NTA UGC NET December 2025 31st Dec to 7th Jan 2026

Application No	
Candidate Name	
Roll No.	
Test Date	07/01/2026
Test Time	3:00 PM - 6:00 PM
Subject	88 Electronic Science

Section : **General Paper**

Comprehension:

The following table shows the marks obtained by six students A-F in six different subjects S1 to S6 having 160, 160, 120, 120, 200 and 240 as maximum marks, respectively. Based on the data in the table, answer the questions that follow:

Students-wise Details of Marks obtained

Student	Marks obtained in subject					
	S1 (Out of 160)	S2 (Out of 160)	S3 (Out of 120)	S4 (Out of 120)	S5 (Out of 200)	S6 (Out of 240)
A	80	84	66	56	154	150
B	120	100	84	76	136	132
C	128	72	64	70	144	160
D	84	130	96	84	104	168
E	64	128	90	92	174	70
F	70	96	60	56	164	100

SubQuestion No : 1

Q.1 What is the average marks scored by all the students in the subjects S5 and subject S6, respectively?

1. 142 and 130
2. 144 and 128
3. 146 and 130
4. 148 and 126

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714144**
Option 1 ID : **61198755105**
Option 2 ID : **61198755106**
Option 3 ID : **61198755107**
Option 4 ID : **61198755108**
Status : **Answered**
Chosen Option : **3**

Comprehension:

The following table shows the marks obtained by six students A-F in six different subjects S1 to S6 having 160, 160, 120, 120, 200 and 240 as maximum marks, respectively. Based on the data in the table, answer the questions that follow:

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F	70	96	60	56	164	100

SubQuestion No : 2

Q.2 What is the ratio of the total marks scored by student B in all the subjects to the total marks scored by student E in all subjects?

1. 26 : 27
2. 108 : 103
3. 16 : 17
4. 46 : 47

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714145**
Option 1 ID : **61198755109**
Option 2 ID : **61198755110**
Option 3 ID : **61198755111**
Option 4 ID : **61198755112**
Status : **Answered**
Chosen Option : **2**

Comprehension:

The following table shows the marks obtained by six students A-F in six different subjects S1 to S6 having 160, 160, 120, 120, 200 and 240 as maximum marks, respectively. Based on the data in the table, answer the questions that follow:

Students-wise Details of Marks obtained

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F	70	96	60	56	164	100

SubQuestion No : 3

Q.3 The marks scored by student B and student C together in subjects S1 is approximately ___% more than the marks scored by student A, student D and student E together in the same subject.

1. 8.77
2. 9.66
3. 10.53
4. 11.67

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714147**
Option 1 ID : **61198755117**
Option 2 ID : **61198755118**
Option 3 ID : **61198755119**
Option 4 ID : **61198755120**
Status : **Answered**
Chosen Option : **1**

Comprehension:

The following table shows the marks obtained by six students A-F in six different subjects S1 to S6 having 160, 160, 120, 120, 200 and 240 as maximum marks, respectively. Based on the data in the table, answer the questions that follow:

Students-wise Details of Marks obtained

Student	Marks obtained in subject					
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D	84	130	96	84	104	168
E	64	128	90	92	174	70
F	70	96	60	56	164	100

SubQuestion No : 4

Q.4 If for getting first division, a student needs to score minimum 65% marks in aggregate, then the number of students getting first division is:

1. 5
2. 3
3. 2
4. 1

Options
1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714146**
Option 1 ID : **61198755113**
Option 2 ID : **61198755114**
Option 3 ID : **61198755115**
Option 4 ID : **61198755116**
Status : **Answered**
Chosen Option : **4**

Comprehension:

The following table shows the marks obtained by six students A-F in six different subjects S1 to S6 having 160, 160, 120, 120, 200 and 240 as maximum marks, respectively. Based on the data in the table, answer the questions that follow:

Students-wise Details of Marks obtained

Student	Marks obtained in subject					
	S1 (Out of 160)	S2 (Out of 160)	S3 (Out of 120)	S4 (Out of 120)	S5 (Out of 200)	S6 (Out of 240)
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D	84	130	96	84	104	168
E	64	128	90	92	174	70
F	70	96	60	56	164	100

SubQuestion No : 5

Q.5 What is the overall respective percentages of marks scored by student A and student B, in all the subjects together?

1. 55% and 62.8%
2. 56% and 63.8%
3. 57% and 61.8%
4. 59% and 64.8%

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714143**
Option 1 ID : **61198755101**
Option 2 ID : **61198755102**
Option 3 ID : **61198755103**
Option 4 ID : **61198755104**
Status : **Answered**
Chosen Option : **4**

Q.6 An exciting new evolution of the World Wide Web (WWW) providing machine-readable and machine-comprehensible information far beyond the current capabilities is called:

1. Dynamic Web
2. Web Browser
3. Semantic Web
4. Static Web

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714173**
Option 1 ID : **61198755221**
Option 2 ID : **61198755222**
Option 3 ID : **61198755223**
Option 4 ID : **61198755224**
Status : **Answered**
Chosen Option : **1**

Q.7 The 'interactive society' is characterized by the following:

A. Non-electronic communication
B. Networked integration
C. Multi-media
D. Digitisation
E. Uncultured media environment

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. B, C and D Only
3. C, D and E Only
4. A, B and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714160**
Option 1 ID : **61198755169**
Option 2 ID : **61198755170**
Option 3 ID : **61198755171**
Option 4 ID : **61198755172**
Status : **Answered**
Chosen Option : **2**

Q.8 In which of the water treatment processes additional BOD (Biological Oxygen Demand) is provided to remove the biological material?

1. Primary Treatment Process
2. Secondary Treatment Process
3. Tertiary Treatment Process
4. Advanced Treatment Process

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714182**
Option 1 ID : **61198755257**
Option 2 ID : **61198755258**
Option 3 ID : **61198755259**
Option 4 ID : **61198755260**
Status : **Answered**
Chosen Option : **3**

Q.9 Which of the following can be categorized under electronically-based communication?

A. Typographic
B. Audio-visual
C. Computer-mediated
D. Personal conversation
E. Cylinder press

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. B, C and D Only
3. C, D and E Only
4. A, D and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714161**
Option 1 ID : **61198755173**
Option 2 ID : **61198755174**
Option 3 ID : **61198755175**
Option 4 ID : **61198755176**
Status : **Answered**
Chosen Option : **1**

Q.10 What is Bluetooth technology?

1. It means the technology can travel with the user; for instance, users can download software, email messages, and web pages onto a laptop or other mobile device
2. It refers to any type of operation accomplished without the use of a hard-wired connection
3. It refers to a wireless Personal Area Network (PAN) technology that transmits signal over short distances among cell phones, computers and other devices
4. It provides communication for devices owned by a single user that work over a short distance

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714174**
Option 1 ID : **61198755225**
Option 2 ID : **61198755226**
Option 3 ID : **61198755227**
Option 4 ID : **61198755228**
Status : **Answered**
Chosen Option : **3**

Q.11 If $(L)_M$ represents a number L in base M number system, then identify the correct ascending order of the following numbers A-D, when converted to decimal number system.

A. $(333.2)_4$
B. $(111111.11)_2$
C. $(77.2)_8$
D. $(3F.6)_{16}$

Choose the ***correct*** answer from the options given below:

1. B, D, A, C
2. C, D, A, B
3. A, D, B, C
4. C, D, B, A

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714177**
Option 1 ID : **61198755237**
Option 2 ID : **61198755238**
Option 3 ID : **61198755239**
Option 4 ID : **61198755240**
Status : **Answered**
Chosen Option : **2**

Q.12 Three successive discounts of 10%, 25% and 35% on the marked price of an item are equivalent to a single discount of:

1. ~ 56.1%
2. ~ 43.9%
3. 70%
4. ~ 50.2%

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714164**
Option 1 ID : **61198755185**
Option 2 ID : **61198755186**
Option 3 ID : **61198755187**
Option 4 ID : **61198755188**
Status : **Answered**
Chosen Option : **1**

Q.13 Which of the following is a kind of wave generated during an earthquake?

1. N-Wave
2. O-Wave
3. P-Wave
4. Q-Wave

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714179**
Option 1 ID : **61198755245**
Option 2 ID : **61198755246**
Option 3 ID : **61198755247**
Option 4 ID : **61198755248**
Status : **Answered**
Chosen Option : **3**

Q.14 The SWAYAMPRABHA channel : 05 with the theme of 'Information, Communication and Management Studies' is named as:

1. SANSKRITI
2. SAARASWAT
3. PRABANDHAN
4. PRABODH

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714150**
Option 1 ID : **61198755129**
Option 2 ID : **61198755130**
Option 3 ID : **61198755131**
Option 4 ID : **61198755132**
Status : **Answered**
Chosen Option : **3**

Q.15 Environmental education must include topics of:

A. Personal hygiene
B. Biological diversity
C. Waste management
D. Pollution
E. Wildlife conservation

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. B, C, D and E Only
3. A, B, D and E Only
4. A, C, D and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714186**
Option 1 ID : **61198755273**
Option 2 ID : **61198755274**
Option 3 ID : **61198755275**
Option 4 ID : **61198755276**
Status : **Answered**
Chosen Option : **2**

Q.16 If the statement 'No fishes are mammals' is given as false, then which of the following proposition can be immdediately inferred to be true?

1. Some fishes are mammals
2. All fishes are mammals
3. Some fishes are not mammals
4. All mammals are fishes

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714169**
Option 1 ID : **61198755205**
Option 2 ID : **61198755206**
Option 3 ID : **61198755207**
Option 4 ID : **61198755208**
Status : **Answered**
Chosen Option : **1**

Q.17 The Simla conference of 1901 was described by Lord Curzon as:

1. High-level Education Commission
2. High Power Education Commission
3. Secret Education Commission
4. Confidential Education Commission

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714183**
Option 1 ID : **61198755261**
Option 2 ID : **61198755262**
Option 3 ID : **61198755263**
Option 4 ID : **61198755264**
Status : **Answered**
Chosen Option : **1**

Q.18 Which of the following ancient university was situated on the banks of the river Krishna in Vidarbha?

1. Sridhanya Katak
2. Talkshashila
3. Nalanda
4. Sakya

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714184**
Option 1 ID : **61198755265**
Option 2 ID : **61198755266**
Option 3 ID : **61198755267**
Option 4 ID : **61198755268**
Status : **Answered**
Chosen Option : **2**

Q.19 In a research study, a group that experiences the manipulated independent variables is generally known as:

1. Placebo group
2. Control group
3. Independent group
4. Experimental group

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714154**
Option 1 ID : **61198755145**
Option 2 ID : **61198755146**
Option 3 ID : **61198755147**
Option 4 ID : **61198755148**
Status : **Answered**
Chosen Option : **3**

Q.20 Identify the correct statements.

A. Panel study is a type of longitudinal research.
B. Cohort study is a type of longitudinal research.
C. Panel study is a type of cross-sectional research.
D. Cohort study is a type of cross-sectional research.

Choose the ***correct*** answer from the options given below:

1. A and B Only
2. A and D Only
3. B and C Only
4. C and D Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714153**
Option 1 ID : **61198755141**
Option 2 ID : **61198755142**
Option 3 ID : **61198755143**
Option 4 ID : **61198755144**
Status : **Answered**
Chosen Option : **3**

Q.21 An overestimated prediction about the probability of an event based on frequency of the event's past occurrences is known as:

1. Hindsight bias
2. Availability heuristic
3. Representativeness heuristic
4. Divergent thinking

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714149**
Option 1 ID : **61198755125**
Option 2 ID : **61198755126**
Option 3 ID : **61198755127**
Option 4 ID : **61198755128**
Status : **Answered**
Chosen Option : **2**

Q.22 Which of the following arguments is fallacious because the middle term is present in both positive and negative instances and violates the rule that it should not be present in the negative instances?

1. Fire is cold because it is a substance
2. The hill has fire because it is knowable
3. Sound is eternal because it is produced
4. Wherever there is fire there is smoke

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714172**
Option 1 ID : **61198755217**
Option 2 ID : **61198755218**
Option 3 ID : **61198755219**
Option 4 ID : **61198755220**
Status : **Answered**
Chosen Option : **1**

Q.23 Match the **LIST-I** with **LIST-II** in the context of MS-EXCEL

LIST-I (Cell Reference)		LIST-II (Definition and Features)	
A.	D5	I.	Mixed reference. Row is fixed and column is changeable when fill handle is used
B.	D$5	II.	Mixed reference. Column is fixed and row is changeable when fill handle is used
C.	D5	III.	Absolute reference. Column and row are fixed when fill handle is used
D.	$D5	IV.	Relative reference. Column and row are changeable when fill handle is used

Choose the ***correct*** answer from the options given below:

1. A-III, B-I, C-IV, D-II
2. A-II, B-I, C-IV, D-III
3. A-III, B-IV, C-I, D-II
4. A-IV, B-I, C-III, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714175**
Option 1 ID : **61198755229**
Option 2 ID : **61198755230**
Option 3 ID : **61198755231**
Option 4 ID : **61198755232**
Status : **Answered**
Chosen Option : **4**

Q.24 During a live online math tutorial, a teacher wants to demonstrate problem-solving techniques and equations visually. Which software/tool would best support this instructional method?

1. Adobe Illustrator
2. Camtasia
3. Jamboard
4. Kahoot

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714152**
Option 1 ID : **61198755137**
Option 2 ID : **61198755138**
Option 3 ID : **61198755139**
Option 4 ID : **61198755140**
Status : **Answered**
Chosen Option : **3**

Q.25 Arrange the following statistical measures in increasing order of their values for a given dataset.

A. 6^{th} decile
B. 3^{rd} quartile
C. Median
D. 70th percentile

Choose the ***correct*** answer from the options given below:

1. A, B, C, D
2. C, A, D, B
3. C, B, A, D
4. B, C, A, D

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714156**
Option 1 ID : **61198755153**
Option 2 ID : **61198755154**
Option 3 ID : **61198755155**
Option 4 ID : **61198755156**
Status : **Answered**
Chosen Option : **4**

Q.26 Which of the following statements are true?

A. Validity is an attribute of deductive argument.
B. Validity can be attributed to any single proposition.
C. In a valid argument all of its premises have to be true.
D. A valid deductive argument can not have all true premises and a false conclusion.

Choose the ***correct*** answer from the options given below:

1. B and C Only
2. A, C and D Only
3. A and D Only
4. C and D Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714171**
Option 1 ID : **61198755213**
Option 2 ID : **61198755214**
Option 3 ID : **61198755215**
Option 4 ID : **61198755216**
Status : **Answered**
Chosen Option : **2**

Q.27 Which of the following are the prominent features of Self-directed learning?

A. Passive learning
B. Extension of learning
C. Taking ownership of learning
D. Teacher-centered learning
E. Self-monitoring

Choose the ***correct*** answer from the options given below:

1. A, D and E Only
2. B and D Only
3. B, C and E Only
4. A and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714151**
Option 1 ID : **61198755133**
Option 2 ID : **61198755134**
Option 3 ID : **61198755135**
Option 4 ID : **61198755136**
Status : **Answered**
Chosen Option : **3**

Q.28 Geothermal power plants are much like fossil and nuclear plants with exception of no requirements of:

A. Vapour dominated hydrothermal resources
B. Boiler
C. Fission reactor
D. Turbine generator

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. B and C Only
3. A and D Only
4. B, C and D Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714180**
Option 1 ID : **61198755249**
Option 2 ID : **61198755250**
Option 3 ID : **61198755251**
Option 4 ID : **61198755252**
Status : **Answered**
Chosen Option : **1**

Q.29 Which of the following is labelled as the second self?

1. The telephone
2. The radio
3. The television
4. The computer

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714159**
Option 1 ID : **61198755165**
Option 2 ID : **61198755166**
Option 3 ID : **61198755167**
Option 4 ID : **61198755168**
Status : **Answered**
Chosen Option : **4**

Q.30 For aiming a target a person gets one rupee each time when he hits it and loses one rupee when he misses it. If he gets Rs 40 after aiming at the target one hundered times, then how many times did he miss the target?

1. 30
2. 40
3. 60
4. 70

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714163**
Option 1 ID : **61198755181**
Option 2 ID : **61198755182**
Option 3 ID : **61198755183**
Option 4 ID : **61198755184**
Status : **Answered**
Chosen Option : **1**

Q.31 Which of the following are the core social and emotional skills and competencies of self-regulation that are listed under Collaborative for Academic, Social and Emotional Learning (CASEL)?

A. Self-Management
B. Self-Awareness
C. Relationship Skills
D. Social awareness
E. Responsible decision making

Choose the ***correct*** answer from the options given below:

1. C, D and E Only
2. A, B, C, D and E
3. A and D Only
4. B, C and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714148**
Option 1 ID : **61198755121**
Option 2 ID : **61198755122**
Option 3 ID : **61198755123**
Option 4 ID : **61198755124**
Status : **Answered**
Chosen Option : **2**

Q.32 Which of the following universities were considered as Institutions of National Importance at the commencement of constitution?

A. Benares Hindu University
B. Aligarh Muslim University
C. Delhi University
D. Hyderabad University
E. Calicut University

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. B, C and D Only
3. C, D and E Only
4. A, D and E Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714185**
Option 1 ID : **61198755269**
Option 2 ID : **61198755270**
Option 3 ID : **61198755271**
Option 4 ID : **61198755272**
Status : **Answered**
Chosen Option : **1**

Q.33 "Just look around yourself, everything around us is so intelligently organized. Obviously this world must have been created by an intelligent God." Which of the following fallacy is committed in the above argument?

1. Hasty Generalization
2. Begging the question
3. Equivocation
4. Slippery slope

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714168**
Option 1 ID : **61198755201**
Option 2 ID : **61198755202**
Option 3 ID : **61198755203**
Option 4 ID : **61198755204**
Status : **Answered**
Chosen Option : **3**

Q.34 student's t-test is useful for testing the

A. significance of difference between two sample means
B. independence of attributes
C. significance of correlation coefficient
D. analysis of variance

Choose the ***correct*** answer from the options given below:

1. A and B Only
2. B and C Only
3. C and D Only
4. A and C Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714157**
Option 1 ID : **61198755157**
Option 2 ID : **61198755158**
Option 3 ID : **61198755159**
Option 4 ID : **61198755160**
Status : **Answered**
Chosen Option : **3**

Q.35 The present ages of three persons are in the proportion 4 : 5 : 7. Seven years ago, the sum of their ages was 59 years. The present age of youngest of them is

1. 15 years
2. 20 years
3. 25 years
4. 35 years

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714166**
Option 1 ID : **61198755193**
Option 2 ID : **61198755194**
Option 3 ID : **61198755195**
Option 4 ID : **61198755196**
Status : **Answered**
Chosen Option : **2**

Q.36 When did India become party to Convention on Biodiversity (CBD)?

1. 1992
2. 1993
3. 1994
4. 1995

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714178**
Option 1 ID : **61198755241**
Option 2 ID : **61198755242**
Option 3 ID : **61198755243**
Option 4 ID : **61198755244**
Status : **Answered**
Chosen Option : **2**

Q.37 Which of the following statements are logically equivalent?

A. All non-bovines are cats
B. No cats are bovines
C. All cats are non-bovines
D. No bovines are cats

Choose the ***correct*** answer from the options given below:

1. B, C and D Only
2. A and C Only
3. B and D Only
4. A, B and C Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714170**
Option 1 ID : **61198755209**
Option 2 ID : **61198755210**
Option 3 ID : **61198755211**
Option 4 ID : **61198755212**
Status : **Answered**
Chosen Option : **4**

Q.38 Identify the discrete variables.

A. Number of students in each class of a school
B. Number of heads obtained in ten tosses of a coin
C. Marks scored by students in an objective type examination with negative marking for incorrect responses
D. Height of students in a school

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. A and B Only
3. A, B and D Only
4. C and D Only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714155**
Option 1 ID : **61198755149**
Option 2 ID : **61198755150**
Option 3 ID : **61198755151**
Option 4 ID : **61198755152**
Status : **Answered**
Chosen Option : **4**

Q.39 What is the correct increasing order of Global Warming Potential (GWP) of the following Green House Gases (GHGs)?

A. CFC - 11 (Chlorofluorocarbon - 11)
B. CH_4 (Methane)
C. CO_2 (Carbon dioxide)
D. N_2O (Nitrous oxide)

Choose the ***correct*** answer from the options given below:

1. A, B, D, C
2. C, B, D, A
3. C, D, B, A
4. A, D, B, C

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714181**
Option 1 ID : **61198755253**
Option 2 ID : **61198755254**
Option 3 ID : **61198755255**
Option 4 ID : **61198755256**
Status : **Answered**
Chosen Option : **3**

Q.40 Match the **LIST-I** with **LIST-II**

	LIST-I (Term)		LIST-II (Description)
A.	Natural sign	I.	Less certainty of response in artificial signs
B.	Artificial sign	II.	Those things that are represented in nature
C.	Signal	III.	Those that are constructed in the social world
D.	Symbol	IV.	Artificial signs that produce predictable responses

Choose the ***correct*** answer from the options given below:

1. A-II, B-III, C-IV, D-I
2. A-III, B-IV, C-I, D-II
3. A-IV, B-I, C-II, D-III
4. A-I, B-II, C-III, D-IV

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714162**
Option 1 ID : **61198755177**
Option 2 ID : **61198755178**
Option 3 ID : **61198755179**
Option 4 ID : **61198755180**
Status : **Answered**
Chosen Option : **1**

Q.41 Which of the following statements are true with reference to the evolution of WWW?

A. Web 2.0 is the "participative social web"
B. Web 1.0 is the "ready-only web"
C. Three main applications of Web 2.0 are YouTube, Wikis and Blogs
D. Web 3.0 is the "read, write, execute web"

Choose the ***correct*** answer from the options given below:

1. A, B and C Only
2. A and C Only
3. B and D Only
4. A, B, C and D

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714176**
Option 1 ID : **61198755233**
Option 2 ID : **61198755234**
Option 3 ID : **61198755235**
Option 4 ID : **61198755236**
Status : **Answered**
Chosen Option : **4**

Q.42 A car travels from city A to city B with a constant speed. If the speed of the car is increased by 20 km/h it will reach destination 1 hour earlier. On the other hand, if its speed decreases by 20 km/h, it reaches 2 hours later than scheduled time. What is the usual time if it travels with routine speed?

1. 2 hr
2. 4 hr
3. 8 hr
4. 10 hr

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714165**
Option 1 ID : **61198755189**
Option 2 ID : **61198755190**
Option 3 ID : **61198755191**
Option 4 ID : **61198755192**
Status : **Answered**
Chosen Option : **3**

Q.43 In a certain coding language, if the word 'DRIVE' is coded as 'GOLSH', then the word 'COINS' will be coded as:

1. FKKOU
2. EKLPV
3. FLLKV
4. ELKPU

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714167**
Option 1 ID : **61198755197**
Option 2 ID : **61198755198**
Option 3 ID : **61198755199**
Option 4 ID : **61198755200**
Status : **Answered**
Chosen Option : **3**

Q.44 Match the **LIST-I** with **LIST-II**

	LIST-I (Commission/Committee)		LIST-II (Chairman)
A.	First Indian Education Commission	I.	T. Raleigh
B.	Indian University Commission	II.	M. E. Sadlar
C.	Calcutta University Commission	III.	J. E. D. Bethune
D.	Council of Education	IV.	W. W. Hunter

Choose the ***correct*** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-II, B-III, C-IV, D-I
3. A-III, B-IV, C-I, D-II
4. A-IV, B-I, C-II, D-III

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714187**
Option 1 ID : **61198755277**
Option 2 ID : **61198755278**
Option 3 ID : **61198755279**
Option 4 ID : **61198755280**
Status : **Answered**
Chosen Option : **4**

Q.45 In mediated communication audience attention is considered as a:

1. Human liability
2. Scarce resource
3. Visibility product
4. Regulated liability

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714158**
Option 1 ID : **61198755161**
Option 2 ID : **61198755162**
Option 3 ID : **61198755163**
Option 4 ID : **61198755164**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Read the passage given below and answer the question that follow:

Before delving into the role that missionary schools played in the emergence of Indian nationalism, it is necessary to understand the broader context in which Christian missionaries had been religious actors in the Indian subcontinent since the 1700s. With the rise of British power under the East India Company, and later the crown, missionaries of various denominations made India one of their largest areas of activity. This was especially true after the amendment of the company's charter in 1813, which allowed missionaries unhindered access to the company's domains. But it was through their involvement in new forms of education that the missionaries made a significant and perhaps the most lasting impact.

Many 'educational missionaries' initially saw Western learning and knowledge as a stepping stone to spreading Christianity. By the 1870s, however, this approach to the conversion of India's Brahmans and other high castes had largely fallen out of favor. By then, the most active Anglican missionary societies - The Church Missionary Society (CMS), The London Missionary Society (LMS), The Society for the Propagation of the Gospel (SPG), and the Cambridge Mission to Delhi (CMD) - were mostly involved in teaching in high schools and colleges across North India. In the United Provinces, India's most populous province, these societies ran half of the high schools and colleges. American missionary societies, by contrast, worked overwhelmingly with the lower-caste communities and were far less involved in higher levels of education. Anglican mission schools, therefore, interacted with the very groups and communities who would go on to lead the Indian nationalist movement.

SubQuestion No : 46

Q.46 Which of the following societies was involved in teaching in high schools and colleges of North India?

1. American Missionary Society
2. European Missionary Society
3. Anglican Missionary Societies
4. Central Indian Missionary Society

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714189**
Option 1 ID : **61198755281**
Option 2 ID : **61198755282**
Option 3 ID : **61198755283**
Option 4 ID : **61198755284**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Read the passage given below and answer the question that follow:

Before delving into the role that missionary schools played in the emergence of Indian nationalism, it is necessary to understand the broader context in which Christian missionaries had been religious actors in the Indian subcontinent since the 1700s. With the rise of British power under the East India Company, and later the crown, missionaries of various denominations made India one of their largest areas of activity. This was especially true after the amendment of the company's charter in 1813, which allowed missionaries unhindered access to the company's domains. But it was through their involvement in new forms of education that the missionaries made a significant and perhaps the most lasting impact.

Many 'educational missionaries' initially saw Western learning and knowledge as a stepping stone to spreading Christianity. By the 1870s, however, this approach to the conversion of India's Brahmans and other high castes had largely fallen out of favor. By then, the most active Anglican missionary societies - The Church Missionary Society (CMS), The London Missionary Society (LMS), The Society for the Propagation of the Gospel (SPG), and the Cambridge Mission to Delhi (CMD) - were mostly involved in teaching in high schools and colleges across North India. In the United Provinces, India's most populous province, these societies ran half of the high schools and colleges. American missionary societies, by contrast, worked overwhelmingly with the lower-caste communities and were far less involved in higher levels of education. Anglican mission schools, therefore, interacted with the very groups and communities who would go on to lead the Indian nationalist movement.

SubQuestion No : 47

Q.47 When did Christian missionaries start their activities in the Indian subcontinent?

1. 1600s
2. 1700s
3. 1800s
4. 1900s

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714191**
Option 1 ID : **61198755289**
Option 2 ID : **61198755290**
Option 3 ID : **61198755291**
Option 4 ID : **61198755292**
Status : **Answered**
Chosen Option : **2**

Comprehension:

Read the passage given below and answer the question that follow:

Before delving into the role that missionary schools played in the emergence of Indian nationalism, it is necessary to understand the broader context in which Christian missionaries had been religious actors in the Indian subcontinent since the 1700s. With the rise of British power under the East India Company, and later the crown, missionaries of various denominations made India one of their largest areas of activity. This was especially true after the amendment of the company's charter in 1813, which allowed missionaries unhindered access to the company's domains. But it was through their involvement in new forms of education that the missionaries made a significant and perhaps the most lasting impact.

Many 'educational missionaries' initially saw Western learning and knowledge as a stepping stone to spreading Christianity. By the 1870s, however, this approach to the conversion of India's Brahmans and other high castes had largely fallen out of favor. By then, the most active Anglican missionary societies - The Church Missionary Society (CMS), The London Missionary Society (LMS), The Society for the Propagation of the Gospel (SPG), and the Cambridge Mission to Delhi (CMD) - were mostly involved in teaching in high schools and colleges across North India. In the United Provinces, India's most populous province, these societies ran half of the high schools and colleges. American missionary societies, by contrast, worked overwhelmingly with the lower-caste communities and were far less involved in higher levels of education. Anglican mission schools, therefore, interacted with the very groups and communities who would go on to lead the Indian nationalist movement.

SubQuestion No : 48

Q.48 Which of the following was not an active Anglican missionary society?

1. The Church Missionary Society (CMS)
2. The London Missionary Society (LMS)
3. The Society for the Propagation of the Gospel (SPG)
4. American Missionary Society (AMS)

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714192**
Option 1 ID : **61198755293**
Option 2 ID : **61198755294**
Option 3 ID : **61198755295**
Option 4 ID : **61198755296**
Status : **Answered**
Chosen Option : **4**

Comprehension:

Read the passage given below and answer the question that follow:

Before delving into the role that missionary schools played in the emergence of Indian nationalism, it is necessary to understand the broader context in which Christian missionaries had been religious actors in the Indian subcontinent since the 1700s. With the rise of British power under the East India Company, and later the crown, missionaries of various denominations made India one of their largest areas of activity. This was especially true after the amendment of the company's charter in 1813, which allowed missionaries unhindered access to the company's domains. But it was through their involvement in new forms of education that the missionaries made a significant and perhaps the most lasting impact.

Many 'educational missionaries' initially saw Western learning and knowledge as a stepping stone to spreading Christianity. By the 1870s, however, this approach to the conversion of India's Brahmans and other high castes had largely fallen out of favor. By then, the most active Anglican missionary societies - The Church Missionary Society (CMS), The London Missionary Society (LMS), The Society for the Propagation of the Gospel (SPG), and the Cambridge Mission to Delhi (CMD) - were mostly involved in teaching in high schools and colleges across North India. In the United Provinces, India's most populous province, these societies ran half of the high schools and colleges. American missionary societies, by contrast, worked overwhelmingly with the lower-caste communities and were far less involved in higher levels of education. Anglican mission schools, therefore, interacted with the very groups and communities who would go on to lead the Indian nationalist movement.

SubQuestion No : 49

Q.49 Which of the following predominantly worked with the lower caste communities in India?

1. The Church Missionary Society (CMS)
2. American Missionary Society (AMS)
3. The London Missionary Society (LMS)
4. The Society for the Propagation of the Gospel (SPG)

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714193**
Option 1 ID : **61198755297**
Option 2 ID : **61198755298**
Option 3 ID : **61198755299**
Option 4 ID : **61198755300**
Status : **Answered**
Chosen Option : **2**

Comprehension:

Read the passage given below and answer the question that follow:

Before delving into the role that missionary schools played in the emergence of Indian nationalism, it is necessary to understand the broader context in which Christian missionaries had been religious actors in the Indian subcontinent since the 1700s. With the rise of British power under the East India Company, and later the crown, missionaries of various denominations made India one of their largest areas of activity. This was especially true after the amendment of the company's charter in 1813, which allowed missionaries unhindered access to the company's domains. But it was through their involvement in new forms of education that the missionaries made a significant and perhaps the most lasting impact.

Many 'educational missionaries' initially saw Western learning and knowledge as a stepping stone to spreading Christianity. By the 1870s, however, this approach to the conversion of India's Brahmans and other high castes had largely fallen out of favor. By then, the most active Anglican missionary societies - The Church Missionary Society (CMS), The London Missionary Society (LMS), The Society for the Propagation of the Gospel (SPG), and the Cambridge Mission to Delhi (CMD) - were mostly involved in teaching in high schools and colleges across North India. In the United Provinces, India's most populous province, these societies ran half of the high schools and colleges. American missionary societies, by contrast, worked overwhelmingly with the lower-caste communities and were far less involved in higher levels of education. Anglican mission schools, therefore, interacted with the very groups and communities who would go on to lead the Indian nationalist movement.

SubQuestion No : 50

Q.50 'Educational missionaries' initially find western learning as:

1. A way to spread business
2. A way to improve community health
3. A way to have a political control
4. A way to spread Christianity

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714190**
Option 1 ID : **61198755285**
Option 2 ID : **61198755286**
Option 3 ID : **61198755287**
Option 4 ID : **61198755288**
Status : **Answered**
Chosen Option : **4**

Section : **Electronic Science**

Q.51 Comparing Delta Modulation (DM) with PCM system: DM requires

A. Lower Sampling Rate
B. Higher Sampling Rate
C. Large Bandwidth
D. Simpler Hardware
E. Complex Hardware

Choose the ***correct*** answer from the options given below:

1. B and E only
2. B, C and D only
3. A and C only
4. A, C and E only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714266**
Option 1 ID : **61198755589**
Option 2 ID : **61198755590**
Option 3 ID : **61198755591**
Option 4 ID : **61198755592**
Status : **Answered**
Chosen Option : **4**

Q.52 For the design of 4-bit Binary to Gray code converter, how many Ex-OR gates are required?

1. 1
2. 2
3. 3
4. 4

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714213**
Option 1 ID : **61198755377**
Option 2 ID : **61198755378**
Option 3 ID : **61198755379**
Option 4 ID : **61198755380**
Status : **Answered**
Chosen Option : **3**

Q.53 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Crystal Oscillator	I.	Speed measurement
B.	Phase locked loop	II.	RC feedback circuit
C.	Frequency to voltage converter	III.	Most stable Oscillator
D.	Phase shift Oscillator	IV.	Frequency synthesis

Choose the ***correct*** answer from the options given below:

1. A-II, B-IV, C-I, D-III
2. A-IV, B-I, C-II, D-III
3. A-III, B-IV, C-I, D-II
4. A-III, B-II, C-I, D-IV

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714274**
Option 1 ID : **61198755621**
Option 2 ID : **61198755622**
Option 3 ID : **61198755623**
Option 4 ID : **61198755624**
Status : **Answered**
Chosen Option : **3**

Q.54 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Chopper converts fixed d.c. input voltage to a controllable d.c. output voltage. The Chopper circuit require forced or load commutation to turn off the thyristors.

Reason R: The Chopper circuits are dependent upon the type of commutation and also on the direction of power flow.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714242**
Option 1 ID : **61198755493**
Option 2 ID : **61198755494**
Option 3 ID : **61198755495**
Option 4 ID : **61198755496**
Status : **Answered**
Chosen Option : **1**

Q.55 The electric flux density $\bar{D}$ is measured in

1. C/m^2
2. V/m^2
3. A/m^2
4. W/m^2

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714221**
Option 1 ID : **61198755409**
Option 2 ID : **61198755410**
Option 3 ID : **61198755411**
Option 4 ID : **61198755412**
Status : **Answered**
Chosen Option : **1**

Q.56 Which of the following statement is not correct in respect of field control of DC motors

1. Only the speeds above the rated speed are possible with the field control of DC motors.
2. The flux cannot be increased due to saturation effect.
3. Field control can cope up with the constant KW drives only where the load torque falls with the increasing speed.
4. The field control method is suitable for the applications where speed reversal of the motor is required.

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714227**
Option 1 ID : **61198755433**
Option 2 ID : **61198755434**
Option 3 ID : **61198755435**
Option 4 ID : **61198755436**
Status : **Answered**
Chosen Option : **4**

Q.57 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Wave polarization may be regarded as the locus of the tip of the electric field (in a plane perpendicular to the direction of propagation) at a given point as a function of time.

Reason R: Elliptical polarization is achieved when the x and y components are not equal in magnitude $E_{ox} \neq E_{oy}$ and the phase difference between them is an odd multiple of $\frac{\pi}{2}$. [z-is the direction of propagation]

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714240**
Option 1 ID : **61198755485**
Option 2 ID : **61198755486**
Option 3 ID : **61198755487**
Option 4 ID : **61198755488**
Status : **Answered**
Chosen Option : **1**

Q.58 Which of the 8051 ports need pull-up resistors to function as an I/O port?

1. Port 0
2. Port 1
3. Port 2
4. Port 3

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714217**
Option 1 ID : **61198755393**
Option 2 ID : **61198755394**
Option 3 ID : **61198755395**
Option 4 ID : **61198755396**
Status : **Answered**
Chosen Option : **4**

Q.59 Surge current rating of an SCR specifies the maximum

1. Repetitive current with sinewave
2. Non-repetitive current with rectangular wave
3. Non-repetitive current with sinewave
4. Repetitive current with triangular wave

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714226**
Option 1 ID : **61198755429**
Option 2 ID : **61198755430**
Option 3 ID : **61198755431**
Option 4 ID : **61198755432**
Status : **Answered**
Chosen Option : **3**

Q.60
A. In an RC phase-shift oscillator, the impedance in the feedback circuit is a low pass RC network.
B. In the Colpitts oscillator, the impedance in the feedback circuit is a lowpass LC network.
C. In the Hartley oscillator, the impedance in the feedback circuit is a high pass LC network.
D. D flip-flop is an example of monostable multivibrator
E. Quadrature oscillator generates four waveforms of different phases

Choose the ***correct*** answer from the options given below:

1. A, B and C only
2. A and D only
3. B and C only
4. B, C and E only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714262**
Option 1 ID : **61198755573**
Option 2 ID : **61198755574**
Option 3 ID : **61198755575**
Option 4 ID : **61198755576**
Status : **Answered**
Chosen Option : **4**

Q.61 Arrange in ascending order of wavelength

A. GaAs having Eg = 1.4eV
B. $Al_{0.2}Ga_{0.8}As$ having Eg=1.62eV
C. $Al_{0.4}Ga_{0.6}As$ having Eg=1.92eV
D. $GaAs_{0.4}P_{0.6}$ having Eg=2.2eV
E. $GaAs_{0.2}P_{0.8}$ having Eg=2.5eV

Choose the ***correct*** answer from the options given below:

1. A, B, C, D, E
2. D, E, C, B, A
3. B, C, D, E, A
4. E, D, C, B, A

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714254**
Option 1 ID : **61198755541**
Option 2 ID : **61198755542**
Option 3 ID : **61198755543**
Option 4 ID : **61198755544**
Status : **Answered**
Chosen Option : **3**

Q.62 In CRO, if the signal of 12μs risetime is observed as the signal with 15μs rise time. Calculate the value of bandwidth of CRO, if the value of K is 0.35

1. 36 KHz
2. 39 KHz
3. 42 KHz
4. 45 KHz

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714233**
Option 1 ID : **61198755457**
Option 2 ID : **61198755458**
Option 3 ID : **61198755459**
Option 4 ID : **61198755460**
Status : **Answered**
Chosen Option : **2**

Q.63 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Immediate addressing mode	I.	MOV A,@R0
B.	Indexed addressing mode	II.	MOV DPTR,#4521H
C.	Register addressing mode	III.	MOVC A,@A+DPTR
D.	Register indirect addressing mode	IV.	MOV A,R0

Choose the ***correct*** answer from the options given below:

1. A-II, B-III, C-I, D-IV
2. A-II, B-III, C-IV, D-I
3. A-III, B-II, C-IV, D-I
4. A-III, B-IV, C-I, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714277**
Option 1 ID : **61198755633**
Option 2 ID : **61198755634**
Option 3 ID : **61198755635**
Option 4 ID : **61198755636**
Status : **Answered**
Chosen Option : **2**

Q.64 Arrange in terms of ascending order of band gap.

A. Si
B. GaN
C. InSb
D. GaAs
E. AlAs

Choose the ***correct*** answer from the options given below:

1. C, A, D, E, B
2. D, B, A, C, E
3. B, D, E, C, A
4. C, A, E, B, D

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714244**
Option 1 ID : **61198755501**
Option 2 ID : **61198755502**
Option 3 ID : **61198755503**
Option 4 ID : **61198755504**
Status : **Answered**
Chosen Option : **3**

Q.65 If a discrete time sequence $x[n]$ is given by $\{\underset{\uparrow}{1},\ 2,\ 3,\ 4\}$. Then $x((n-2)_4)$ will be given by

1. $\{\underset{\uparrow}{4},\ 1,\ 2,\ 3\}$
2. $\{\underset{\uparrow}{3},\ 4,\ 1,\ 2\}$
3. $\{\underset{\uparrow}{2},\ 3,\ 4,\ 1\}$
4. $\{\underset{\uparrow}{1},\ 2,\ 3,\ 4\}$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714204**
Option 1 ID : **61198755341**
Option 2 ID : **61198755342**
Option 3 ID : **61198755343**
Option 4 ID : **61198755344**
Status : **Answered**
Chosen Option : **2**

Q.66 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Continuous and periodic signal	I.	continuous time Fourier series
B.	Continuous and aperiodic signal	II.	discrete time Fourier series
C.	Discrete and periodic signal	III.	continuous time Fourier transform
D.	Discrete and aperiodic signal	IV.	discrete time Fourier transform

Choose the ***correct*** answer from the options given below:

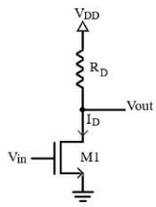
1. A-I, B-II, C-III, D-IV
2. A-I, B-III, C-II, D-IV
3. A-I, B-IV, C-II, D-III
4. A-I, B-III, C-IV, D-II

Options 1. 1
2. 2
3. 3
4. 4

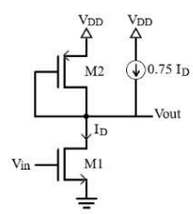
Question Type : **MCQ**
Question ID : **61198714272**
Option 1 ID : **61198755613**
Option 2 ID : **61198755614**
Option 3 ID : **61198755615**
Option 4 ID : **61198755616**
Status : **Answered**
Chosen Option : **2**

Q.67 Arrange the following amplifiers in the order of maximum achievable voltage gain. Assume the geometry and overdrive voltage is same for the transistor M1 in all the circuits and $R_D << r_{o1}$.

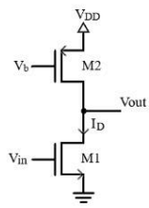
A.



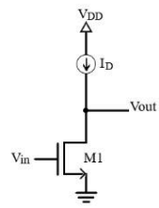
B.



C.



D.



Choose the ***correct*** answer from the options given below:

1. C, D, A, B
2. C, A, B, D
3. A, B, C, D
4. D, C, B, A

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714249**
Option 1 ID : **61198755521**
Option 2 ID : **61198755522**
Option 3 ID : **61198755523**
Option 4 ID : **61198755524**
Status : **Answered**
Chosen Option : **2**

Q.68 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Impurity diffusion in semiconductor essentially needs very high temperature.

Reason R: Diffusivity of impurity atoms is negligibly small at room temperature.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714235**
Option 1 ID : **61198755465**
Option 2 ID : **61198755466**
Option 3 ID : **61198755467**
Option 4 ID : **61198755468**
Status : **Answered**
Chosen Option : **1**

Q.69 In the 8051 microcontroller, the program counter is _____ bits wide.

1. 8
2. 16
3. 4
4. 32

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714215**
Option 1 ID : **61198755385**
Option 2 ID : **61198755386**
Option 3 ID : **61198755387**
Option 4 ID : **61198755388**
Status : **Answered**
Chosen Option : **2**

Q.70 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: In a photodetector, it is desired that the width of the depletion region W be large enough so that most of the photons are absorbed within W rather than in the neutral *n* and *p* regions.

Reason R: A wider width W results in small junction capacitance.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714241**
Option 1 ID : **61198755489**
Option 2 ID : **61198755490**
Option 3 ID : **61198755491**
Option 4 ID : **61198755492**
Status : **Answered**
Chosen Option : **3**

Q.71 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	F(A,B,C,D) = ∑ (1,3, 4,11,12,13,14,15)	I.	8×1MUX
B.	F(A,B,C) = ∑ (1,2,6,7)	II.	4×1MUX
C.	F(A,B,C) = ∑ (1,3,5,7)	III.	4×1MUX and 1 NOT gate
D.	F(A,B,C,D) = ∑ (1,3,5,7,9,11,13,15)	IV.	8×1MUX and 1 NOT gate

Choose the ***correct*** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-IV, B-III, C-II, D-I
3. A-I, B-III, C-II, D-IV
4. A-IV, B-II, C-III, D-I

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714275**
Option 1 ID : **61198755625**
Option 2 ID : **61198755626**
Option 3 ID : **61198755627**
Option 4 ID : **61198755628**
Status : **Answered**
Chosen Option : **2**

Q.72 Three phase power is measured by Two-wattmeter method and the readings of both wattmeters are equal. This condition is obtained at a power factor of

1. Unity
2. Zero
3. More than zero but less than 0.5
4. 0.5

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714231**
Option 1 ID : **61198755449**
Option 2 ID : **61198755450**
Option 3 ID : **61198755451**
Option 4 ID : **61198755452**
Status : **Answered**
Chosen Option : **1**

Q.73 In a pure silicon, what is the time for an electron to drift 1μm in an electric field of 100 V/cm?

Assume electron mobility of 1350 cm^2/V-s

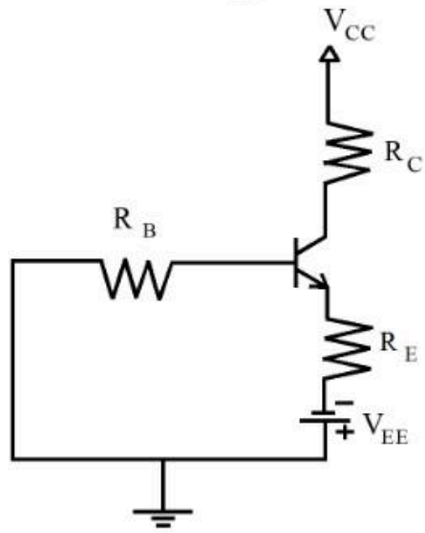
1. 0.74 ns
2. 0.74 μs
3. 7.4 ns
4. 7.4 μs

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714196**
Option 1 ID : **61198755309**
Option 2 ID : **61198755310**
Option 3 ID : **61198755311**
Option 4 ID : **61198755312**
Status : **Answered**
Chosen Option : **1**

Q.74 In an emitter bias circuit, R_E=2.7 kΩ and V_{EE}=15V.

Assuming $R_E \gg \frac{R_B}{\beta_{DC}}$, what is the value of emitter current?



1. 5.3 mA
2. 2.7 mA
3. 10.6 mA
4. 8.0 mA

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714207**
Option 1 ID : **61198755353**
Option 2 ID : **61198755354**
Option 3 ID : **61198755355**
Option 4 ID : **61198755356**
Status : **Answered**
Chosen Option : **1**

Q.75

A. Microcontrollers are normally less expensive than microprocessors.
B. The 8051 microcontroller has three on-chip timers.
C. Mode 2 of 8051 timer is used to set the baud rate.
D. For the LCD to recognize information at the data pins as data, the register select (RS) pin must be set to low.
E. A driver must be placed between the micrcontroller and the stepper motor.

Choose the ***correct*** answer from the options given below:

1. A and B only
2. A, C and E only
3. A, B and C only
4. A, C and D only

Options
1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714264**
Option 1 ID : **61198755581**
Option 2 ID : **61198755582**
Option 3 ID : **61198755583**
Option 4 ID : **61198755584**
Status : **Answered**
Chosen Option : **2**

Q.76

A. An impurity scattering cause decrease in mobility with decrease in temperature.
B. A slow moving carrier is likely to scatter more strongly than carrier with great momentum
C. Drift velocity of an electron increases with decrease in mobility
D. Drift velocity of an electron decrease with decrease in mobility
E. At critical electric field ($=10^5$V/cm) drift velocity tends to saturate.

Choose the ***correct*** answer from the options given below:

1. A and C only
2. A, C, D and E only
3. A, B, D and E only
4. C and E only

Options
1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714259**
Option 1 ID : **61198755561**
Option 2 ID : **61198755562**
Option 3 ID : **61198755563**
Option 4 ID : **61198755564**
Status : **Answered**
Chosen Option : **3**

Q.77 Area of the CMOS implementation of $F=\overline{A+B}$, estimated using stick diagram following λ-based design rules is _____.

1. $1280\ \lambda^2$
2. $576\ \lambda^2$
3. $960\ \lambda^2$
4. $768\ \lambda^2$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714200**
Option 1 ID : **61198755325**
Option 2 ID : **61198755326**
Option 3 ID : **61198755327**
Option 4 ID : **61198755328**
Status : **Answered**
Chosen Option : **1**

Q.78
A. For impurity diffusion in semiconductor, concentration gradient is the only essential requirement.
B. Annealing is a mandatory step after ion-implantation.
C. Wet etching is normally anisotropic
D. High temperature is required for the growth of SiO_2 because oxidation reaction takes place at high temperature
E. Bird's beak formation is a characteristic of LOCOS isolation

Choose the ***correct*** answer from the options given below:

1. A, B, D, E only
2. A, D, E only
3. B and E only
4. A, C, D only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714260**
Option 1 ID : **61198755565**
Option 2 ID : **61198755566**
Option 3 ID : **61198755567**
Option 4 ID : **61198755568**
Status : **Answered**
Chosen Option : **1**

Q.79

A. In any open loop control system, the output is not compared with the reference input.
B. Traffic control by means of signals operated on a time basis is an example of closed loop control.
C. Closed loop control always implies the use of feedback control action in order to reduce system error.
D. Washing machine is an example of open loop system.
E. Stability is a major concern in open loop control system.

Choose the ***correct*** answer from the options given below:

1. A, E only
2. A and B only
3. A, C and D only
4. A, B and D only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714267**
Option 1 ID : **61198755593**
Option 2 ID : **61198755594**
Option 3 ID : **61198755595**
Option 4 ID : **61198755596**
Status : **Answered**
Chosen Option : **1**

Q.80 Which of the following statement is not correct in respect of Transfer Function of linear Time Invariant System

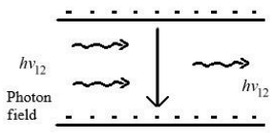
1. The ratio of Laplace transform of the output to the Laplace transform of the input variable under the assumption that all initial conditions are zero.
2. The ratio of Fourier transform of the output to Fourier transform of the input variable.
3. The higher power of the complex variable 's' in the denominator of the transfer function determines the order of the system.
4. It is an expression in s-domain relating the output and input of linear time invariant system in terms of the system parameters and is independent of the input.

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714229**
Option 1 ID : **61198755441**
Option 2 ID : **61198755442**
Option 3 ID : **61198755443**
Option 4 ID : **61198755444**
Status : **Answered**
Chosen Option : **2**

Q.81 In a LASER device the instantaneous populations of energy E_1 and E_2 (figure below) to be n_1 and n_2 respectively. At thermal equilibrium the relative population is given by $n_2 = n_1 e^{-h\nu_{12}/KT}$

The condition for population inversion when stimulated emission dominates is given by



1. $n_2 = n_1$
2. $n_2 < n_1$
3. $n_2 > n_1$
4. None of the above

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714225**
Option 1 ID : **61198755425**
Option 2 ID : **61198755426**
Option 3 ID : **61198755427**
Option 4 ID : **61198755428**
Status : **Answered**
Chosen Option : **3**

Q.82 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: The 8051 microcontroller supports full-duplex data transmission.

Reason R: The pin of I/O ports in 8051 microcontroller are bit addressable.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714239**
Option 1 ID : **61198755481**
Option 2 ID : **61198755482**
Option 3 ID : **61198755483**
Option 4 ID : **61198755484**
Status : **Answered**
Chosen Option : **1**

Q.83 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Einstein relation	I.	$q D_n \frac{dn}{dx}$
B.	Diffusion length of electron	II.	$\sqrt{D_n \tau_n}$
C.	Electron diffusion current density	III.	$\frac{D_n}{\mu_n} = \frac{KT}{q}$
D.	Electron Drift velocity	IV.	$\mu_n E$

Choose the ***correct*** answer from the options given below:

1. A-III, B-IV, C-I, D-II
2. A-III, B-II, C-I, D-IV
3. A-II, B-III, C-IV, D-I
4. A-I, B-II, C-IV, D-III

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714269**
Option 1 ID : **61198755601**
Option 2 ID : **61198755602**
Option 3 ID : **61198755603**
Option 4 ID : **61198755604**
Status : **Answered**
Chosen Option : **2**

Q.84 How many bytes are used by the given data directive of the 8051 microcontroller?

DATA_1 DB "INDIA"

1. 4
2. 5
3. 6
4. 7

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714216**
Option 1 ID : **61198755389**
Option 2 ID : **61198755390**
Option 3 ID : **61198755391**
Option 4 ID : **61198755392**
Status : **Answered**
Chosen Option : **2**

Q.85 In a long P-type silicon bar doped with $N_A=10^{17}cm^{-3}$, what is the diffusion constant?

Assume hole mobility $\mu_p = 500cm^2/V-s$

1. 18.25 cm/s
2. 12.95 cm/s
3. 14.75 cm/s
4. 1.47 cm/s

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714195**
Option 1 ID : **61198755305**
Option 2 ID : **61198755306**
Option 3 ID : **61198755307**
Option 4 ID : **61198755308**
Status : **Answered**
Chosen Option : **1**

Q.86 Arrange the following semiconductor devices in decreasing order of operating speed (frequency)

A. IGBT
B. MOSFET
C. Power BJT
D. SCR

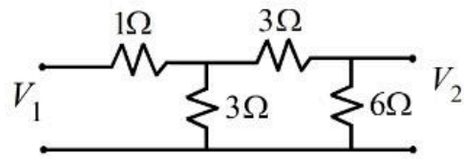
Choose the ***correct*** answer from the options given below:

1. A, B, C, D
2. D, C, B, A
3. A, B, D, C
4. B, A, C, D

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714257**
Option 1 ID : **61198755553**
Option 2 ID : **61198755554**
Option 3 ID : **61198755555**
Option 4 ID : **61198755556**
Status : **Answered**
Chosen Option : **4**

Q.87 For the network shown in figure. The 2 port network parameters are



A. $Z_{11}=3.25, Z_{12}=1.5, Z_{21}=1.5, Z_{22}=3$
B. $Y_{11}=0.4, Y_{12}=0.5, Y_{21}=-0.2, Y_{22}=1.6$
C. $h_{11}=2.5, h_{12}=0.5, h_{21}=-0.5, h_{22}=0.33$
D. A=2.167, B=0.8, C=2, D=3

Choose the ***correct*** answer from the options given below:

1. A only
2. A and B only
3. B and C only
4. C and D only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714261**
Option 1 ID : **61198755569**
Option 2 ID : **61198755570**
Option 3 ID : **61198755571**
Option 4 ID : **61198755572**
Status : **Answered**
Chosen Option : **1**

Q.88 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Nyquist Criterion	I.	Polar Plots
B.	Bode Plot	II.	Rectangular Plots
C.	Phase Margin	III.	Amount of additional phase lag at the gain crossover frequency required to bring the system to the verge of instability
D.	Gain Margin	IV.	It is the reciprocal of the magnitude $\|G(j\omega)\|$ at the frequency at which the phase angle is $-180°$.

Choose the ***correct*** answer from the options given below:

1. A-IV, B-III, C-II, D-I
2. A-II, B-I, C-IV, D-III
3. A-I, B-II, C-III, D-IV
4. A-II, B-I, C-III, D-IV

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714282**
Option 1 ID : **61198755653**
Option 2 ID : **61198755654**
Option 3 ID : **61198755655**
Option 4 ID : **61198755656**
Status : **Answered**
Chosen Option : **2**

Q.89 Which one of the method is not used to design an IIR (Infinite Impulse Response) filter?

1. Approximation of derivatives
2. Impulse Invariance method
3. Bi-linear transformation
4. Window technique

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714203**
Option 1 ID : **61198755337**
Option 2 ID : **61198755338**
Option 3 ID : **61198755339**
Option 4 ID : **61198755340**
Status : **Answered**
Chosen Option : **4**

Q.90 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	$e^{-at}u(t)$	I.	$\frac{\omega_0}{s^2+\omega_0^2}; R_e[s]>0$
B.	$-e^{-at}u(-t)$	II.	$\frac{1}{s+a}; R_e[s]>-a$
C.	$Cos\omega_0 t\ u(t)$	III.	$\frac{1}{s+a}; R_e[s]<-a$
D.	$Sin\omega_0 t\ u(t)$	IV.	$\frac{s}{s^2+\omega_0^2}; R_e[s]>0$

Choose the ***correct*** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-II, B-III, C-IV, D-I
3. A-III, B-IV, C-I, D-II
4. A-IV, B-I, C-II, D-III

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714273**
Option 1 ID : **61198755617**
Option 2 ID : **61198755618**
Option 3 ID : **61198755619**
Option 4 ID : **61198755620**
Status : **Answered**
Chosen Option : **2**

Q.91 Bode plot is not used to find _____ of the system.

1. Gain Margin
2. Phase Margin
3. Stability
4. Transient Behaviour

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714202**
Option 1 ID : **61198755333**
Option 2 ID : **61198755334**
Option 3 ID : **61198755335**
Option 4 ID : **61198755336**
Status : **Answered**
Chosen Option : **4**

Q.92 Which of the following statement is not related to TRIAC

1. It can conduct in both the directions
2. Extensively used for control of power in AC circuits
3. It is a low power device
4. When in operation, it is equivalent to two SCRs connected in anti-parallel.

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714228**
Option 1 ID : **61198755437**
Option 2 ID : **61198755438**
Option 3 ID : **61198755439**
Option 4 ID : **61198755440**
Status : **Answered**
Chosen Option : **3**

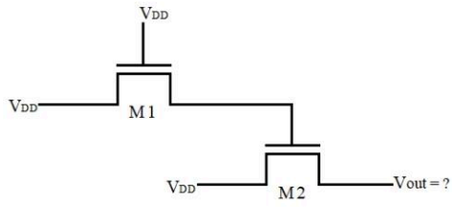
Q.93 The maximum efficiency of a Class-A power amplifier is _____.

1. 25%
2. 50%
3. 79%
4. 98%

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714209**
Option 1 ID : **61198755361**
Option 2 ID : **61198755362**
Option 3 ID : **61198755363**
Option 4 ID : **61198755364**
Status : **Answered**
Chosen Option : **1**

Q.94 What is the voltage at the output node of the given circuit? Assume V_{DD} = 1.8V and threshold voltage of the transistor V_{TN} = 0.4V and body bias effect is negligible.



1. 1.8 V
2. 1.4 V
3. 1.0 V
4. 0.8 V

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714201**
Option 1 ID : **61198755329**
Option 2 ID : **61198755330**
Option 3 ID : **61198755331**
Option 4 ID : **61198755332**
Status : **Answered**
Chosen Option : **1**

Q.95 The message signal m(t)=sin(2000πt). Frequency sensitivity constant K_f= 100 KHz/V, phase sensitivity constant K_p= 10rad/V. The bandwidth of FM signal is

1. 208 KHz
2. 202 KHz
3. 404 KHz
4. 402 KHz

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714224**
Option 1 ID : **61198755421**
Option 2 ID : **61198755422**
Option 3 ID : **61198755423**
Option 4 ID : **61198755424**
Status : **Answered**
Chosen Option : **1**

Q.96 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	BJT	I.	Five layers and four junction device
B.	MOSFET	II.	Power switching device with fast acting features and high power capability with voltage control features
C.	IGBT	III.	Voltage controlled device
D.	DIAC	IV.	Current controlled device

Choose the ***correct*** answer from the options given below:

1. A-IV, B-III, C-II, D-I
2. A-I, B-II, C-III, D-IV
3. A-II, B-III, C-I, D-IV
4. A-III, B-IV, C-I, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714281**
Option 1 ID : **61198755649**
Option 2 ID : **61198755650**
Option 3 ID : **61198755651**
Option 4 ID : **61198755652**
Status : **Answered**
Chosen Option : **1**

Q.97 A certain cascaded amplifier arrangement has the following voltage gains of individual stages; A_{V1}=10V/V, A_{V2}=20 V/V and A_{V3}=40 V/V. What is the overall voltage gain of the cascaded amplifier?

1. 60 dB
2. 68 dB
3. 70 dB
4. 78 dB

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714208**
Option 1 ID : **61198755357**
Option 2 ID : **61198755358**
Option 3 ID : **61198755359**
Option 4 ID : **61198755360**
Status : **Answered**
Chosen Option : **4**

Q.98 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: For any sequential circuit state diagram can be drawn from a given state table and vice-a-versa.

Reason R: The excitation table of the flip-flop can be deduced from its characteristic table.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714238**
Option 1 ID : **61198755477**
Option 2 ID : **61198755478**
Option 3 ID : **61198755479**
Option 4 ID : **61198755480**
Status : **Answered**
Chosen Option : **1**

Q.99 Arrange the following 8051 interrupts in increasing priority order.

A. Timer interrupt 0 (TF0)
B. Timer interrupt 1 (TF1)
C. External interrupt 0 (INT0)
D. External interrupt 1 (INT1)

Choose the ***correct*** answer from the options given below:

1. B, A, D, C
2. C, D, A, B
3. B, D, A, C
4. C, A, D, B

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714251**
Option 1 ID : **61198755529**
Option 2 ID : **61198755530**
Option 3 ID : **61198755531**
Option 4 ID : **61198755532**
Status : **Answered**
Chosen Option : **2**

Q.100 A single resistor and a single capacitor can be connected to form a filter with a roll-off rate of _____.

1. -40 dB/decade
2. -6 dB/octave
3. -20 dB/decade
4. both (2) & (3)

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714206**
Option 1 ID : **61198755349**
Option 2 ID : **61198755350**
Option 3 ID : **61198755351**
Option 4 ID : **61198755352**
Status : **Answered**
Chosen Option : **4**

Q.101 The 8051 microcontroller has _____ on-chip RAM and ___ on-chip ROM.

1. 128 K bytes, 4 K bytes
2. 128 bytes, 4 K bytes
3. 128 bytes, 4 M bytes
4. 128 K bytes, 4 M bytes

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714214**
Option 1 ID : **61198755381**
Option 2 ID : **61198755382**
Option 3 ID : **61198755383**
Option 4 ID : **61198755384**
Status : **Answered**
Chosen Option : **4**

Q.102 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: The ECG helps in the diagnosis of malfunctioning of heart.

Reason R: If any feature of the curve is missing, it indicates a heart block. However, the cardiac disorders, specially those involving the heart valves cannot be diagnosed by the ECG.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options
1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714243**
Option 1 ID : **61198755497**
Option 2 ID : **61198755498**
Option 3 ID : **61198755499**
Option 4 ID : **61198755500**
Status : **Answered**
Chosen Option : **2**

Q.103 Which one is the correct representation of 4-variable Karnaugh map (K-map)?

1.

AB \ CD	00	01	10	11
00				
01				
11				
10				

2.

AB \ CD	00	01	10	11
00				
01				
10				
11				

3.

AB \ CD	00	01	11	10
00				
01				
11				
10				

4.

AB \ CD	00	01	11	10
00				
01				
10				
11				

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714211**
Option 1 ID : **61198755369**
Option 2 ID : **61198755370**
Option 3 ID : **61198755371**
Option 4 ID : **61198755372**
Status : **Answered**
Chosen Option : **3**

Q.104 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: A 555 timer can be used for voltage to frequency conversion.

Reason R: A 555 timer can be set up to operate as a voltage controlled oscillator.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714237**
Option 1 ID : **61198755473**
Option 2 ID : **61198755474**
Option 3 ID : **61198755475**
Option 4 ID : **61198755476**
Status : **Answered**
Chosen Option : **2**

Q.105 A super heterodyne receiver uses an IF frequency of 455 KHz. The receiver is tuned to a transmitter having carrier frequency of 2400KHz. High side tuning is to be used, the image frequency is

1. 2655 KHz
2. 1855 KHz
3. 3310 KHz
4. 1410 KHz

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714223**
Option 1 ID : **61198755417**
Option 2 ID : **61198755418**
Option 3 ID : **61198755419**
Option 4 ID : **61198755420**
Status : **Answered**
Chosen Option : **3**

Q.106 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: In a p^{+}–n junction, the depletion width is larger for n-side as compared to p-side.

Reason R: As doping concentration increases, the depletion width reduces.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714234**
Option 1 ID : **61198755461**
Option 2 ID : **61198755462**
Option 3 ID : **61198755463**
Option 4 ID : **61198755464**
Status : **Answered**
Chosen Option : **1**

Q.107 Maxwell's Inductance-Capacitance Bridge is suited for measurement of only

1. Low Q Coils
2. Very Low Q Coils
3. Medium Q Coils
4. High Q Coils

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714232**
Option 1 ID : **61198755453**
Option 2 ID : **61198755454**
Option 3 ID : **61198755455**
Option 4 ID : **61198755456**
Status : **Answered**
Chosen Option : **3**

Q.108 Which one of the following term is not a part of Poynting theorem.

$$\oint_s (\bar{E}\times\bar{H})d\bar{s} = -\frac{\partial}{\partial t}\int_v \left[\frac{1}{2}\varepsilon\bar{E}^2 + \frac{1}{2}\mu\bar{H}^2\right]dv - \int_v \sigma\bar{E}^2 dv$$

1. Inductive power dissipated
2. Ohmic power dissipated
3. Total power leaving the volume
4. Rate of decrease in energy stored in electric and magnetic fields

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714218**
Option 1 ID : **61198755397**
Option 2 ID : **61198755398**
Option 3 ID : **61198755399**
Option 4 ID : **61198755400**
Status : **Answered**
Chosen Option : **3**

Q.109

A. VSWR can be easily deduced from smith chart.
B. VSWR is the ratio of Vmax/Vmin values.
C. VSWR is the ratio of Imin/Imax values.
D. The value of the VSWR can be in between 0 and 1 only.

Choose the ***correct*** answer from the options given below:

1. A and B only
2. B and C only
3. D only
4. A and D only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714265**
Option 1 ID : **61198755585**
Option 2 ID : **61198755586**
Option 3 ID : **61198755587**
Option 4 ID : **61198755588**
Status : **Answered**
Chosen Option : **4**

Q.110 Arrange the given process steps in sequence for self-aligned gate formation.

A. Thermal oxidation to grow gate oxide.
B. Polysilicon deposition
C. Photolithography using gate mask
D. Etching of polysilicon and oxide
E. Source/drain diffusion

Choose the ***correct*** answer from the options given below:

1. E, A, B, C, D
2. A, B, C, D, E
3. E, B, A, C, D
4. A, B, D, C, E

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714245**
Option 1 ID : **61198755505**
Option 2 ID : **61198755506**
Option 3 ID : **61198755507**
Option 4 ID : **61198755508**
Status : **Answered**
Chosen Option : **4**

Q.111 Determine the polarization of a plane wave with

$$\bar{E}(z,t) = 3e^{-0.25z}\cos(wt-0.6z)\hat{a}_x + 4e^{-0.25z}\sin(wt-0.6z)\hat{a}_y \ \frac{V}{m}$$

1. Left hand circularly polarization
2. Right hand circularly polarization
3. Linear polarization
4. Elliptical polarization

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714220**
Option 1 ID : **61198755405**
Option 2 ID : **61198755406**
Option 3 ID : **61198755407**
Option 4 ID : **61198755408**
Status : **Answered**
Chosen Option : **4**

Q.112 Match the **LIST-I** with **LIST-II**

	LIST-I Type of Semiconductor		LIST-II Position of Fermi level
A.	n-type semiconductor	I.	Middle of the band gap
B.	p-type semiconductor	II.	Above the conduction band
C.	Intrinsic semiconductor	III.	Near or below the conduction
D.	De-generate semiconductor	IV.	Near or above the valance band

Choose the ***correct*** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-II, B-III, C-IV, D-I
3. A-III, B-II, C-I, D-IV
4. A-III, B-IV, C-I, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714270**
Option 1 ID : **61198755605**
Option 2 ID : **61198755606**
Option 3 ID : **61198755607**
Option 4 ID : **61198755608**
Status : **Answered**
Chosen Option : **4**

Q.113 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Electrocardiogram (ECG)	I.	The rise or fall of the blood pressure from the normal blood pressure (120/80)
B.	Electroencephalogram (EEG)	II.	The biopotentials generated by the muscles of the heart
C.	Sphygmomanometer	III.	Used to measure the blood pressure
D.	Malfunctioning of the heart	IV.	The biopotential generated by the neuronal activity of the brain

Choose the ***correct*** answer from the options given below:

1. A-I, B-IV, C-III, D-II
2. A-II, B-IV, C-III, D-I
3. A-I, B-II, C-III, D-IV
4. A-III, B-II, C-IV, D-I

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714283**
Option 1 ID : **61198755657**
Option 2 ID : **61198755658**
Option 3 ID : **61198755659**
Option 4 ID : **61198755660**
Status : **Answered**
Chosen Option : **2**

Q.114 Arrange the given region of operation of transistors in CMOS inverter when input voltage Vin is swept from 0V to V_{DD}.

A. NMOS in cut-off, PMOS in linear region
B. NMOS in saturation, PMOS in linear region
C. NMOS in saturation PMOS in saturation region
D. NMOS in linear, PMOS in saturation region
E. NMOS in linear, PMOS in cutoff region

Choose the ***correct*** answer from the options given below:

1. A, D, E, B, C
2. A, D, C, E, B
3. A, B, C, D, E
4. C, D, E, B, A

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714246**
Option 1 ID : **61198755509**
Option 2 ID : **61198755510**
Option 3 ID : **61198755511**
Option 4 ID : **61198755512**
Status : **Answered**
Chosen Option : **3**

Q.115 Arrange the following in the sequence of steps to perform continuous/discrete time convolution.

A. Fold (time-reverse) one of the signal
B. Perform multiplication of the signal
C. Plot the signals
D. Perform addition of the magnitudes of the signal

Choose the ***correct*** answer from the options given below:

1. A, B, C, D
2. C, A, B, D
3. B, C, A, D
4. D, A, C, B

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714247**
Option 1 ID : **61198755513**
Option 2 ID : **61198755514**
Option 3 ID : **61198755515**
Option 4 ID : **61198755516**
Status : **Answered**
Chosen Option : **1**

Q.116

A. Design of synchronous counter is difficult as compared to asynchronous counter.
B. Digital counter are used for counting the pulses/events.
C. Counter are the combination circuits.
D. In Asynchronous counter, the same clock pulse can be applied to all the flip-flops.

Choose the ***correct*** answer from the options given below:

1. A only
2. A and B only
3. B and C only
4. C and D only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714263**
Option 1 ID : **61198755577**
Option 2 ID : **61198755578**
Option 3 ID : **61198755579**
Option 4 ID : **61198755580**
Status : **Answered**
Chosen Option : **2**

Q.117 A d.c motor is operating at a terminal voltage of 220V, arrange the following parameters in increasing order of their values

A. Terminal Voltage (Volts)
B. Back e.m.f (Volts)
C. Speed (RPM)
D. Armature Resistance (Ω)
E. Efficiency (%)

Choose the ***correct*** answer from the options given below:

1. A, B, C, D, E
2. E, B, A, D, C
3. C, A, B, D, E
4. D, E, B, A, C

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714256**
Option 1 ID : **61198755549**
Option 2 ID : **61198755550**
Option 3 ID : **61198755551**
Option 4 ID : **61198755552**
Status : **Answered**
Chosen Option : **4**

Q.118 The 8086 has 2-byte of flag register, where the lower byte of flag register is same as of 8085 and the upper byte has only 4 used bits. Arrange these flags according to their place in the flag register from left to right.

A. Overflow flag - O
B. Directional flag - D
C. Interrupt enable flag - I
D. Trap flag - T

Choose the ***correct*** answer from the options given below:

1. A, B, C, D
2. D, C, B, A
3. A, C, D, B
4. D, B, A, C

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714252**
Option 1 ID : **61198755533**
Option 2 ID : **61198755534**
Option 3 ID : **61198755535**
Option 4 ID : **61198755536**
Status : **Answered**
Chosen Option : **4**

Q.119 Which of the following is not a network theorem used to solve ac/dc circuits?

1. Superposition Theorem
2. Norton's Theorem
3. Reciprocity Theorem
4. Parseval's Theorem

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714205**
Option 1 ID : **61198755345**
Option 2 ID : **61198755346**
Option 3 ID : **61198755347**
Option 4 ID : **61198755348**
Status : **Answered**
Chosen Option : **4**

Q.120 The frequency range of ECG is

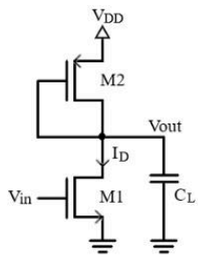
1. 0.05 Hz to 120 Hz
2. 0.05 KHz to 120 KHz
3. 0.1 Hz to 100 Hz
4. 10 Hz to 2000 Hz

Options 1. 1
2. 2
3. 3
4. 4

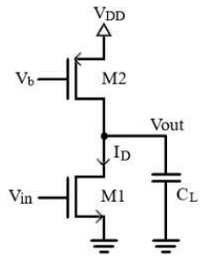
Question Type : **MCQ**
Question ID : **61198714230**
Option 1 ID : **61198755445**
Option 2 ID : **61198755446**
Option 3 ID : **61198755447**
Option 4 ID : **61198755448**
Status : **Answered**
Chosen Option : **2**

Q.121 Arrange the following amplifiers in the order of maximum achievable -3dB frequency. Assume the transconductance (g_m) of the driver transistor (M1) same in all the circuits.

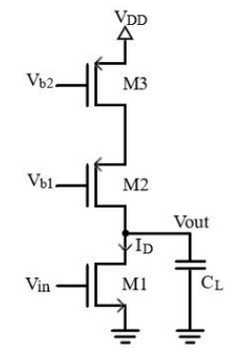
A.



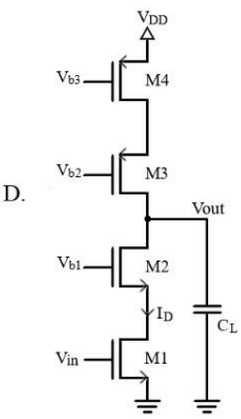
B.



C.



D.



Choose the ***correct*** answer from the options given below:

1. A, B, C, D
2. B, C, D, A
3. C, D, A, B
4. D, C, B, A

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714248**
Option 1 ID : **61198755517**
Option 2 ID : **61198755518**
Option 3 ID : **61198755519**
Option 4 ID : **61198755520**
Status : **Answered**
Chosen Option : **1**

Q.122 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	In general, Zin	I.	$-jZ_0\cot\beta\ell$
B.	When $Z_L=0$, Zin	II.	Z_0
C.	When $Z_L=\infty$; Zin	III.	$jZ_0\tan\beta\ell$
D.	When $Z_L=Z_0$; Zin	IV.	$Z_0\left[\frac{Z_L+jZ_0\tan\beta\ell}{Z_0+jZ_L\tan\beta\ell}\right]$

Choose the ***correct*** answer from the options given below:

1. A-IV, B-III, C-I, D-II
2. A-I, B-II, C-III, D-IV
3. A-IV, B-II, C-III, D-I
4. A-IV, B-I, C-II, D-III

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714278**
Option 1 ID : **61198755637**
Option 2 ID : **61198755638**
Option 3 ID : **61198755639**
Option 4 ID : **61198755640**
Status : **Answered**
Chosen Option : **1**

Q.123 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Shallow trench isolation (STI)	I.	Low static power dissipation
B.	Junction isolation	II.	High static power dissipation
C.	CMOS technology	III.	High component density
D.	Bipolar IC technology	IV.	Low component density

Choose the ***correct*** answer from the options given below:

1. A-I, B-IV, C-II, D-III
2. A-III, B-IV, C-I, D-II
3. A-III, B-II, C-IV, D-I
4. A-I, B-III, C-IV, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714271**
Option 1 ID : **61198755609**
Option 2 ID : **61198755610**
Option 3 ID : **61198755611**
Option 4 ID : **61198755612**
Status : **Answered**
Chosen Option : **3**

Q.124 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	$[1+K_m(t)]\,A\sin(\omega_c t)$	I.	Phase modulation
B.	$K_m(t)\,A\sin(\omega_c t)$	II.	Frequency modulation
C.	$A\sin[\omega_c t + K_m(t)]$	III.	Amplitude modulation
D.	$A\sin\left[\omega_c t + K\int_{-\infty}^{t} m(t)\,dt\right]$	IV.	DSB-SC modulation

Choose the ***correct*** answer from the options given below:

1. A-IV, B-II, C-III, D-I
2. A-II, B-I, C-III, D-IV
3. A-III, B-I, C-II, D-IV
4. A-III, B-IV, C-I, D-II

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714280**
Option 1 ID : **61198755645**
Option 2 ID : **61198755646**
Option 3 ID : **61198755647**
Option 4 ID : **61198755648**
Status : **Answered**
Chosen Option : **4**

Q.125 Arrange the following lamps based on the increasing power rating and energy consumption to provide the same level of Illumination or lighting

A. Incandescent Lamp with efficacy of 10 lumens/watt
B. Compact fluorescent lamp (CFL) with efficacy of 60 lumens/watt
C. Halogen lamp with efficacy of 20 lumens/watt
D. Mercury vapour lamp with efficacy of 40 lumens/watt
E. Light Emitting diode (LED) lamp with efficacy of 80 lumens/watt

Choose the ***correct*** answer from the options given below:

1. E, B, D, C, A
2. A, C, D, B, E
3. A, B, C, D, E
4. E, D, C, B, A

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714258**
Option 1 ID : **61198755557**
Option 2 ID : **61198755558**
Option 3 ID : **61198755559**
Option 4 ID : **61198755560**
Status : **Answered**
Chosen Option : **1**

Q.126 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Emitter Coupled Transistor pair	I.	TTL logic family
B.	Multiple emitter BJT	II.	CMOS logic family
C.	Rail-to-rail output swing	III.	Pass transistor logic
D.	Most efficient implementation of XOR function	IV.	ECL logic family

Choose the ***correct*** answer from the options given below:

1. A-I, B-IV, C-III, D-II
2. A-IV, B-I, C-III, D-II
3. A-IV, B-I, C-II, D-III
4. A-I, B-IV, C-II, D-III

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714276**
Option 1 ID : **61198755629**
Option 2 ID : **61198755630**
Option 3 ID : **61198755631**
Option 4 ID : **61198755632**
Status : **Answered**
Chosen Option : **2**

Q.127 In an n-channel MOS device having p-type silicon substrate and gate oxide thickness of 10nm, depletion charge $Q_d = -3.32\times10^{-8}\ C/cm^2$, flat band voltage $V_{FB} = -0.561V$, and surface potential under strong inversion = 0.658 V. What is the device threshold voltage?

1. 1.2 V
2. 0.18 V
3. 0.56 V
4. 0.78 V

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714198**
Option 1 ID : **61198755317**
Option 2 ID : **61198755318**
Option 3 ID : **61198755319**
Option 4 ID : **61198755320**
Status : **Answered**
Chosen Option : **4**

Q.128 Arrange PCM system starting from transmission to reception of signal

A. Sampling and Quantization
B. Quantization and decoding
C. Holding circuit
D. Encoding
E. Low pass filter (LPF)

Choose the ***correct*** answer from the options given below:

1. A, B, C, D, E
2. A, D, B, C, E
3. B, C, D, A, E
4. D, C, A, B, E

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714255**
Option 1 ID : **61198755545**
Option 2 ID : **61198755546**
Option 3 ID : **61198755547**
Option 4 ID : **61198755548**
Status : **Answered**
Chosen Option : **4**

Q.129 The design of synchronous circuit involves following steps

A. From the specifications, derive a state diagram of a circuit
B. Derive the simplified flip-flops input and output equations.
C. Reduce the number of state, if necessary
D. Choose the type of flip-flops to be used
E. Assign binary values to the states and obtain binary coded table

Choose the ***correct*** answer from the options given below:

1. A, C, E, D, B
2. A, B, C, D, E
3. A, C, E, B, D
4. A, D, C, B, E

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714250**
Option 1 ID : **61198755525**
Option 2 ID : **61198755526**
Option 3 ID : **61198755527**
Option 4 ID : **61198755528**
Status : **Answered**
Chosen Option : **1**

Q.130 A 2KW carrier is to be modulated to a 90% level. The total transmitted power would be _____.

1. 2.81 KW
2. 3.62 KW
3. 1.82 KW
4. 1.4 KW

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714222**
Option 1 ID : **61198755413**
Option 2 ID : **61198755414**
Option 3 ID : **61198755415**
Option 4 ID : **61198755416**
Status : **Answered**
Chosen Option : **1**

Q.131 Determine the gradient of a scalar field given by

$$U = x^2y + xyz$$

1. $y(2x+z)\hat{a}_x + x(x+z)\hat{a}_y + xy\hat{a}_z$
2. $y(2z+x)\hat{a}_x + x(x+z)\hat{a}_y + xy\hat{a}_z$
3. $y(2x+z)\hat{a}_x + z(x+z)\hat{a}_y + xy\hat{a}_z$
4. $y(2z+x)\hat{a}_x + z(x+z)\hat{a}_y + xy\hat{a}_z$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714219**
Option 1 ID : **61198755401**
Option 2 ID : **61198755402**
Option 3 ID : **61198755403**
Option 4 ID : **61198755404**
Status : **Answered**
Chosen Option : **1**

Q.132 Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	$\nabla \cdot \bar{D} = \rho_v$	I.	$\oint_s \bar{D} \cdot d\bar{s} = \int_v \rho_v dv$
B.	$\nabla \cdot \bar{B} = 0$	II.	$\oint_s \bar{B} \cdot d\bar{s} = 0$
C.	$\nabla \times \bar{E} = -\frac{\partial \bar{B}}{\partial t}$	III.	$\oint_L \bar{E} \cdot d\bar{\ell} = -\frac{\partial}{\partial t}\int_S \bar{B} \cdot d\bar{s}$
D.	$\nabla \times \bar{H} = \bar{J} + \frac{\partial \bar{D}}{\partial t}$	IV.	$\oint_L \bar{H} \cdot d\bar{\ell} = \int_S \left(J + \frac{\partial \bar{D}}{\partial t}\right) \cdot d\bar{s}$

Choose the ***correct*** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-IV, B-I, C-II, D-III
3. A-III, B-IV, C-I, D-II
4. A-II, B-III, C-IV, D-I

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714279**
Option 1 ID : **61198755641**
Option 2 ID : **61198755642**
Option 3 ID : **61198755643**
Option 4 ID : **61198755644**
Status : **Answered**
Chosen Option : **1**

Q.133 Arrange the formulas of β in the order where plane wave is travelling in lossy dielectric, free space, good conductor, loss-less dielectric respectively.

A. $\beta = \omega \sqrt{\frac{\mu\varepsilon}{2}\left[\sqrt{1+\left(\frac{\sigma}{\omega\varepsilon}\right)^2}+1\right]}$

B. $\beta = \frac{\omega}{c}$

C. $\beta = \omega\sqrt{\mu\varepsilon}$

D. $\beta = \sqrt{\frac{\omega\mu\sigma}{2}}$

Choose the ***correct*** answer from the options given below:

1. A, C, B, D
2. B, A, D, C
3. A, B, D, C
4. C, A, B, D

Options 1. 1

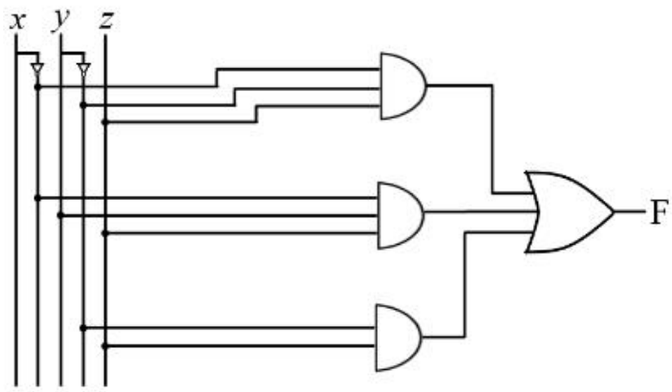
2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714253**
Option 1 ID : **61198755537**
Option 2 ID : **61198755538**
Option 3 ID : **61198755539**
Option 4 ID : **61198755540**
Status : **Answered**
Chosen Option : **1**

Q.134 The correct Boolean expression for the given circuit is.



1. $F = \overline{x}\,\overline{y}\,z + \overline{x}\,y\,z + \overline{y}\,z$
2. $F = \overline{x}\,\overline{y}\,z + \overline{x}\,y\,z + x\,z$
3. $F = x\,y\,\overline{z} + \overline{x}\,y\,z + \overline{y}\,z$
4. $F = x\,\overline{y}\,\overline{z} + \overline{x}\,y\,z + \overline{y}\,z$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714210**
Option 1 ID : **61198755365**
Option 2 ID : **61198755366**
Option 3 ID : **61198755367**
Option 4 ID : **61198755368**
Status : **Answered**
Chosen Option : **1**

Q.135 Choose the correct option for A.C Bridges

A. Hay's Bridge is a modification of Maxwell's Bridge.
B. The Hay's Bridge is suited for the measurement of high Q coils.
C. A Wein's Bridge cannot be used for the measurement of capacitance.
D. In Owen's Bridge, the balance equations are quite simple and must have frequency component.
E. Owen's bridge can be used over a wide range of measurement of inductances.

Choose the ***correct*** answer from the options given below:

1. A only
2. A, B, E only
3. B, C, D only
4. A, C only

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714268**
Option 1 ID : **61198755597**
Option 2 ID : **61198755598**
Option 3 ID : **61198755599**
Option 4 ID : **61198755600**
Status : **Answered**
Chosen Option : **2**

Q.136 For a 4-bit binary serial input serial output shift register, how many J-K flip flops are required?

1. 1
2. 2
3. 16
4. 4

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714212**
Option 1 ID : **61198755373**
Option 2 ID : **61198755374**
Option 3 ID : **61198755375**
Option 4 ID : **61198755376**
Status : **Answered**
Chosen Option : **4**

Q.137 A silicon solar cell has a short-circuit current of 100mA and an open circuit voltage of 0.8V under full solar illumination. The fill factor is given as 0.7, what is the maximum power delivered to a load by the cell?

1. 100 mW
2. 150 mW
3. 88 mW
4. 56 mW

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714194**
Option 1 ID : **61198755301**
Option 2 ID : **61198755302**
Option 3 ID : **61198755303**
Option 4 ID : **61198755304**
Status : **Answered**
Chosen Option : **4**

Q.138 A p-n junction is doped with donor concentration N_D and accepter concentator N_A, having depletion width of x_n and x_p respectively. Choose the correct option.

1. $N_D \propto x_p$
2. $N_A \propto \frac{1}{\sqrt{x_n}}$
3. $N_D \propto \frac{1}{x_n}$
4. $N_A \propto x_n$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714197**
Option 1 ID : **61198755313**
Option 2 ID : **61198755314**
Option 3 ID : **61198755315**
Option 4 ID : **61198755316**
Status : **Answered**
Chosen Option : **2**

Q.139 Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: For a given sequence $x[n]=\left(\frac{1}{2}\right)^n u(n)$ and its Z-transform $X(z)=\frac{1}{1-\frac{1}{2}z^{-1}};|z|>\frac{1}{2}$ is a stable system.

Reason R: For a stable system ROC (Region of Convergence) must include the unit circle.

In the light of the above statements, choose the ***most appropriate*** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714236**
Option 1 ID : **61198755469**
Option 2 ID : **61198755470**
Option 3 ID : **61198755471**
Option 4 ID : **61198755472**
Status : **Answered**
Chosen Option : **1**

Q.140 A semiconductor uses P-type substrates with $N_A = 5 \times 10^{15}cm^{-3}$ in an n-MOS device having depletion region width of 0.415 μm. What is the depletion charge in magnitude?

1. 1.6×10^{-10} C/cm^2
2. 3.32×10^{-8} C/cm^2
3. 6.42×10^{-9} C/cm^2
4. 1.82×10^{-8} C/cm^2

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714199**
Option 1 ID : **61198755321**
Option 2 ID : **61198755322**
Option 3 ID : **61198755323**
Option 4 ID : **61198755324**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Electronic circuits can be perceived as a set of electronic components connected in a manner to give the desired response. Electronic circuits can be implemented in discrete form or in integrated circuit (IC) form. In discrete circuits, electronic component are placed on a PCB and they are connected in a desired fashion using metal tracks on the PCB. On the other hand, in IC's all the desired components are placed on one single piece of silicon. The interconnection of these components are realized using on-chip metal lines. On the basis of the number of components on a silicon chip, ICs are classified as SSI, MSI, LSI and VLSI chips. Over the period of five decades, the technology advancement has lead to the increase in the number of transistors from tens of transistors per chip to billions of transistors per chip. This tremendous increase in the component density has been made possible by the scaling of MOS devices. The journey of technology scaling has been immensely challenging. However, intervention in terms of introduction of new materials, advanced process techniques and innovative device architectures has made this possible. Currently, state-of-art ICs are being manufactured with component density of the order of hundreds of million transistors per square millimeter silicon area.

SubQuestion No : 141

Q.141 Moore's law states that _____

1. The number of transistors on a chip triples every two years
2. The number of transistors on a chip doubles nearly every four years
3. The number of transistors on a chip doubles nearly every two years
4. The number of transistors on a chip triples every year

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714286**
Option 1 ID : **61198755665**
Option 2 ID : **61198755666**
Option 3 ID : **61198755667**
Option 4 ID : **61198755668**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Electronic circuits can be perceived as a set of electronic components connected in a manner to give the desired response. Electronic circuits can be implemented in discrete form or in integrated circuit (IC) form. In discrete circuits, electronic component are placed on a PCB and they are connected in a desired fashion using metal tracks on the PCB. On the other hand, in IC's all the desired components are placed on one single piece of silicon. The interconnection of these components are realized using on-chip metal lines. On the basis of the number of components on a silicon chip, ICs are classified as SSI, MSI, LSI and VLSI chips. Over the period of five decades, the technology advancement has lead to the increase in the number of transistors from tens of transistors per chip to billions of transistors per chip. This tremendous increase in the component density has been made possible by the scaling of MOS devices. The journey of technology scaling has been immensely challenging. However, intervention in terms of introduction of new materials, advanced process techniques and innovative device architectures has made this possible. Currently, state-of-art ICs are being manufactured with component density of the order of hundreds of million transistors per square millimeter silicon area.

SubQuestion No : 142

Q.142 Which of the following is the most advanced technology node in commercial production?

1. 32 nm
2. 14 nm
3. 7 nm
4. 3 nm

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714288**
Option 1 ID : **61198755673**
Option 2 ID : **61198755674**
Option 3 ID : **61198755675**
Option 4 ID : **61198755676**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Electronic circuits can be perceived as a set of electronic components connected in a manner to give the desired response. Electronic circuits can be implemented in discrete form or in integrated circuit (IC) form. In discrete circuits, electronic component are placed on a PCB and they are connected in a desired fashion using metal tracks on the PCB. On the other hand, in IC's all the desired components are placed on one single piece of silicon. The interconnection of these components are realized using on-chip metal lines. On the basis of the number of components on a silicon chip, ICs are classified as SSI, MSI, LSI and VLSI chips. Over the period of five decades, the technology advancement has lead to the increase in the number of transistors from tens of transistors per chip to billions of transistors per chip. This tremendous increase in the component density has been made possible by the scaling of MOS devices. The journey of technology scaling has been immensely challenging. However, intervention in terms of introduction of new materials, advanced process techniques and innovative device architectures has made this possible. Currently, state-of-art ICs are being manufactured with component density of the order of hundreds of million transistors per square millimeter silicon area.

SubQuestion No : 143

Q.143 A semiconductor IC housing 100 to 10000 equivalent gates is classified as _____

1. SSI Package
2. MSI Package
3. LSI Package
4. VLSI Package

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714285**
Option 1 ID : **61198755661**
Option 2 ID : **61198755662**
Option 3 ID : **61198755663**
Option 4 ID : **61198755664**
Status : **Answered**
Chosen Option : **4**

Comprehension:

Electronic circuits can be perceived as a set of electronic components connected in a manner to give the desired response. Electronic circuits can be implemented in discrete form or in integrated circuit (IC) form. In discrete circuits, electronic component are placed on a PCB and they are connected in a desired fashion using metal tracks on the PCB. On the other hand, in IC's all the desired components are placed on one single piece of silicon. The interconnection of these components are realized using on-chip metal lines. On the basis of the number of components on a silicon chip, ICs are classified as SSI, MSI, LSI and VLSI chips. Over the period of five decades, the technology advancement has lead to the increase in the number of transistors from tens of transistors per chip to billions of transistors per chip. This tremendous increase in the component density has been made possible by the scaling of MOS devices. The journey of technology scaling has been immensely challenging. However, intervention in terms of introduction of new materials, advanced process techniques and innovative device architectures has made this possible. Currently, state-of-art ICs are being manufactured with component density of the order of hundreds of million transistors per square millimeter silicon area.

SubQuestion No : 144

Q.144 Currently, state of the art microprocessors are being manufactured using _____

1. BJT technology
2. NMOS technology
3. CMOS technology
4. Bi-CMOS technology

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714289**
Option 1 ID : **61198755677**
Option 2 ID : **61198755678**
Option 3 ID : **61198755679**
Option 4 ID : **61198755680**
Status : **Answered**
Chosen Option : **4**

Comprehension:

Electronic circuits can be perceived as a set of electronic components connected in a manner to give the desired response. Electronic circuits can be implemented in discrete form or in integrated circuit (IC) form. In discrete circuits, electronic component are placed on a PCB and they are connected in a desired fashion using metal tracks on the PCB. On the other hand, in IC's all the desired components are placed on one single piece of silicon. The interconnection of these components are realized using on-chip metal lines. On the basis of the number of components on a silicon chip, ICs are classified as SSI, MSI, LSI and VLSI chips. Over the period of five decades, the technology advancement has lead to the increase in the number of transistors from tens of transistors per chip to billions of transistors per chip. This tremendous increase in the component density has been made possible by the scaling of MOS devices. The journey of technology scaling has been immensely challenging. However, intervention in terms of introduction of new materials, advanced process techniques and innovative device architectures has made this possible. Currently, state-of-art ICs are being manufactured with component density of the order of hundreds of million transistors per square millimeter silicon area.

SubQuestion No : 145

Q.145 SCL Mohali, a semiconductor foundry owned by the Government of India, manufactures IC's at which of the technology nodes mentioned below?

1. 180 nm
2. 90 nm
3. 45 nm
4. 32 nm

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714287**
Option 1 ID : **61198755669**
Option 2 ID : **61198755670**
Option 3 ID : **61198755671**
Option 4 ID : **61198755672**
Status : **Answered**
Chosen Option : **4**

Comprehension:

A p-n junction is formed by doping boron impurity to form p-type semiconductor material with doping concentration of $1\times10^{18}cm^{-3}$ and doped with arsenic to form n-type semiconductor material having doping concentration of $5\times10^{15}cm^{-3}$. It is the tendency of charge carrier to diffuse from higher concentration to lower concentration. As a result of it, the hole diffuse from p-side to n-side and electron diffuse from n-side to p-side. By doing so, holes leave behind the negative charge and electron leave behind the positive charge on either side of the junction and are immobile in nature. Therefore the junction is formed. The electric field attains its peak value at the junction while it is zero in the neutral n and p region. the current component due to drift of the carrier must exactly cancels the diffusion current. Therefore at the junction under thermal equilibrium condition the drift and the diffusion current density exactly balance each other. The contact potential at the junction is V_o= 0.796 V and the width of depletion region ($W = x_n + x_p$) is 0.457 μm. To turn ON the p-n junction diode one must apply forward bias voltage equal to or greater than the contact potential V_o. assume area $A = 10^{-4}\ cm^2$

SubQuestion No : 146

Q.146 The expression for diode current is given by

1. $I_D = I_S\left(1-e^{\frac{-V_D}{\eta V_T}}\right)$
2. $I_D = I_S\left(e^{\frac{-V_D}{\eta V_T}}-1\right)$
3. $I_D = I_S\left(e^{\frac{+V_D}{\eta V_T}}-1\right)$
4. $I_D = I_S\left(1-e^{\frac{+V_D}{\eta V_T}}\right)$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714293**
Option 1 ID : **61198755689**
Option 2 ID : **61198755690**
Option 3 ID : **61198755691**
Option 4 ID : **61198755692**
Status : **Answered**
Chosen Option : **1**

Comprehension:

A p-n junction is formed by doping boron impurity to form p-type semiconductor material with doping concentration of $1\times10^{18}cm^{-3}$ and doped with arsenic to form n-type semiconductor material having doping concentration of $5\times10^{15}cm^{-3}$. It is the tendency of charge carrier to diffuse from higher concentration to lower concentration. As a result of it, the hole diffuse from p-side to n-side and electron diffuse from n-side to p-side. By doing so, holes leave behind the negative charge and electron leave behind the positive charge on either side of the junction and are immobile in nature. Therefore the junction is formed. The electric field attains its peak value at the junction while it is zero in the neutral n and p region. the current component due to drift of the carrier must exactly cancels the diffusion current. Therefore at the junction under thermal equilibrium condition the drift and the diffusion current density exactly balance each other. The contact potential at the junction is V_o= 0.796 V and the width of depletion region ($W = x_n + x_p$) is 0.457 μm. To turn ON the p-n junction diode one must apply forward bias voltage equal to or greater than the contact potential V_o. assume area $A = 10^{-4}\ cm^2$

SubQuestion No : 147

Q.147 What is the depletion region width on n-side (x_n) and on p-side (x_p) respectively?

1. 0.455 μm and 0.002 μm
2. 0.455 μm and 0.0892 μm
3. 0.334 μm and 0.123 μm
4. 0.521 μm and 0.022 μm

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714295**
Option 1 ID : **61198755697**
Option 2 ID : **61198755698**
Option 3 ID : **61198755699**
Option 4 ID : **61198755700**
Status : **Answered**
Chosen Option : **1**

Comprehension:

A p-n junction is formed by doping boron impurity to form p-type semiconductor material with doping concentration of $1\times10^{18}cm^{-3}$ and doped with arsenic to form n-type semiconductor material having doping concentration of $5\times10^{15}cm^{-3}$. It is the tendency of charge carrier to diffuse from higher concentration to lower concentration. As a result of it, the hole diffuse from p-side to n-side and electron diffuse from n-side to p-side. By doing so, holes leave behind the negative charge and electron leave behind the positive charge on either side of the junction and are immobile in nature. Therefore the junction is formed. The electric field attains its peak value at the junction while it is zero in the neutral n and p region. the current component due to drift of the carrier must exactly cancels the diffusion current. Therefore at the junction under thermal equilibrium condition the drift and the diffusion current density exactly balance each other. The contact potential at the junction is V_o= 0.796 V and the width of depletion region ($W = x_n + x_p$) is 0.457 μm. To turn ON the p-n junction diode one must apply forward bias voltage equal to or greater than the contact potential V_o. assume area $A = 10^{-4}\ cm^2$

SubQuestion No : 148

Q.148 What is the maximum electric field in a p-n junction under thermal equilibrium condition

1. -1.5×10^5 V/cm
2. -5.0×10^4 V/cm
3. -3.4×10^4 V/cm
4. -1.2×10^4 V/cm

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714291**
Option 1 ID : **61198755681**
Option 2 ID : **61198755682**
Option 3 ID : **61198755683**
Option 4 ID : **61198755684**
Status : **Answered**
Chosen Option : **4**

Comprehension:

A p-n junction is formed by doping boron impurity to form p-type semiconductor material with doping concentration of $1\times10^{18}cm^{-3}$ and doped with arsenic to form n-type semiconductor material having doping concentration of $5\times10^{15}cm^{-3}$. It is the tendency of charge carrier to diffuse from higher concentration to lower concentration. As a result of it, the hole diffuse from p-side to n-side and electron diffuse from n-side to p-side. By doing so, holes leave behind the negative charge and electron leave behind the positive charge on either side of the junction and are immobile in nature. Therefore the junction is formed. The electric field attains its peak value at the junction while it is zero in the neutral n and p region. the current component due to drift of the carrier must exactly cancels the diffusion current. Therefore at the junction under thermal equilibrium condition the drift and the diffusion current density exactly balance each other. The contact potential at the junction is V_o= 0.796 V and the width of depletion region ($W = x_n + x_p$) is 0.457 μm. To turn ON the p-n junction diode one must apply forward bias voltage equal to or greater than the contact potential V_o. assume area A = 10^{-4} cm^2

SubQuestion No : 149

Q.149 An inductance of 0.273 mH is now placed in parallel with p-n junction, the resonant frequency is given by approximately

1. $\frac{20}{\pi} MHz$
2. $\frac{20}{\pi} KHz$
3. $\frac{2}{\pi} MHz$
4. $\frac{2}{\pi} KHz$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**
Question ID : **61198714294**
Option 1 ID : **61198755693**
Option 2 ID : **61198755694**
Option 3 ID : **61198755695**
Option 4 ID : **61198755696**
Status : **Answered**
Chosen Option : **1**

Comprehension:

A p-n junction is formed by doping boron impurity to form p-type semiconductor material with doping concentration of $1\times10^{18}cm^{-3}$ and doped with arsenic to form n-type semiconductor material having doping concentration of $5\times10^{15}cm^{-3}$. It is the tendency of charge carrier to diffuse from higher concentration to lower concentration. As a result of it, the hole diffuse from p-side to n-side and electron diffuse from n-side to p-side. By doing so, holes leave behind the negative charge and electron leave behind the positive charge on either side of the junction and are immobile in nature. Therefore the junction is formed. The electric field attains its peak value at the junction while it is zero in the neutral n and p region. the current component due to drift of the carrier must exactly cancels the diffusion current. Therefore at the junction under thermal equilibrium condition the drift and the diffusion current density exactly balance each other. The contact potential at the junction is V_o= 0.796 V and the width of depletion region ($W = x_n + x_p$) is 0.457 μm. To turn ON the p-n junction diode one must apply forward bias voltage equal to or greater than the contact potential V_o. assume area $A = 10^{-4}\ cm^2$

SubQuestion No : 150

Q.150 The p-n junction capacitance under zero bias condition is given by: assume area $A = 10^{-4}\ cm^2$

1. 228.6×10^{-14} F
2. 1.28×10^{-10} F
3. 3.25×10^{-14} F
4. 582.6×10^{-10} F

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **61198714292**
Option 1 ID : **61198755685**
Option 2 ID : **61198755686**
Option 3 ID : **61198755687**
Option 4 ID : **61198755688**
Status : **Answered**
Chosen Option : **2**

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