖ transaction log

898741111954. ✖ timer

898741111955. ✖ lock manager

898741111956. ✔ scheduler

Question Number : 90 Question Id : 89874128402 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the following statements related to SQL commands:

- S1. The DELETE command is used to delete rows from a table.
- S2. The TRUNCATE TABLE command is used to delete all data from a table but not the table structure itself.
- S3. The DROP TABLE command is used to delete both the data and the table structure from the database.

Which of the above statements are TRUE?

Options :

898741111957. ✖ S1 and S2

898741111958. ✔ S1, S2 and S3

898741111959. ✖ S1 and S3

898741111960. ✖ S2, and S3

Question Number : 91 Question Id : 89874128403 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which one of the following is NOT desired in a good Software Requirement Specifications (SRS) document?

Options :

898741111961. ✖ Functional Requirements

898741111962. ✖ Non-Functional Requirements

898741111963. ✖ Design Constraints

898741111964. ✔ Algorithms for Software Implementation

Question Number : 92 Question Id : 89874128404 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

What data should be used for regression testing?

Options :

898741111965. ✖ Different data than used in the previous test.

898741111966. ✖ The most currently designed data

898741111967. ✔ The data used in the previous tests

898741111968. ✖ Data produced by a test data generator

Question Number : 93 Question Id : 89874128405 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Ideally, stress testing should be carried out in a:

Options :

898741111969. ✖ Production environment using live workloads

898741111970. ✔ Test environment using live workloads

898741111971. ✖ Production environment using test data

898741111972. ✖ Test environment using test data

Question Number : 94 Question Id : 89874128406 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following Capability Maturity Model levels ensures achievement of basic project management controls?

Options :

898741111973. ✖ Repeatable (level 2)

898741111974. ✖ Defined(level 3)

898741111975. ✔ Managed(level 4)

898741111976. ✖ Optimizing(level 5)

Question Number : 95 Question Id : 89874128407 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

The coupling between different modules of a software is categorized as follows:

- I. Content coupling
- II. Common coupling
- III. Control coupling
- IV. Stamp coupling
- V. Data coupling

Coupling between modules can be ranked in the order of strongest (least desirable) to weakest (most desirable) as follows:

Options :

898741111977. ✔ I-II-III-IV-V

898741111978. ✖ IV-II-V-III-I

898741111979. ✖ I-III-V -II-IV

898741111980. ✖ V-IV-III-II-I

Question Number : 96 Question Id : 89874128408 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Match the problem domains in Group I with their corresponding solution technologies in Group II.

Group I (Problem Domain)	Group II (Solution Technology)
(P) Service-Oriented Computing	(1) Interoperability
(Q) Heterogeneous Communicating Systems	(2) BPMN
(R) Information Representation	(3) Publish-Find-Bind
(S) Process Description	(4) XML

Choose the correct option:

Options :

898741111981. ✖ P-1, Q-2, R-3, S-4

898741111982. ✔ P-3, Q-1, R-4, S-2

898741111983. ✖ P-4, Q-3, R-1, S-2

898741111984. ✖ P-2, Q-4, R-3, S-1

Question Number : 97 Question Id : 89874128409 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

White-box testing is most often used as a form of

Options :

898741111985. ✖ Top-down testing

898741111986. ✖ Big-bang testing

898741111987. ✔ Unit testing

898741111988. ✖ Acceptance Testing

Question Number : 98 Question Id : 89874128410 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider the following piece of code:

```
{  
    i=1;  
    while (i <= n) {  
        j = i;  
        while (j <= i)  
            if( A[i] < A[j])  
                swap(A[i], A[j]);  
        j = j + 1; }  
    i = i + 1; }  
}
```

What is the Cyclomatic complexity of the above code?

Options :

898741111989. ✖ 1

898741111990. ✖ 2

898741111991. ✖ 3

898741111992. ✔ 4

Question Number : 99 Question Id : 89874128411 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statements about Data Flow Diagrams (DFDs) are TRUE?

- I. The context diagram should represent the entire system as a single process (bubble).
- II. External entities should be clearly identified at all levels of DFDs.
- III. Control information should not be represented in a DFD.
- IV. A data store can be connected either to another data store or to an external entity.

Choose the correct option:

Options :

898741111993. ✖ I, III, and IV only

898741111994. ✖ I and III only

898741111995. ✔ I, II, and III only

898741111996. ✖ II, III, and IV only

Question Number : 100 Question Id : 89874128412 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Match the following pairs of software testing techniques with their corresponding categories:

List-I

- a. Condition coverage
- b. Equivalence class partitioning
- c. Volume testing
- d. Alpha testing

List-II

- i. Black-box testing
- ii. System testing
- iii. White-box testing
- iv. Performance testing

Options :

898741111997. ✓ a-iii, b-i, c-iv, d-ii

898741111998. ✗ a-iii, b-iv, c-ii, d-i

898741111999. ✗ a-ii, b-iii, c-i, d-iv

898741112000. ✗ a-iii, b-i, c-ii, d-iv

Question Number : 101 Question Id : 89874128413 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the following table of arrival time and burst time for three processes P0, P1 and P2.

Process	Arrival time	Burst Time
P0	0 ms	9 ms
P1	1 ms	4 ms
P2	2 ms	5 ms

The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?

Options :

898741112001. ✖ 2 ms

898741112002. ✔ 4 ms

898741112003. ✖ 5 ms

898741112004. ✖ 7 ms

Question Number : 102 Question Id : 89874128414 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

When does the condition 'rendezvous' arise?

Options :

In message passing, it is the condition in which, both, the sender and receiver are blocked until the message is delivered

898741112005. ✓

The condition where CPU is not engaged in any real productive activity during this period, and the process does not progress towards completion

898741112006. ✗

This happens in virtual memory schemes, when the processor spends most of its time swapping pages, rather than executing instructions

898741112007. ✗

is used during synchronization between two processes where a process is made to wait for another process to complete.

898741112008. ✗

Question Number : 103 Question Id : 89874128415 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A virtual memory has a page size of 1 K words. There are eight pages and four blocks. The associate memory page table contains the following entities:

Page	Block
0	3
1	1
4	2
6	0

Which of the following addresses causes a page fault?

Options :

898741112009. ✖ 1024

898741112010. ✔ 2048

898741112011. ✖ 4096

898741112012. ✖ 4097

Question Number : 104 Question Id : 89874128416 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Let the time taken to switch between user and kernel modes of execution be t_1 while the time taken to switch between two processes be t_2 . Which of the following is TRUE?

Options :

898741112013. ✖ $t_1 = t_2$

898741112014. ✔ $t_1 < t_2$

898741112015. ✖ $t_1 > t_2$

898741112016. ✖ Nothing can be said about the relation between t_1 and t_2

Question Number : 105 Question Id : 89874128417 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the following virtual page reference string:

1, 2, 3, 2, 4, 1, 3, 2, 4, 1

A demand-paged virtual memory system is running on a computer with a main memory of **three page frames**, all of which are initially empty. Let **LRU**, **FIFO**, and **OPTIMAL** denote the number of page faults under the corresponding page replacement policies.

Then, which of the following statements is correct?

Options :

898741112017. ✖ $\text{OPTIMAL} < \text{LRU} < \text{FIFO}$

898741112018. ✔ $\text{OPTIMAL} < \text{FIFO} < \text{LRU}$

898741112019. ✖ $\text{OPTIMAL} = \text{LRU}$

898741112020. ✖ $\text{OPTIMAL} = \text{FIFO}$

Question Number : 106 Question Id : 89874128418 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A thread is usually defined as a “light weight process” because an operating system (OS) maintains smaller data structures for a thread than for a process. In relation to this, which of the following is TRUE?

Options :

898741112021. ✖ On per-thread basis, the OS maintains only CPU register state

898741112022. ✖ The OS does not maintain a separate stack for each thread

898741112023. ✔ On per-thread basis, the OS does not maintain virtual memory state

898741112024. ✖ On per-thread basis, the OS maintains only scheduling and accounting information

Question Number : 107 Question Id : 89874128419 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A file system with 300 GByte disk uses a file descriptor with 8 direct block addresses, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 Bytes and the size of each disk block address is 8 Bytes. What is the maximum possible file size in this file system?

Options :

898741112025. ✖ 3 KBytes

898741112026. ✔ 35 KBytes

898741112027. ✖ 280 Kbytes

898741112028. ✖ dependent on the size of the disk

Match the following constructs in List-I with their appropriate classifications in List-II.

List-I (Construct)	List-II (Classification)
(P) echo	i. System Call
(Q) printf()	ii. Unix/Linux Internal Command
(R) fork()	iii. Unix/Linux External Command
(S) ls	iv. Library Function

Choose the correct option:

Options :

898741112029. ✓ P-ii, Q-iv, R-i, S-iii

898741112030. ✗ P-iii, Q-iv, R-i, S-ii

898741112031. ✗ P-iv, Q-iii, R-i, S-ii

898741112032. ✗ P-iii, Q-iv, R-ii, S-i

Question Number : 109 Question Id : 89874128421 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following component of RPC is responsible of Parameter marshalling?

Options :

898741112033. ✖ Client Skeleton

898741112034. ✔ Client stub

898741112035. ✖ Server stub

898741112036. ✖ Server skeleton

Question Number : 110 Question Id : 89874128422 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statement is true about Working-set model?

Options :

898741112037. ✖ It prevents deadlock

898741112038. ✖ It prevents starvation

898741112039. ✖ It prevents race condition

898741112040. ✔ It prevents thrashing

Question Number : 111 Question Id : 89874128423 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A Red-Black tree is a binary search tree with other properties. The following is the list of statements.

- I. Every node is either red or black.
- II. The root is always black.
- III. If a node is red, its children must be black.
- IV. If a node is black its children must be red.
- V. Every path from any node to a null must have the same number of black nodes.

Which of the above statement(s) is/are wrong about red-black tree?

Options :

898741112041. ✖ I, II, III

898741112042. ✖ I, II, IV

898741112043. ✖ III only

898741112044. ✔ IV only

Question Number : 112 Question Id : 89874128424 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Consider the sequential (array) representation of a max-heap:

10 9 8 7 6 5 2 1 4 3

If the root element 10 is removed and the heap property is restored, what will be the sequential representation of the heap?

Options :

898741112045. ✖ 9 8 7 4 6 5 2 1 3

898741112046. ✖ 3 9 8 7 6 5 2 1 4

898741112047. ✖ 8 9 7 4 6 5 2 1 3

898741112048. ✔ 9 7 8 4 6 5 2 1 3

Question Number : 113 Question Id : 89874128425 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider the following statements about 0/1 knapsack problem(KNAPSACK).

- I. KNAPSACK is in NP.
- II. KNAPSACK is NP-complete.
- III. KNAPSACK is NP-hard.
- IV. KNAPSACK is in P.

Which of the above statement(s) is/are true?

Options :

898741112049. ✖ I,II

898741112050. ✔ I,II,III

898741112051. ✖ I,II,III,IV

898741112052. ✖ IV only

Match the following algorithms with their average time complexities:

Algorithm	Complexity
a) Search in a hash table	i) $O(n^2)$
b) Bubble sort	ii) $O(\log n)$
c) Binary search	iii) $O(n \log n)$
d) Linear search	iv) $O(n)$
	v) $O(1)$
	vi) $O(2)$

Choose the correct option:

Options :

898741112053. ✖ a-i, b-ii, c-iii, d-iv

898741112054. ✖ a-vi, b-ii, c-iii, d-iv

898741112055. ✔ a-v, b-i, c-ii, d-iv

898741112056. ✖ a-v, b-iii, c-ii, d-iv

Question Number : 115 Question Id : 89874128427 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Match the following algorithms with their corresponding design techniques:

List – I

- (P) Prim's algorithm for Minimum Spanning Tree
- (Q) Floyd–Warshall algorithm for All-Pairs Shortest Paths
- (R) Merge sort
- (S) Hamiltonian circuit

List – II

- (i) Backtracking
- (ii) Greedy method
- (iii) Dynamic programming
- (iv) Divide and conquer

Choose the correct option:

Options :

898741112057. ✖ P–iii, Q–ii, R–iv, S–i

898741112058. ✖ P–i, Q–ii, R–iv, S–iii

898741112059. ✔ P–ii, Q–iii, R–iv, S–i

898741112060. ✖ P–ii, Q–i, R–iii, S–iv

Question Number : 116 Question Id : 89874128428 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

A Binary Search Tree (BST) is constructed by inserting the following sequence of integers, in the given order: 50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24
Determine the number of nodes in the left subtree and the right subtree of the root, respectively.

Options :

898741112061. ✖ (4, 7)

898741112062. ✔ (7, 4)

898741112063. ✖ (8, 3)

898741112064. ✖ (3, 8)

Question Number : 117 Question Id : 89874128429 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Solve the recurrence relation: $T(n) = 2T(n/2) + n$, $T(1) = 1$. What is the asymptotic solution for $T(n)$?

Options :

898741112065. ✖ $O(n)$

898741112066. ✔ $O(n \log n)$

898741112067. ✖ $O(n^2)$

898741112068. ✖ $O(\log n)$

Question Number : 118 Question Id : 89874128430 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

If a graph has V vertices and E edges, the time complexity of the Bellman-Ford shortest path algorithm is:

Options :

898741112069. ✖ $O(E \log V)$

898741112070. ✔ $O(V * E)$

898741112071. ✖ $O(V^2)$

898741112072. ✖ $O(E + V)$

Match the following computational problems in List-I with their corresponding complexity classes in List-II:

List-I (Problem)

List-II (Complexity Class)

(P) Topological Ordering of a DAG

(i) P

(Q) 3-SAT Problem

(ii) NP-Complete

(R) Halting Problem

(iii) NP-Intermediate

(S) Integer Factorization Problem

(iv) NP-Hard

Choose the correct option:

Options :

898741112073. ✖ P-ii, Q-i, R-iv, S-iii

898741112074. ✖ P-iii, Q-ii, R-iv, S-i

898741112075. ✔ P-i, Q-ii, R-iv, S-iii

898741112076. ✖ P-iv, Q-i, R-ii, S-iii

Question Number : 120 Question Id : 89874128432 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Match the Data Structures in List-I with their corresponding primary characteristics or applications in List-II.

List-I (Data Structure)

List-II (Characteristic / Application)

- | | |
|--------------------|--|
| (P) AVL Tree | 1. Probabilistic structure (uses random levels for efficiency) |
| (Q) Skip List | 2. Height balanced |
| (R) Adjacency List | 3. Primary representation of a priority queue |
| (S) Heap | 4. Primary implementation of graph |

Choose the correct matching combination from the options below:

Options :

898741112077. ✖ P-3, Q-2, R-4, S-1

898741112078. ✖ P-1, Q-2, R-3, S-4

898741112079. ✔ P-2, Q-1, R-4, S-3

898741112080. ✖ P-3, Q-4, R-2, S-1

Question Number : 121 Question Id : 89874128433 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following correctly represents the Chomsky Hierarchy of formal grammars from lowest to highest computational power?

Options :

898741112081. ✓ REG > CFL > CSL > TYPE 0

898741112082. ✗ CFL > REG > TYPE 0 > CSL

898741112083. ✗ CSL > TYPE 0 > REG > CFL

898741112084. ✗ CSL > CFL > REG > TYPE 0

Question Number : 122 Question Id : 89874128434 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider the language L defined by the regular expression $(a+b)^* b (a+b)^*$ over the alphabet $\Sigma = \{a, b\}$.

What is the minimum number of states required in a DFA that accepts L ?

Options :

898741112085. ✓ 4

898741112086. ✗ 5

898741112087. ✗ 6

898741112088. ✗ 7

Question Number : 123 Question Id : 89874128435 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is/are FALSE?

- I. For every non-deterministic Turing machine, there exists an equivalent deterministic Turing machine.
- II. Turing recognizable languages are closed under union and complementation.
- III. Turing decidable languages are closed under intersection and complementation.
- IV. Turing recognizable languages are closed under union and intersection.

Options :

898741112089. ✖ I and; IV only

898741112090. ✖ I and III only

898741112091. ✖ III only

898741112092. ✔ II only

Question Number : 124 Question Id : 89874128436 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is true about the Push Down Automata(PDA)?

Options :

898741112093. ✖ PDAs recognize context-sensitive languages.

898741112094. ✔ PDAs recognize context-free languages.

898741112095. ✖ PDAs recognize Type 1 Languages.

898741112096. ✖ PDAs recognize Type 0 Languages.

Question Number : 125 Question Id : 89874128437 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider the Grammar $G=(N,T,P,S)$, where

$N= \{S, A,B\}$

$T= \{a, b\}$

$P=\{(S \rightarrow AB), (B \rightarrow AB), (A \rightarrow aa), (A \rightarrow a), (B \rightarrow b)\}$

Which of the following statement is true about G ?

Options :

898741112097. ✖ G is context-sensitive.

898741112098. ✔ G is Context-free.

898741112099. ✖ It is type-0 grammar.

898741112100. ✖ G is type 3

Question Number : 126 Question Id : 89874128438 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not true about FSM?

Options :

898741112101. ✖ Every regular set can be recognized by some FSM

898741112102. ✔ FSM can remember arbitrarily large amounts of information

898741112103. ✖ FSM eventually produces a sequence of periodic sequence of states

898741112104. ✖ FSM has fixed number of states.

Match the System Software Tools in List-I with their corresponding primary functions in List-II.

List-I (Tool)	List-II (Function)
(P) Compiler	i. Translates and executes a high-level language program line by line.
(Q) Linker	ii. Resolves the addresses of undefined symbols (external references) in an object program.
(R) Loader	iii. Brings an executable program from secondary storage into main memory for execution.
(S) Interpreter	iv. Translates an entire source program into an object program (machine code) before execution begins.

Choose the correct option:

Options :

898741112105. ✖ P-iii, Q – iv, R-ii, S– i

898741112106. ✔ P-iv, Q-ii, R-iii, S-i

898741112107. ✖ P-iv, Q-iii, R-i, S-ii

898741112108. ✖ P-iii, Q-ii, R-iv, S-i

Match the following compiler optimization techniques in List-I with their corresponding descriptions in List-II:

List-I(Optimization Technique)

- P. Common sub expression elimination
- Q. Frequency Reduction
- R. Loop Jamming
- S. Register Allocation

List- II(Description)

- i. Combining bodies of loop
- ii. Moving loop invariant code outside the loop
- iii. DAG
- iv. Machine-dependent optimization

Choose the correct option:

Options :

898741112109. ✖ P-i, Q-ii, R-iii, S-iv

898741112110. ✖ P-iii, Q-i, R-ii, S-iv

898741112111. ✔ P-iii, Q-ii, R-i, S-iv

898741112112. ✖ P-ii, Q-iii, R-i, S-iv

Question Number : 129 Question Id : 89874128441 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Which of the following features of a programming language requires 2-passes to be performed on the source program to generate the object code?

Options :

898741112113. ✖ Recursion

898741112114. ✖ Iteration

898741112115. ✔ Declaration of a name to occur after its use

898741112116. ✖ Backward reference

Question Number : 130 Question Id : 89874128442 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Consider the grammar $G=(N,T,P,S)$, where $N= \{S,B\}$, $T=\{a, b\}$ S is the start symbol. The production rules P are: $S \rightarrow aBB \mid b$ and $B \rightarrow bSS \mid a$
Which of the statements is true about grammar G ?

Options :

898741112117. ✖ G is LR(1)

898741112118. ✔ G is LL(1)

898741112119. ✖ G is LR(2)

898741112120. ✖ G is LL(2)

Question Number : 131 Question Id : 89874128443 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The transport layer protocols used for real time multimedia, file transfer, DNS and HTTP, respectively are:

Options :

898741112121. ✖ TCP, UDP, UDP and TCP

898741112122. ✖ UDP, TCP, TCP and UDP

898741112123. ✔ UDP, TCP, UDP and TCP

898741112124. ✖ TCP, UDP, TCP and UDP

Question Number : 132 Question Id : 89874128444 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Find out FALSE assertions about IP protocol?

- I. It is possible for a machine to have multiple IP addresses
- II. The packet from same source to same destination follows same route.
- III. The IP protocol drops packet if hop count reaches MAX
- IV. The packet source cannot set the route of an outgoing packets; the route is determined only by the routing tables in the routers on the way.

Options :

898741112125. ✖ II & IV

898741112126. ✖ I & II

898741112127. ✖ III & IV

898741112128. ✔ II & III

Question Number : 133 Question Id : 89874128445 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

GSM (Global System for Mobile Communications) uses a combination of which wireless channel sharing techniques?

Options :

898741112129. ✖ TDMA, FDMA

898741112130. ✖ TDMA, FDMA, CDMA

898741112131. ✖ TDMA, CDMA

898741112132. ✔ TDMA, FDMA,SDMA

Question Number : 134 Question Id : 89874128446 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following are used to generate a message digest by the network security protocols?

(i) RSA (ii) SHA-1 (iii) DES (iv) MD5

Choose the correct option.

Options :

898741112133. ✔ ii & iv

898741112134. ✖ ii & iii

898741112135. ✖ iii & iv

898741112136. ✖ i & ii

Question Number : 135 Question Id : 89874128447 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not true about Cookies?

Options :

898741112137. ✖ Cookies are used for saving the client-server interaction state.

898741112138. ✖ Cookies are stored at the Client-side machine.

898741112139. ✖ Cookies enable resuming a suspended client-server interaction.

898741112140. ✔ Cookies are dummy programs in the web.

Question Number : 136 Question Id : 89874128448 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Match the following cloud service examples with their corresponding cloud service models:

List – I (Cloud Service)

List – II (Service Model)

(P) Dropbox

(i) SaaS

(Q) Microsoft Azure Virtual Machines

(ii) NaaS

(R) Google App Engine

(iii) PaaS

(S) Akamai Cloud Network

(iv) IaaS

Choose the correct option:

Options :

898741112141. ✖ P–ii, Q–i, R–iv, S–iii

898741112142. ✔ P–i, Q–iv, R–iii, S–ii

898741112143. ✖ P–iii, Q–iv, R–ii, S–i

898741112144. ✖ P–iv, Q–iii, R–i, S–ii

Question Number : 137 Question Id : 89874128449 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A layer-4 firewall (a device that can look at all protocol headers up to the transport layer) CANNOT

Options :

- 898741112145. ✓ block HTTP traffic during 9:00PM and 5:00AM
- 898741112146. ✗ block all ICMP traffic
- 898741112147. ✗ stop incoming traffic from a specific IP address but allow outgoing traffic to same IP
- 898741112148. ✗ block TCP traffic from a specific user on a specific IP address on multi-user system during 9:00PM and 5:00AM

Question Number : 138 Question Id : 89874128450 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Which of the following is true about Digital Signatures?

Options :

- 898741112149. ✗ They provide confidentiality of the data
- 898741112150. ✓ They ensure integrity, authenticity, and non-repudiation
- 898741112151. ✗ They require symmetric encryption
- 898741112152. ✗ They cannot be verified by anyone other than the sender

Question Number : 139 Question Id : 89874128451 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

An Internet Service Provider (ISP) has the following chunk of CIDR-based IP addresses available with it: 245.248.128.0/20. The ISP wants to give half of this chunk of address to Organization A, and a quarter to Organization B, while retaining the remaining with itself. Which of the following is a valid allocation of addresses to A and B?

Options :

898741112153. ✓ 245.248.136.0/21 and 245.248.128.0/22

898741112154. ✗ 245.248.128.0/21 and 245.248.128.0/22

898741112155. ✗ 245.248.132.0/22 and 245.248.132.0/21

898741112156. ✗ 245.248.136.0/22 and 245.248.132.0/21

Match the following networking terms in List-I with their most appropriate definitions in List-II.

List-I (Term)	List-II (Definition)
(P) URL (Uniform Resource Locator)	(i) Logical address of a host(Network Layer)
(Q) IP Address	(ii) Physical address of a device (Data Link Layer)
(R) Ethernet Address (MAC Address)	(iii) Identifies a specific resource on the Internet
(S) Port	(iv) Identifies a specific process or application

Choose the correct option:

Options :

898741112157. ✖ P-i, Q-ii, R-iii, S-iv

898741112158. ✖ P-iv, Q-iii, R-i, S-ii

898741112159. ✔ P-iii, Q-i, R-ii, S-iv

898741112160. ✖ P-iii, Q-ii, R-i, S-iv

Question Number : 141 Question Id : 89874128453 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Cosine similarity is most commonly used in which of the following applications?

Options :

898741112161. ✖ Feature Reduction

898741112162. ✖ Image Classification

898741112163. ✖ Feature Selection

898741112164. ✔ Text Classification

Question Number : 142 Question Id : 89874128454 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

In the A^* search algorithm, the evaluation function is given by $f(n) = g(n) + h(n)$, where $g(n)$ is the path cost from the start state to node n , and $h(n)$ is the heuristic estimate of the cost from node n to the goal. For A^* search to be admissible (guaranteed to find an optimal solution), the heuristic function $h(n)$ must be:

Options :

898741112165. ✖ Consistent (or Monotone), meaning $h(n) \leq c(n, a, n') + h(n')$ for any action a leading from n to n' .

898741112166. ✖ Dominating, meaning $h_1(n) > h_2(n)$ for all non-goal nodes n .

898741112167. ✔ Admissible, meaning $h(n)$ is never an overestimate of the actual cost to reach the goal, i.e., $h(n) \leq h^*(n)$.

898741112168. ✖ Maximally Informative, meaning $h(n)$ is as close to $h^*(n)$ as possible without exceeding it.

Question Number : 143 Question Id : 89874128455 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

In the context of knowledge representation, Non-Monotonic Logic is essential for systems that deal with:

Options :

Knowledge, where all facts are true in all possible worlds (necessary truths).

898741112169. ✖

Reasoning, where adding new information never invalidates existing conclusions (e.g., standard First-Order Logic).

898741112170. ✖

Incomplete or changing knowledge, where conclusions are drawn based on assumptions that may be retracted when new evidence contradicts them (e.g., Default Logic).

898741112171. ✔

Expressing temporal relationships and sequences of events with absolute certainty.

898741112172. ✖

Question Number : 144 Question Id : 89874128456 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

Partial Order Planning (POP), also known as Non-linear Planning, is advantageous over Linear Planning (or state-space planning where actions are strictly sequenced) primarily because it:

Options :

Always finds a plan that is shorter in length.

898741112173. ✖

Only works for problems that can be represented in First-Order Logic.

898741112174. ✖

Addresses planning problems by deferring the ordering of actions until necessary, thus allowing the planner to handle interacting subgoals more flexibly and efficiently.

898741112175. ✔

Guarantees a solution even if a complete plan cannot be found in the current state space.

898741112176. ✖

Question Number : 145 Question Id : 89874128457 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The component of Natural Language Processing that deals with the effect of context on meaning, including understanding the speaker's intent, interpreting non-literal language (like sarcasm), and managing discourse structure, is known as:

Options :

Morphological Analysis.

898741112177. ✖

Syntactic Analysis (Parsing).

898741112178. ✖

Semantic Analysis.

898741112179. ✖

Pragmatics.

898741112180. ✔

Question Number : 146 Question Id : 89874128458 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

The integration of Multi-Agent Systems (MAS) with the Semantic Web is primarily facilitated by the use of Ontologies. In this context, the main role of an Ontology is to:

Options :

- 898741112181. ✖
Optimize the network communication protocols between agents.
- 898741112182. ✔
Provide a shared, formal, and explicit specification of a conceptualization that enables agents to achieve semantic interoperability and shared understanding of information.
- 898741112183. ✖
Serve as the default reasoning engine for all agents in the MAS.
- 898741112184. ✖
Define the social laws and conventions for agent behavior in a competitive environment.

Question Number : 147 Question Id : 89874128459 Question Type : MCQ Option Shuffling : No
Correct Marks : 2 Wrong Marks : 0

Given two fuzzy sets A and B defined over a universe of discourse X . Let $\mu_A(x)$ and $\mu_B(x)$ be their respective membership functions. The α -cut of a fuzzy set A , denoted A_α , is a crisp set defined as $A_\alpha = \{x \in X \mid \mu_A(x) \geq \alpha\}$. If $A \subseteq B$, what is the necessary relationship between their α -cuts for all $\alpha \in [0,1]$?

Options :

898741112185. ✖ $A_\alpha = B_\alpha$.

898741112186. ✔ $A_\alpha \subseteq B_\alpha$.

898741112187. ✖ $B_\alpha \subseteq A_\alpha$.

898741112188. ✖ $A_\alpha \cap B_\alpha = \emptyset$.

Question Number : 148 Question Id : 89874128460 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

In optimization problems where the solution represents an ordered sequence (permutation) of items—such as the Travelling Salesperson Problem (TSP) or job scheduling—a simple binary or real-valued encoding is not suitable.

Which of the following crossover operators is specifically designed to preserve the permutation constraint (i.e., ensure that no items are repeated or omitted) in the offspring?

Options :

Single-point crossover (standard binary).

898741112189. ✖

Uniform crossover (standard binary/real).

898741112190. ✖

Partially Mapped Crossover (PMX) or Order Crossover (OX).

898741112191. ✔

Arithmetic crossover (real-valued).

898741112192. ✖

Question Number : 149 Question Id : 89874128461 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A single-layer perceptron can successfully classify which type of data?

Options :

High-dimensional, with thousands of features.

898741112193. ✖

Linearly separable data

898741112194. ✔

Non-linearly separable but convex

898741112195. ✖

Linearly inseparable data

898741112196. ✖

Question Number : 150 Question Id : 89874128462 Question Type : MCQ Option Shuffling : No Correct Marks : 2 Wrong Marks : 0

A Hopfield Network is a type of recurrent artificial neural network used as an associative memory. The network's dynamics are governed by a total "energy" function. What is the fundamental property of the network's state transition rule, often based on an asynchronous update, with respect to this energy function?

Options :

- 898741112197. ✖ The state transition maximizes the network's total energy in each step.
- 898741112198. ✖ The network's state will continuously oscillate without reaching a stable point.
- 898741112199. ✔ The state transition is guaranteed to decrease (or keep constant) the network's total energy until a local minimum (a stored memory pattern) is reached.
- 898741112200. ✖ The state transition minimizes the Euclidean distance to the initial input pattern.