Andhra Pradesh State Council of Higher Education

Notations :

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

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

Question Paper Name :	Electronics and Communication Engineering 4th May 2024 Shift 1
Duration :	120
Total Marks :	140
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No

Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Research Methodology

Section Id :	971036511
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	66
Section Marks :	70
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 97103635956 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a characteristic of reflective teaching?

Options :

1. ✖ Memorization of facts

2. ✖ Understanding complex concepts

3. ✔ Critical analysis of teaching methods

4. ✖ Repetition of instructional materials

Question Number : 2 Question Id : 97103635957 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the key objective of teaching?

Options :

1. ✖ Fostering confusion

2. ✖ Encouraging passive learning

3. ✔ Promoting critical thinking

4. ✖ Discouraging creativity

Question Number : 3 Question Id : 97103635958 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a challenge associated with MOOCs?

Options :

1. ✖ Lack of course variety

2. ✔ Low completion rate

3. ✖ Limited scalability

4.

✖ High cost for learners

Question Number : 4 Question Id : 97103635959 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is a basic requirement for effective teaching?

Options :

1. ✖ Rigid adherence to lesson plans

2. ✖ Lack of flexibility

3. ✔ Adequate preparation

4. ✖ Limited student engagement

Question Number : 5 Question Id : 97103635960 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a characteristic of adolescents?

Options :

1. ✖ Highly stable emotional states

2. ✖ Well-developed cognitive abilities

3. ✖ Strong sense of identity

4. ✔ Rapid physical growth and change

Question Number : 6 Question Id : 97103635961 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of these statements best describes the enrolment process for MOOCs?

Options :

1. ✖ Strict eligibility criteria apply

2. ✖ Limited enrolment slots available

3. ✔ Open to anyone with internet access

4. ✖ Requires payment before enrolment

Question Number : 7 Question Id : 97103635962 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which method of teaching places more emphasis on the active involvement of learners?

Options :

1. ✖ Teacher-centered

2. ✖ Lecture-based

3. ✔ Learner-centered

4. ✖ Rote memorization

Question Number : 8 Question Id : 97103635963 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is a characteristic of qualitative research?

Options :

1. ✖ Focuses on numerical data

2. ✖ Emphasizes statistical analysis

3. ✔ Seeks to understand phenomena in depth

4. ✖ Utilizes controlled experiments

Question Number : 9 Question Id : 97103635964 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which approach to research emphasizes the importance of observable facts and data?

Options :

1. ✖ Post-positivistic

2. ✖ Constructivist

3. ✖ Phenomenological

4. ✔ Positivist

Question Number : 10 Question Id : 97103635965 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which type of research focuses on examining cause-and-effect relationships?

Options :

1. ✔ Experimental

2. ✖ Descriptive

3. ✖ Historical

4. ✖ Qualitative

Question Number : 11 Question Id : 97103635966 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What are the basic steps of research in sequential order?

Options :

1. ✖ Analysis, Conclusion, Data Collection, Hypothesis

2. ✖ Data Collection, Hypothesis, Analysis, Conclusion

3. ✔ Hypothesis, Data Collection, Analysis, Conclusion

4. ✖ Conclusion, Data Collection, Hypothesis, Analysis

Question Number : 12 Question Id : 97103635967 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Where are the references typically included in a thesis?

Options :

1. ✖ In-text citations only

2. ✖ Footnotes exclusively

3. ✖ Endnotes solely

4. ✔ Bibliography

Question Number : 13 Question Id : 97103635968 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How does ICT contribute to governance?

Options :

1. ✖ By reducing transparency

2. ✖ Decreasing efficiency in data analysis

3. ✔ By improving efficiency and transparency

4. ✖ By limiting access to information

Question Number : 14 Question Id : 97103635969 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which aspect is addressed by research ethics?

Options :

1. ✖ Maximizing researcher's benefits

2. ✔ Ensuring confidentiality of participants

3. ✖ Minimizing data validity

4. ✖ Ignoring informed consent

Question Number : 15 Question Id : 97103635970 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How does mass media influence society?

Options :

1. ✖ Limits access to information

2. ✖ Reduces cultural diversity

3. ✔ Shapes public opinion

4. ✖ Decreases social interaction

Question Number : 16 Question Id : 97103635971 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which method of research aims to provide a detailed description of a phenomenon or situation?

Options :

1. ✖ Experimental

2. ✔ Descriptive

3. ✖ Historical

4. ✖ Qualitative

Question Number : 17 Question Id : 97103635972 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What type of communication involves the exchange of information through spoken or written words?

Options :

1. ✖ Non-verbal communication

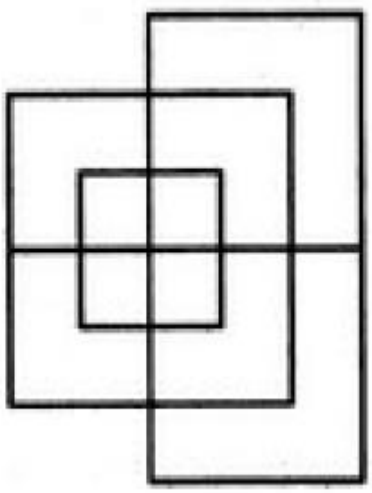
2. ✖ Inter-cultural communication

3. ✖ Group communication

4. ✔ Verbal communication

Question Number : 18 Question Id : 97103635973 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find the minimum number of straight lines required to make the given figure.



Options :

1. ✔ 13

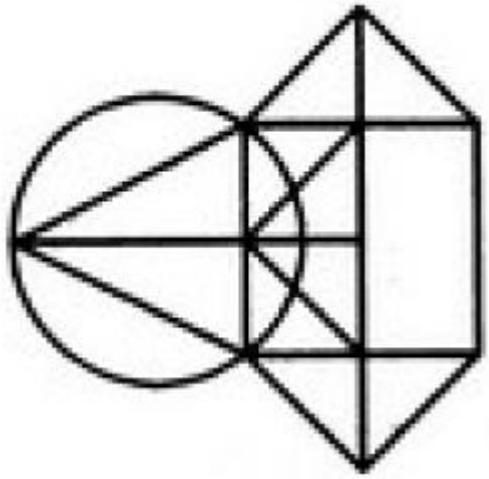
2. ✖ 15

3. ✖ 17

4. ✖ 19

Question Number : 19 Question Id : 97103635974 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find the number of triangles in the given figure.



Options :

1. ✖ 10

2. ✖ 12

3. ✔ 14

4. ✖ 16

Question Number : 20 Question Id : 97103635975 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Suppose NOIDA is written as OPJEB then what will be the code for DELHI

Options :

1. ✔ EMMIJ

2. ✖ EFMAK

3. ✖ EFAMK

4. ✖ EFMIK

Is Section Default? : null

Question Id : 97103635976 Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (21 to 25)

Read the Passage and answer the following questions:

The primary concern with the longevity of digital documents is the "viewing problem". Unlike analog or physical information, which tends to exist independent of human involvement, digital information needs constant intervention to survive. History has shown that digital documents are problematic by default. Whereas we can actually look at the Sistine Chapel ceiling, painted 500 years ago, it is difficult if not impossible to simply view documents on 8-in. Floppy disks created in the last 20 years have even if there has been an immediate, proactive role in preserving them. Without concerted effort on the part of archivists and preservationists, digital objects quickly become obsolete or inaccessible due to unforeseen, although anticipated, advances in information technology. The variable media art community currently utilizes four digital preservation strategies, all focused on the end product. The first three methods have technical origins and are based on general digital preservation practices. Related to "the viewing problem", they are: refreshing, the upgrade of storage mechanisms; migration, the premeditated upgrade of file formats; and emulation, which focuses on development of operating systems able to run obsolete media. The fourth option, developed by and for the new media art community, is reinterpretation (Depocas et al., 2003), where the curators attempt to recreate a work given comprehensive documentation of the original artefact. Migration and emulation are the two primary methods in managing the problem of obsolete file formats (Waters & Garrett, 1996). Migration focuses on the files themselves, periodically updating files in new software formats. The second method of preservation is emulation, which can be either at the system or the software level. System emulation focuses on developing systems that mimic the hardware used to create or run the original artefact.

Sub questions

Question Number : 21 Question Id : 97103635977 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the primary concern with the longevity of digital documents according to the passage?

Options :

1. ✖ Lack of archivist involvement

2. ✔ Unforeseen advances in technology

3. ✖ Dependence on human intervention

4. ✖ Rapid deterioration of physical form

Question Number : 22 Question Id : 97103635978 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following methods is NOT mentioned as a digital preservation strategy in the passage?

Options :

1. ✖ Refreshing

2. ✔ Reinterpretation

3. ✖ Migration

4. ✖ Emulation

Question Number : 23 Question Id : 97103635979 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What does the term "migration" refer to in the context of digital preservation?

Options :

1. ✖ Recreating original artefacts

2. ✔ Upgrading storage mechanisms

3. ✖ Developing new software formats

4. ✖ Mimicking hardware systems

Question Number : 24 Question Id : 97103635980 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the focus of the fourth preservation option mentioned in the passage, "reinterpretation"?

Options :

1. ✖ Refreshing digital documents

2. ✖ Upgrading file formats

3. ✖ Emulating obsolete media

4. ✔ Recreating original works with comprehensive documentation

Question Number : 25 Question Id : 97103635981 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

According to the passage, what are the two primary methods in managing the problem of obsolete file formats?

Options :

1. ✖ Refreshing and migration

2. ✖ Migration and emulation

3. ✖ Emulation and reinterpretation

4. ✔ Reinterpretation and refreshing

Is Section Default? : null

Question Number : 26 Question Id : 97103635982 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which aspect of communication deals with the exchange of messages between people from different cultural backgrounds?

Options :

1. ✖ Classroom communication

2. ✖ Interpersonal communication

3. ✖ Group communication

4. ✔ Inter-cultural communication

Question Number : 27 Question Id : 97103635983 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

What is a common barrier to effective communication?

Options :

1. ✖ Clear message delivery

2. ✖ Active listening

3. ✔ Language barriers

4. ✖ Mutual understanding

Question Number : 28 Question Id : 97103635984 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How does mass media influence society?

Options :

1. ✖ By reducing communication channels

2. ✖ By encouraging isolation

3. ✔ By shaping public opinion and behavior

4. ✖ By promoting individualism

Question Number : 29 Question Id : 97103635985 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which type of communication is characterized by gestures, facial expressions, and body language?

Options :

1. ✖ Verbal communication

2. ✖ Written communication

3. ✔ Non-verbal communication

4. ✖ Inter-cultural communication

Question Number : 30 Question Id : 97103635986 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The apex body responsible for formulating policies and coordinating higher education in India is:

Options :

1. ✔ Ministry of Education (MoE)

2. ✖ All India Council for Technical Education (AICTE)

3. ✖ National Assessment and Accreditation Council (NAAC)

4. ✖ University Grants Commission (UGC)

Question Number : 31 Question Id : 97103635987 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is key feature of technical education programs in India?

Options :

1. ✖ Emphasis on theoretical knowledge

2. ✖ Short duration of courses

3. ✔ Focus on practical skills and industry relevance

4. ✖ Limited job prospects

Question Number : 32 Question Id : 97103635988 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If a car travels at a constant speed of 60 miles per hour, how far will it travel in 3 hours?

Options :

1. ✖ 120 miles

2. ✖ 160 miles

3. ✔ 180 miles

4. ✖ 200 miles

Question Number : 33 Question Id : 97103635989 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is a key concept in profit and loss calculations?

Options :

1. ✖ Maintaining interest rates

2. ✖ Analyzing letter sequences

3. ✔ Calculating percentage changes

4. ✖ Identifying patterns in codes

Question Number : 34 Question Id : 97103635990 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the original price of an item is Rs.50 and it is sold for Rs.40, what is the loss percentage?

Options :

1. ✔ 20%

2. ✖ 25%

3. ✖ 30%

4. ✖ 35%

Question Number : 35 Question Id : 97103635991 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What mathematical concept involves determining the amount of money earned or paid on an investment or loan?

Options :

1. ✖ Time & Distance

2. ✖ Ratio

3. ✔ Interest

4. ✖ Averages

Question Number : 36 Question Id : 97103635992 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the simple interest on a principal amount of Rs.1000 for one year at 5% per annum is Rs.50, what is the interest rate for two years?

Options :

1. ✖ 5%

2. ✔ 10%

3. ✖ 15%

4. ✖ 20%

Question Number : 37 Question Id : 97103635993 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The famous ancient Indian university, Nalanda, was primarily known for its focus on:

Options :

1. ✖ Science and technology

2. ✖ Literature and arts

3. ✖ Medicine and healthcare

4. ✔ Buddhist studies and philosophy

Question Number : 38 Question Id : 97103635994 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Montreal Protocol is related to the protection of the:

Options :

1. ✔ Ozone layer

2. ✖ Rainforests

3. ✖ Coral reefs

4. ✖ Polar ice caps

Question Number : 39 Question Id : 97103635995 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the purpose of using Venn diagrams in logic?

Options :

1. ✔ To establish validity of arguments

2. ✖ To identify formal fallacies

3. ✖ To understand linguistic nuances

4. ✖ To evaluate deductive reasoning

Question Number : 40 Question Id : 97103635996 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which Indian logic concept refers to verbal testimony as a means of knowledge?

Options :

1. ✖ Pratyaksha

2. ✖ Anumana

3. ✔ Shabda

4. ✖ Arthapatti

Question Number : 41 Question Id : 97103635997 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What does Anumana primarily involve in Indian logic?

Options :

1. ✖ Perception

2. ✔ Inference

3. ✖ Comparison

4. ✖ Non-apprehension

Question Number : 42 Question Id : 97103635998 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the term used for the invariable relation between a property and a subject in Indian logic?

Options :

1. ✖ Pratyaksha

2. ✖ Upamana

3. ✔ Vyapti

4. ✖ Anupalabddhi

Question Number : 43 Question Id : 97103635999 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which type of reasoning primarily relies on specific examples to draw conclusions?

Options :

1. ✖ Deductive reasoning

2. ✔ Inductive reasoning

3. ✖ Analogies

4. ✖ *Pramanas*

Question Number : 44 Question Id : 97103636000 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the primary purpose of evaluating deductive reasoning?

Options :

1. ✖ To establish linguistic connotations

2. ✖ To identify fallacies in arguments

3. ✔ To establish validity of conclusions

4. ✖ To determine invariable relations

Question Number : 45 Question Id : 97103636001 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Indian logic, which means of knowledge refers to perception?

Options :

1. ✔ Pratyaksha

2. ✖ Anumana

3. ✖ Upamana

4. ✖ Shabda

Question Number : 46 Question Id : 97103636002 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The International Kabbadi League (IKL) was formed last month to give a boost to the game at international standards. It had a tournament, where 2 teams played some matches. Each team comprised of 7 players each. The listings of the 2 teams X and Y were lost, but certain details regarding the players were available. A, B, C, D, E, F, G, H, I, J, K, L, M and N are the players.

I. D and E were in Team X, K and G were in team Y.

II. H and B were in the same team, but not in the team in which F was.

III. The sum of the scores of members of Team Y was not greater than 115.

The table containing the details of the players and their scores is below

A	B	C	D	E	F	G	H	I	J	K	L	M	N
28	12	29	10	9	11	13	14	22	28	16	20	18	15

Which of these players was definitely in Team Y?

Options :

1. ✖ L

2. ✔ M

3. ✖ N

4. ✖ K

Question Number : 47 Question Id : 97103636003 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The International Kabbadi League (IKL) was formed last month to give a boost to the game at international standards. It had a tournament, where 2 teams played some matches. Each team comprised of 7 players each. The listings of the 2 teams X and Y were lost, but certain details regarding the players were available. A, B, C, D, E, F, G, H, I, J, K, L, M and N are the players.

I. D and E were in Team X, K and G were in team Y.

II. H and B were in the same team, but not in the team in which F was.

III. The sum of the scores of members of Team Y was not greater than 115.

The table containing the details of the players and their scores is below

A	B	C	D	E	F	G	H	I	J	K	L	M	N
28	12	29	10	9	11	13	14	22	28	16	20	18	15

If the score for team Y was less than 110, what could be the score of team X?

Options :

1. ✖ 135

2. ✖ 137

3. ✖ 139

4. ✔ Cannot be determined

Question Number : 48 Question Id : 97103636004 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The International Kabbadi League (IKL) was formed last month to give a boost to the game at international standards. It had a tournament, where 2 teams played some matches. Each team comprised of 7 players each. The listings of the 2 teams X and Y were lost, but certain details regarding the players were available. A, B, C, D, E, F, G, H, I, J, K, L, M and N are the players.

I. D and E were in Team X, K and G were in team Y.

II. H and B were in the same team, but not in the team in which F was.

III. The sum of the scores of members of Team Y was not greater than 115.

The table containing the details of the players and their scores is below

A	B	C	D	E	F	G	H	I	J	K	L	M	N
28	12	29	10	9	11	13	14	22	28	16	20	18	15

Which of these players could not be in team Y, if the score of Y was 115?

Options :

1. ✖ A

2. ✔ L

3. ✖ M

4. ✖ N

Question Number : 49 Question Id : 97103636005 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The International Kabbadi League (IKL) was formed last month to give a boost to the game at international standards. It had a tournament, where 2 teams played some matches. Each team comprised of 7 players each. The listings of the 2 teams X and Y were lost, but certain details regarding the players were available. A, B, C, D, E, F, G, H, I, J, K, L, M and N are the players.

I. D and E were in Team X, K and G were in team Y.

II. H and B were in the same team, but not in the team in which F was.

III. The sum of the scores of members of Team Y was not greater than 115.

The table containing the details of the players and their scores is below

A	B	C	D	E	F	G	H	I	J	K	L	M	N
28	12	29	10	9	11	13	14	22	28	16	20	18	15

Which of these players was definitely in team X, if the score of Y was 112?

Options :

1. ✖ I

2. ✔ L

3. ✖ M

4. ✖ N

Question Number : 50 Question Id : 97103636006 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The International Kabbadi League (IKL) was formed last month to give a boost to the game at international standards. It had a tournament, where 2 teams played some matches. Each team comprised of 7 players each. The listings of the 2 teams X and Y were lost, but certain details regarding the players were available. A, B, C, D, E, F, G, H, I, J, K, L, M and N are the players.

I. D and E were in Team X, K and G were in team Y.

II. H and B were in the same team, but not in the team in which F was.

III. The sum of the scores of members of Team Y was not greater than 115.

The table containing the details of the players and their scores is below

A	B	C	D	E	F	G	H	I	J	K	L	M	N
28	12	29	10	9	11	13	14	22	28	16	20	18	15

Which of these players are definitely in Team X?

Options :

1. ✖ F

2. ✖ H

3. ✖ B

4. ✔ K

Question Number : 51 Question Id : 97103636007 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which term refers to a network of private computers within an organization or institution?

Options :

1. ✖ Internet

2. ✔ Intranet

3. ✖ Extranet

4. ✖ Ethernet

Question Number : 52 Question Id : 97103636008 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the primary purpose of email communication?

Options :

1. ✖ Audio conferencing

2. ✖ Video conferencing

3. ✔ Text-based messaging

4. ✖ File sharing

Question Number : 53 Question Id : 97103636009 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the purpose of a cache in computer system.

Options :

1. ✖ To connect to wireless networks

2. ✖ To store long – term data back ups

3. ✔ To store temporary data for faster access

4. ✖ To process mathematical calculations

Question Number : 54 Question Id : 97103636010 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is a digital initiative in higher education that provides access to educational resources over the internet?

Options :

1. ✖ Digital literacy programs

2. ✔ Massive Open Online Courses (MOOCs)

3. ✖ Audio conferencing

4. ✖ Video conferencing

Question Number : 55 Question Id : 97103636011 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the term for the process of holding meetings over the internet where participants can see and hear each other in real-time?

Options :

1. ✔ Video conferencing

2. ✖ Audio conferencing

3. ✖ Emailing

4. ✖ Telecommuting

Question Number : 56 Question Id : 97103636012 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which term refers to the basic unit of data in computing and telecommunications?

Options :

1. ✔ Byte

2. ✖ Kilobyte

3. ✖ Megabyte

4. ✖ Gigabyte

Question Number : 57 Question Id : 97103636013 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In the context of ICT and governance, what does ICT primarily facilitate?

Options :

1. ✖ Increases bureaucracy

2. ✖ Decreases transparency

3. ✔ Improves communication and efficiency

4. ✖ Enhances corruption

Question Number : 58 Question Id : 97103636014 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What does the term "Internet" refer to?

Options :

1. ✖ A network of private computers within an organization

2. ✔ A global network connecting millions of computers

3. ✖ An internal network for file sharing within an organization

4. ✖ A platform for video conferencing

Question Number : 59 Question Id : 97103636015 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which technology allows users to interact with computers using voice commands?

Options :

1. ✖ Artificial Intelligence

2. ✖ Augmented reality

3. ✖ Virtual reality

4. ✔ Speech recognition

Question Number : 60 Question Id : 97103636016 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which international agreement aims to address climate change by reducing greenhouse gas emissions?

Options :

1. ✖ Montreal Protocol

2. ✖ Rio Summit

3. ✖ Convention on Biodiversity

4. ✔ Paris Agreement

Question Number : 61 Question Id : 97103636017 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the primary focus of the National Action Plan on Climate Change?

Options :

1. ✖ Mitigating air pollution

2. ✖ Addressing water pollution

3. ✔ Reducing greenhouse gas emissions

4. ✖ Promoting renewable energy

Question Number : 62 Question Id : 97103636018 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which type of pollution is primarily caused by industrial emissions and vehicle exhaust?

Options :

1. ✔ Air pollution

2. ✖ Water pollution

3. ✖ Soil pollution

4. ✖ Noise pollution

Question Number : 63 Question Id : 97103636019 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which renewable energy resource harnesses energy from the Earth's internal heat?

Options :

1. ✖ Solar

2. ✖ Wind

3. ✔ Geothermal

4. ✖ Biomass

Question Number : 64 Question Id : 97103636020 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which international agreement aims to protect the ozone layer by phasing out the production and use of ozone-depleting substances?

Options :

1. ✔ Montreal Protocol

2. ✖ Rio Summit

3. ✖ Kyoto Protocol

4. ✖ Paris Agreement

Question Number : 65 Question Id : 97103636021 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which organization aims to promote solar energy usage globally through international cooperation and partnerships?

Options :

1. ✖ Montreal Protocol

2. ✖ Convention on Biodiversity

3. ✔ International Solar Alliance

4. ✖ Kyoto Protocol

Question Number : 66 Question Id : 97103636022 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is an anthropogenic activity?

Options :

1. ✖ Volcanic eruption

2. ✖ Earthquake

3. ✔ Deforestation

4. ✖ Tsunami

Question Number : 67 Question Id : 97103636023 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What type of education in India focuses on imparting practical skills and hands-on training?

Options :

1. ✔ Technical education

2. ✖ Value education

3. ✖ Environmental education

4. ✖ Conventional education

Question Number : 68 Question Id : 97103636024 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the emphasis of value education in India?

Options :

1. ✖ Acquiring technical skills

2. ✔ Developing moral and ethical values

3. ✖ Learning traditional subjects

4. ✖ Enhancing environmental awareness

Question Number : 69 Question Id : 97103636025 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which type of learning program in India includes fields like engineering, medicine, and management?

Options :

1. ✖ Oriental learning

2. ✖ Conventional learning

3. ✖ Non-conventional learning

4. ✔ Professional education

Question Number : 70 Question Id : 97103636026 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What aspect of education in India does environmental education primarily address?

Options :

1. ✖ Technical skills

2. ✖ Ethical values

3. ✔ Environmental awareness and conservation

4. ✖ Professional development

Electronics and Communication Engineering

Section Id :	971036512
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	70
Section Marks :	70
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 71 Question Id : 97103636027 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int_0^{\pi/2}\int_0^{\pi/2} \sin(x+y)\,dx\,dy$$

Options :

1. ✖ 0

2. ✖ π

3. ✖ $\pi/2$

4. ✔ 2

Question Number : 72 Question Id : 97103636028 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A die is rolled three times. The probability that exactly one odd number turns up among the three outcomes is

Options :

1. ✖ 1/6

2. ✔ 3/8

3. ✖ 1/8

4. ✖ 1/2

Question Number : 73 Question Id : 97103636029 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A fair coin is tossed till a head appears for the first time. The probability that the number tosses required an odd number is

Options :

1. ✖ 1/3

2. ✖ 1/2

3. ✔ 2/3

4. ✖ 3/4

Question Number : 74 Question Id : 97103636030 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The independent solutions to the differential equation $f''(x) + 4f'(x) + 4f(x) = 0$ are

Options :

1. ✖ $f_1(x) = e^{-2x},\ f_2(x) = e^{-2x}$

2. ✖ $f_1(x) = e^{2x},\ f_2(x) = x.e^{2x}$

3. ✔ $f_1(x) = e^{-2x},\ f_2(x) = x.e^{-2x}$

4. ✖ $f_1(x) = e^{-2x},\ f_2(x) = e^{-x}$

Question Number : 75 Question Id : 97103636031 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

With initial values $y(0) = y'(0) = 1$, the solution of the differential equation

$\frac{d^2y}{dx^2} + 4\frac{dy}{dx} + 4y = 0$ at x = 1 is_____

Options :

1. ✖ 1.641

2. ✔ 0.541

3. ✖ 1.415

4. ✖ 0.314

Question Number : 76 Question Id : 97103636032 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The general solution of the differential equation $\frac{dQ}{dt} + Q = 1$ with Q=0 at t=0 is

Options :

1. ✖ $Q(t) = e^{-t} - 1$

2. ✖ $Q(t) = e^{-t} + 1$

3. ✖ $Q(t) = -e^{t} + 1$

4. ✔ $Q(t) = -e^{-t} + 1$

Question Number : 77 Question Id : 97103636033 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of the integral $\oint f(z)dz$ when evaluated around the unit circle $|z|=1$ on the complex plane for f(z) = $\frac{\cos z}{z}$ is

Options :

1. ✔ $2\pi i$

2. ✖ $4\pi i$

3. ✖ $-2\pi i$

4. ✖ 0

Question Number : 78 Question Id : 97103636034 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int_C \frac{z^2+1}{z^2-2z}dz$ with C representing unit circle $|z|=1$ in the counter clockwise direction sense is

Options :

1. ✖ $-8\pi i$

2. ✖ πi

3. ✖ $8\pi i$

4. ✔ $-\pi i$

Question Number : 79 Question Id : 97103636035 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The product of two complex numbers $1 + i$ & $2 - 5i$ is

Options :

1. ✔ $7 - 3i$

2. ✖ $3 - 4i$

3. ✖ $-3 - 4i$

4. ✖ $7 + 3i$

Question Number : 80 Question Id : 97103636036 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

One of the roots of equation $x^3 = i$, where i is the square root of -1 is

Options :

1. ✖ i

2. ✔ $\frac{\sqrt{3}}{2}+\frac{i}{2}$

3. ✖ $\frac{\sqrt{3}}{2}-\frac{i}{2}$

4. ✖ $-\frac{\sqrt{3}}{2}-\frac{i}{2}$

Question Number : 81 Question Id : 97103636037 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int_0^{\frac{\pi}{2}}\int_0^{\cos\theta} r\sin\theta\, dr\, d\theta =$$

Options :

1. ✖ 0

2. ✖ π

3. ✔ 1/6

4. ✖ 4/3

Question Number : 82 Question Id : 97103636038 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A class of twelve children has two more boys than girls. A group of three children are randomly picked from this class to accompany the teacher on a field trip. What is the probability that the group accompanying the teacher contains more girls than boys?

Options :

1. ✖ 0

2. ✔ $\frac{4}{11}$

3. ✖ $\frac{525}{864}$

4. ✖ $\frac{5}{12}$

Question Number : 83 Question Id : 97103636039 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Using Cauchy's integral theorem, the value of the integral (integration being taken in counter clock wise direction) $\int_C \frac{z^3-6}{3z-i}dz$ is, where C is $|z|=1$

Options :

1. ✔ $\frac{2\pi}{81}-4\pi i$

2.

$\frac{\pi}{8} - 6\pi i$

3. $\frac{4\pi}{81} - 6\pi i$

4. 1

Question Number : 84 Question Id : 97103636040 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the following system of equations $2x_1+x_2+x_3=0$, $x_2-x_3=0$ and $x_1+x_2=0$. This system has

Options :

1. A unique solution

2. No solution

3. Infinite number of solutions

4. Finite number of solutions but more than 1

Question Number : 85 Question Id : 97103636041 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the function $f(x) = (x^2 - 4)^2$ where x is real number. Then the function has

Options :

1. ✖ Only one minimum

2. ✔ Only two local minimums

3. ✖ Three minima

4. ✖ Three maxima

Question Number : 86 Question Id : 97103636042 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following statement is NOT true for a square matrix A?

Options :

1. ✖ If A is upper triangular, the eigen values of A are the diagonal elements of it

2. ✔ If A is real symmetric, the eigen values of A are always real and positive

3. ✖ If A is real, the eigen values of A and A^T are always the same

4. ✖ If all the principal minors of A are positive, all the eigen values of A are also positive

Question Number : 87 Question Id : 97103636043 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the differential equation $\frac{dy}{dx} = 1 + y^2$. Which one of the following can be particular solution of this differential equation?

Options :

1. ✔ $y = tan(x + c)$

2. ✖ $y = (tan\, x) + c$

3. ✖ $x = tan(y + c)$

4. ✖ $x = (tany) + c$

Question Number : 88 Question Id : 97103636044 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A machine produces 0, 1 or 2 defective pieces in a day with associated probability of 1/6, 2/3 and 1/6, respectively. Then mean value and the variance of the number of defective pieces produced by

Options :

1. ✔ 1 and 1/3

2. ✖ 1/3 and 1

3. ✖ 1 and 4/3

4. ✖ 1/3 and 4/3

Question Number : 89 Question Id : 97103636045 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Let $\nabla.(f\bar{V}) = x^2y + y^2z + z^2x$, where f and V are scalar and vector fields respectively. If

$V = yi + zj + xk$, $\bar{V}.\nabla f$ is

Options :

1. ✔ $x^2y + y^2z + z^2x$

2. ✖ $2xy + 2yz + 2zx$

3. ✖ $x + y + z$

4. ✖ 0

Question Number : 90 Question Id : 97103636046 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area of a triangle formed by the position vectors $\bar{a}$, $\bar{b}$ and $\bar{c}$ is

Options :

1. ✖

$\frac{1}{2}(\overline{a}-\overline{b})\bullet(\overline{a}-\overline{c})$

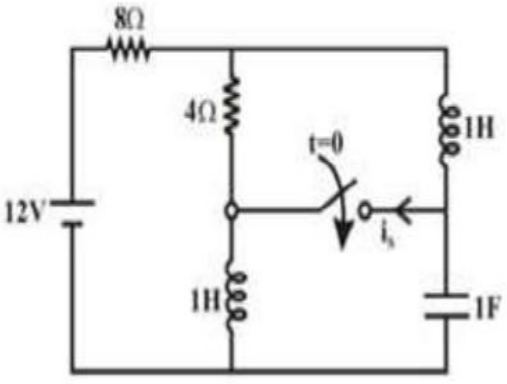
2. ✔ $\frac{1}{2}\left|(\overline{a}-\overline{b})\times(\overline{a}-\overline{c})\right|$

3. ✖ $\frac{1}{2}\left|\overline{a}\times\overline{b}\times\overline{c}\right|$

4. ✖ $\frac{1}{2}(\overline{a}\times\overline{b})\bullet\overline{c}$

Question Number : 91 Question Id : 97103636047 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The circuit shown in the figure is in steady state before the switch is closed at t = 0. The current $i_S(0+)$ through the switch is



Options :

1. ✔ 1/3 A

2. ✖ 2/3 A

3. ✖ 1 A

4. ✖ 0 A

Question Number : 92 Question Id : 97103636048 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a network with twelve circuit elements and five nodes, what is the minimum number of mesh equations?

Options :

1. ✖ 24

2. ✖ 12

3. ✖ 10

4. ✔ 8

Question Number : 93 Question Id : 97103636049 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A two-port network satisfies the following relations:

$4I_1 + 8I_2 = 2V_1$

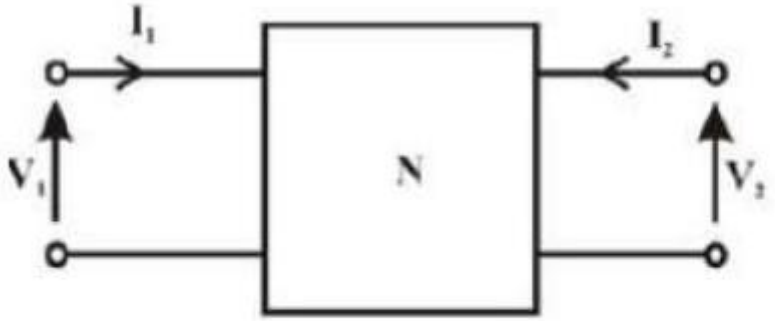
$8I_1 + 16\ I_2 = V_2$

A. The network is reciprocal

B. $Z_{11} = 4$ and $Z_{12} = 8$

C. $Z_{21} = 8$ and $Z_{22} = 16$

D. $Z_{11} = 2$ and $Z_{12} = 4$



Which of these relations are correct?

Options :

1. ✖ A, B, C and D

2. ✖ B and C only

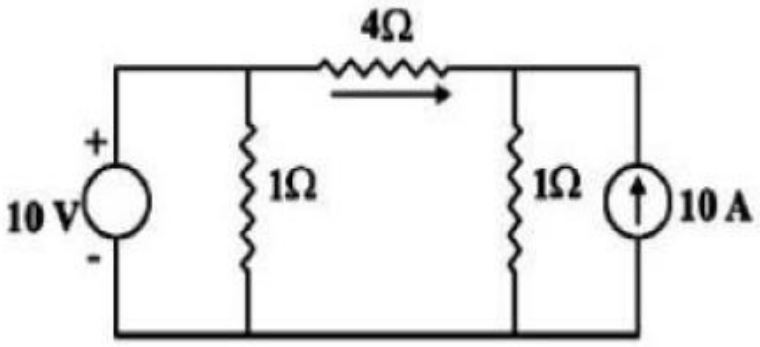
3. ✔ C and D only

4. ✖ A and B only

Question Number : 94 Question Id : 97103636050 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

In the network shown above, what is the current I in the direction shown?



Options :

1. ✔ 0

2. ✖ 1/3 A

3. ✖ 5/6 A

4. ✖ 4

Question Number : 95 Question Id : 97103636051 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In second order digital notch filter having notch frequency of 60 Hz and sampling frequency employed is 400 Hz. The normalized angular notch frequency ω_0 and the normalized angular 3-dB bandwidth $\Delta\omega_3$ dB are

Options :

1. ✔ 0.3π and 0.03π

2. ✖ 0.6π and 0.03π

3. ✖ 0.3π and 0.06π

4. ✖ 0.6π and 0.06π

Question Number : 96 Question Id : 97103636052 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the following digital filters does have a linear phase response?

Options :

1. ✖ $y(n) + y(n-1) = x(n) + x(n-1)$

2. ✖ $y(n) = 1/6[3x(n) + 2x(n-1) + x(n-2)]$

3. ✖ $y(n) = 1/6[x(n) + 2x(n-1) + 3x(n-2)]$

4. ✔ $y(n) = 1/4[x(n) + 2x(n-1) + x(n-2)]$

Question Number : 97 Question Id : 97103636053 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Fourier transform of unit step sequence is

Options :

1. ✖ $\pi\delta(\Omega)$

2. ✖ $\frac{1}{1-e^{-j\Omega}}$

3. ✔ $\pi\delta(\Omega)+\frac{1}{1-e^{-j\Omega}}$

4. ✖ $1-e^{-j\Omega}$

Question Number : 98 Question Id : 97103636054 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A signal represented by x (t) = 5 cos 400 π t is sampled at rate 300 samples/s. The resulting samples are passed through an ideal low pass filter of cut-off frequency 150 Hz. which of the following will be contained in the output of the LPF?

Options :

1. ✔ 100 Hz

2. ✖ 100 Hz, 150 Hz

3. ✖ 50 Hz, 100 Hz

4. ✖ 50 Hz, 100 Hz, 150 Hz

Question Number : 99 Question Id : 97103636055 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

For the function x (t), X(s) is given by: $X(s) = e^{-s}\left[\frac{-2}{s(s+2)}\right]$ then, what are the initial and final values of x(t), respectively?

Options :

1. ✖ 0 and 1

2. ✔ 0 and −1

3. ✖ 1 and 1

4. ✖ −1 and 0

Question Number : 100 Question Id : 97103636056 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the unit step response of a unity feedback control system having forward path transfer function $G(s) = \frac{80}{s(s+18)}$?

Options :

1. ✔ Over damped

2. ✖ Critically damped

3. ✖ Under damped

4. ✖ Undamped oscillatory

Question Number : 101 Question Id : 97103636057 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The unit step response of a system is $1\text{-}e^{-t}(1 + t)$. Which is this system?

Options :

1. ✖ Unstable

2. ✔ Stable

3. ✖ Critically stable

4. ✖ Oscillatory

Question Number : 102 Question Id : 97103636058 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the function $F(s) = \frac{\omega}{s^2+\omega^2}$ where $F(s)$ is the Laplace transform of $f(t)$. What is the steady-state value of (t) ?

Options :

1. ✖ Zero

2. ✖ One

3. ✖ Two

4. ✔ A value between -1 and +1

Question Number : 103 Question Id : 97103636059 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The closed-loop transfer function of a unity feedback control system is, $\frac{C(s)}{R(s)} = \frac{\omega_n^2}{s^2+2\xi\omega_n+\omega_n^2}$. The velocity error constant of the system is

Options :

1. ✔ $\frac{\omega_n}{2\xi}$

2. ✖ $\frac{\omega_n}{\xi}$

3. ✖ $\frac{2\omega_n}{\xi}$

4. ✖ $\frac{3\omega_n}{2\xi}$

Question Number : 104 Question Id : 97103636060 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The given characteristic polynomial has $s^4 + s^3 + 2s^2 + 2s + 3 = 0$

Options :

1. ✖ Zero root in RHS of s-plane

2. ✖ One root in RHS of s-plane

3. ✔ Two roots in RHS of s-plane

4. ✖ Three roots in RHS of s-plane

Question Number : 105 Question Id : 97103636061 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The characteristic equation of a control system is given by $s^5 + s^4 + 2s^3 + 2s^2 + 4s + 6 = 0$

What is the number of roots of the equation which lie in the right half of s-plane?

Options :

1. ✖ Zero

2. ✖ 1

3. ✔ 2

4. ✖ 3

Question Number : 106 Question Id : 97103636062 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For the open-loop system $G(s)H(s) = \frac{K}{s(s+1)(s+2)}$ the breakaway point is

Options :

1. ✖ -0.23

2. ✔ -0.42

3. ✖ -1.47

4. ✖ -3.47

Question Number : 107 Question Id : 97103636063 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The forward path transfer function of a unity feedback system is given by $G(s) = \frac{1}{(1+s)^2}$. What is the phase margin for this system?

Options :

1. ✖ $-\pi$ rad

2. ✖ 0 rad

3. ✖ $\frac{\pi}{2}$ rad

4. ✔ π rad

Question Number : 108 Question Id : 97103636064 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The primary reason for the wide spread use of silicon in semiconductor device technology is

Options :

1. ✖ Abundance of silicon on the surface of the earth.

2. ✔ Larger band gap of silicon in comparison to germanium.

3. ✖ Favorable properties of silicon dioxide (SiO_2)

4. ✖ Lower melting point.

Question Number : 109 Question Id : 97103636065 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The band gap of silicon at room temperature is

Options :

1. ✖ 1.3 eV

2. ✖ 0.7 eV

3. ✔ 1.1 eV

4. ✖ 1.4 eV

Question Number : 110 Question Id : 97103636066 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A thin P-type silicon sample is uniformly illuminated with light which generates excess carriers. The recombination rate is directly proportional to

Options :

1. ✖ The minority carrier mobility

2. ✖ The minority carrier recombination lifetime

3. ✖ The majority carrier concentration

4. ✔ The excess minority carrier concentration

Question Number : 111 Question Id : 97103636067 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a semiconductor, if the Fermi energy level lies in the conduction band, then the semiconductor is known as

Options :

1. ✔ Degenerate n-type

2. ✖ Degenerate p-type

3. ✖ Non-degenerate n-type

4. ✖ Non-degenerate p-type

Question Number : 112 Question Id : 97103636068 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A silicone sample 'A' is doped with 10^{18} atoms/cm^3 of Boron. Another sample 'B' of identical dimensions is doped with 10^{18} atoms/cm^3 phosphorus. The ratio of Electron to hole mobility is 1/3. The ratio of conductivity of the sample A to B is

Options :

1. ✔ 3

2. ✖ 1/3

3. ✖ 2/3

4. ✖ 3/2

Question Number : 113 Question Id : 97103636069 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a junction diode

Options :

1. ✖ The depletion capacitance increases with increase in the reverse bias.

2. ✔ The depletion capacitance decreases with increase in the reverse bias.

3. ✖ The depletion capacitance increases with increase in the forward bias.

4. ✖ The depletion capacitance is much higher than the depletion capacitance when it is forward biased.

Question Number : 114 Question Id : 97103636070 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The diffusion potential across a P-N junction.

Options :

1. ✖ Decreases with increasing doping concentration.

2. ✖ Increases with decreasing band gap.

3. ✖ Does not depend on doping concentrations.

4. ✔ Increases with increase in doping concentration.

Question Number : 115 Question Id : 97103636071 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a p-n junction diode at equilibrium, which one of the following statements is NOT TRUE?

Options :

1. ✖ The hole and electron diffusion current components are in the same direction.

2. ✖ The hole and electron drift current components are in the same direction.

3. ✖ On an average, holes and electrons drift in opposite direction.

4. ✔ On an average, electrons drift and diffuse in the same direction.

Question Number : 116 Question Id : 97103636072 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A MOS capacitor made using p-type substrate is in the accumulation mode. The dominant charge in the channel is due to the presence of

Options :

1. ✔ Holes

2. ✖ Electrons

3. ✖ Positively charged ions

4.

✖ Negatively charged ions

Question Number : 117 Question Id : 97103636073 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The small signal capacitance of an abrupt P-N junction if 1 nF at zero bias. If the built-in voltage is 1 volt, the capacitance at a reverse bias voltage of 99 volts is ----------(nF)

Options :

1. ✖ 10

2. ✔ 0.1

3. ✖ 0.01

4. ✖ 100

Question Number : 118 Question Id : 97103636074 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Boolean expression

$(X+Y)\ (X+\overline{Y})\ +\ \overline{(X\overline{Y})}\ +\ \overline{\overline{X}}$ Simplifies to

Options :

1. ✔ X

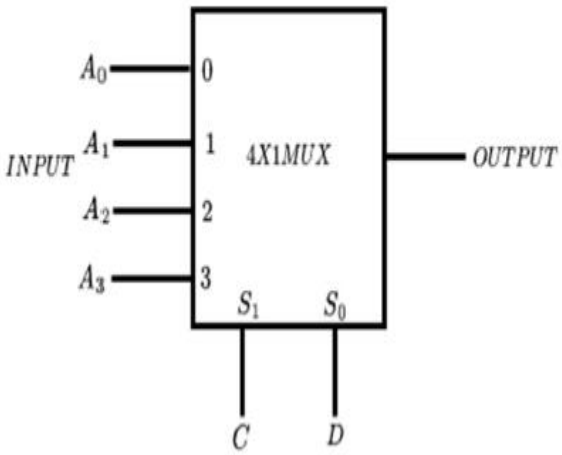
2. ✖ Y

3. ✖ XY

4. ✖ $X + Y$

Question Number : 119 Question Id : 97103636075 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider the 2-bit multiplexer (MUX) shown in the figure . For OUTPUT to be the XOR of C and D, the values for A_0, A_1, A_2 and A_3 are -------



Options :

1. ✖ $A_0 = 0, A_1 = 0, A_2 = 1, A_3 = 1$

2. ✖ $A_0 = 1, A_1 = 0, A_2 = 1, A_3 = 0$

3. ✔ $A_0 = 0, A_1 = 1, A_2 = 1, A_3 = 0$

4. ✖ $A_0 = 1, A_1 = 1, A_2 = 0, A_3 = 0$

Question Number : 120 Question Id : 97103636076 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

From measurement of the rise time of the output pulse of an amplifier whose input is a small amplitude square wave, one can estimate the following parameter of the amplifier

Options :

1. ✖ Gain –bandwidth product

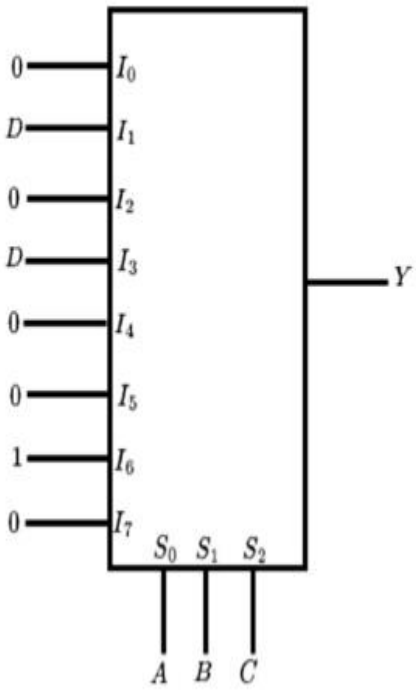
2. ✖ Slew rate

3. ✔ Upper -3-dB frequency

4. ✖ lower 3-dB frequency

Question Number : 121 Question Id : 97103636077 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An 8-to-1 multiplexer is used to implement a logical function Y as shown in the figure.
The output



Options :

1. ✖ $Y = A\bar{B}C + A\bar{C}D$

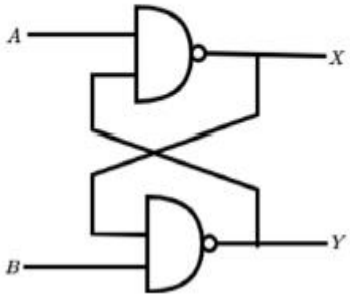
2. ✖ $Y = \bar{A}BC + A\bar{B}D$

3. ✔ $Y = AB\bar{C} + \bar{A}CD$

4. ✖ $Y = A\bar{B}C + \bar{A}CD$

Question Number : 122 Question Id : 97103636078 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In fig. Below, A=1 and B=1. The input B is now replaced by a sequence 101010..., the outputs x and y will be



Options :

1. ✔ Fixed at 0 and 1, respectively

2. ✖ X= 1010....while y = 0101...

3. ✖ X= 0101....while y = 1010...

4. ✖ Fixed at 1 and 0, respectively

Question Number : 123 Question Id : 97103636079 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The quiescent collector current I_C, of a transistor is increased by changing resistances. As a result

Options :

1. ✖ g_m will not be affected

2. ✖ g_m will decrease

3. ✔ g_m will increase

4. ✖ g_m will increase or decrease depending upon bias stability.

Question Number : 124 Question Id : 97103636080 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an amplitude modulated system, if the total power is 600 W and the power in the carrier is 400 W, then the modulation index is

Options :

1. ✖ 0.5

2. ✖ 0.75

3. ✖ 0.9

4. ✔ 1

Question Number : 125 Question Id : 97103636081 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A communication channel has a bandwidth 100 MHz. The channel is extremely noisy such that the signal power is very much below the noise power. What is the capacity of this channel?

Options :

1. ✖ 100 Mbps

2. ✖ 50 Mbps

3. ✖ 2400 bps

4. ✔ Nearly 0 bps

Question Number : 126 Question Id : 97103636082 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A source deliver symbols X_1, X_2, X_3 and X_4, with probabilities 1/2, 1/4, 1/8 and 1/8 respectively. The entropy of the system is

Options :

1. ✖ 1.75 bits per second

2. ✔ 1.75 bits per symbol

3. ✖ 1.75 symbols per second

4. ✖ 1.75 symbols per bit

Question Number : 127 Question Id : 97103636083 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A carrier is modulated by a digital bit stream having one of the possible phase of 0°, 90°, 180° and 270°. Then the modulation is termed as

Options :

1. ✖ BPSK

2. ✔ QPSK

3. ✖ QAM

4. ✖ MSK

Question Number : 128 Question Id : 97103636084 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The two random variables X and Y are uncorrelated if and only if their covariance is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ -1

4. ✖ Infinity

Question Number : 129 Question Id : 97103636085 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A random process obeys Poisson's distribution. It is given that the mean of the process is 5.

Then the variance of the process is

Options :

1. ✔ 5

2. ✖ 0.5

3. ✖ 25

4. ✖ 0

Question Number : 130 Question Id : 97103636086 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

FM broadcast standards specify a maximum deviation of frequency to be equal to 75 kHz and a maximum modulating frequency of 15 kHz. What is the modulation index for FM wave?

Options :

1. ✖ 1/5

2. ✔ 5

3. ✖ 60

4. ✖ 1125

Question Number : 131 Question Id : 97103636087 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For an AM wave, the maximum voltage was found to be 10 V and the minimum voltage was found to be 5 V. The modulation index of the wave would be

Options :

1. ✔ 0.33

2. ✖ 0.52

3. ✖ 0.40

4. ✖ 0.1

Question Number : 132 Question Id : 97103636088 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consider a closed surface S surrounding a volume V. If $\vec{r}$ is the position vector of a point inside S, with $\hat{n}$ the normal on S, the value of the integral $\oiint 5\,\vec{r}.\hat{n}\,dS$ is

Options :

1. ✖ 3 V

2. ✖ 5 V

3. ✖ 10 V

4. ✔ 15 V

Question Number : 133 Question Id : 97103636089 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following field equations indicate that the free magnetic charges do not exist?

Options :

1. ✖ $\vec{H} = \frac{1}{\mu} \nabla \times A$

2. ✖ $\vec{H} = \oint \frac{Id\ell \times R}{4\Pi R^2}$

3. ✔ $\nabla . \vec{H} = 0$

4. ✖ $\nabla \times \vec{H} = J$

Question Number : 134 Question Id : 97103636090 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If a vector field $\vec{V}$ is related to another vector field $\vec{A}$. Through $\vec{V} = \nabla \times \vec{A}$, which of the following is true? Note: C and S_C refer to any closed counter and any surface whose boundary is C.

Options :

1. ✖ $\oint_c \vec{V} . d\vec{\ell} = \int_{S_c} \int \vec{A} . d\vec{s}$

2. ✔ $\oint_c \vec{A}.d\vec{\ell} = \int_{s_c}\int \vec{V}.d\vec{s}$

3. ✖ $\oint_c \nabla \times \vec{V}.d\vec{\ell} = \int_{s_c}\int \nabla \times \vec{A}\,.d\vec{s}$

4. ✖ $\oint_c \nabla \times \vec{A}.d\vec{\ell} = \int_{s_c}\int \vec{V}.d\vec{s}$

Question Number : 135 Question Id : 97103636091 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A uniform plane wave in the free space is normally incident on an infinitely thick dielectric slab (dielectric constant $\varepsilon_r = 9$). The magnitude of the reflection coefficient is

Options :

1. ✖ 0

2. ✖ 0.3

3. ✔ 0.5

4. ✖ 0.8

Question Number : 136 Question Id : 97103636092 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A transmission line of 50 Ω characteristic impedance is terminated with a 100 Ω resistance. The minimum impedance measured on the line is equal to

Options :

1. ✖ 0 Ω

2. ✔ 25 Ω

3. ✖ 50 Ω

4. ✖ 100 Ω

Question Number : 137 Question Id : 97103636093 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The dominant mode in a rectangular waveguide is TE_{10}, because this mode has

Options :

1. ✖ No attenuation

2. ✖ No cut-off

3. ✖ No magnetic field component

4. ✔ The highest cut-off wavelength

Question Number : 138 Question Id : 97103636094 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The input impedance of a short-circuited lossless transmission line quarter wave long is

Options :

1. ✖ Purely reactive

2. ✖ Purely resistive

3. ✔ Infinite

4. ✖ Dependent on the characteristic impedance of the line

Question Number : 139 Question Id : 97103636095 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The far field of an antenna varies with distance r as

Options :

1. ✔ $1/r$

2. ✖ $1/r^2$

3. ✖ $1/r^3$

4. ✖ $\frac{1}{\sqrt{r}}$

Question Number : 140 Question Id : 97103636096 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Maxwell's equation, $\nabla \times \vec{H} = \vec{J} + \frac{\partial \vec{D}}{\partial t}$ is based on

Options :

1. ✔ Ampere's law

2. ✖ Gauss's law

3. ✖ Faraday's law

4. ✖ Coulomb's law