National Testing Agency

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88 Electronic Science

Group Number :	1
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PART I General Aptitude

Section Id :	646350364
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	42
Number of Questions to be attempted:	42
Section Marks:	100
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	646350749
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 64635015752 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In the two sets given below, Set-I provides the different levels of learning according to Bloom's Taxonomy, while set-II gives their examples and concerns. Match the two sets and select from the options to indicate your answer :

Set-I (Levels of Learning)		Set-II (Examples)	
(a)	Memory level	(i)	Identifying examples of a given concept
(b)	Understanding level	(ii)	Generating new ideas
(c)	Analysing level	(iii)	Recalling information
(d)	Creating level	(iv)	Isolating information into parts

Options :

	(a)	(b)	(c)	(d)
(1)	(ii)	(i)	(iii)	(iv)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(iv)	(iii)	(i)	(ii)
(4)	(iii)	(i)	(iv)	(ii)

Options :
64635061899. 1
64635061900. 2
64635061901. 3
64635061902. 4

Question Number : 2 Question Id : 64635015753 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Diagnostic Evaluation ascertains

(1)   Students performance at the beginning of instructions

(2)   Causes and remedies of persistent learning problems during instructions

(3)   Degree of achievement of instructional objectives at the end

(4)   Learning progress and failure after instructions

Options :
64635061903. 1
64635061904. 2
64635061905. 3
64635061906. 4

Question Number : 3 Question Id : 64635015754 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Among the following which one is an example of instructional software?

(1)   Audio podcast

(2)   Printed material or book

(3)   Radio talk

(4)   Edusat

Options :

64635061907. 1

64635061908. 2

64635061909. 3

64635061910. 4

**Question Number : 4 Question Id : 64635015755 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0**

Which teaching aids enhance the skills like reading, listening and pronunciation?

(1)   Audio-lingual teaching aids   (2)   Scientific teaching aids

(3)   General knowledge teaching aids   (4)   Theoretical based teaching aids

Options :

64635061911. 1

64635061912. 2

64635061913. 3

64635061914. 4

**Question Number : 5 Question Id : 64635015756 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0**

From the list given below identify the instructional events which form part of the structure of a lesson plan. Select your answer from the options given below the list

List of instructional events :

(i)   Gaining attention of students
(ii)   Prior knowledge of students
(iii)   Informing the learner of the objectives
(iv)   Stimulating recall of pre-requisite learning
(v)   Checking the availability of reading material in the library.
(vi)   Eliciting the desired response

Options :

(1)   (i)   (ii)   (iii)   (iv)

(2)   (i)   (iii)   (iv)   (vi)

(3)   (ii)   (iii)   (v)   (vi)

(4)   (i)   (iii)   (iv)   (v)

Options :
64635061915. 1
64635061916. 2
64635061917. 3
64635061918. 4

Question Number : 6 Question Id : 64635015757 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Think-aloud procedure is

(1)   a part of secondary source of data

(2)   a technique used to investigate learner strategies and performance

(3)   a strategy of testing learners' aptitude by providing primary sources

(4)   a necessary method in scientific research

Options :
64635061919. 1
64635061920. 2
64635061921. 3
64635061922. 4

Question Number : 7 Question Id : 64635015758 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Participant observation is a part of

(1)   Philosophical research

(2)   Mentalist Theory of language

(3)   Mathematical research

(4)   Ethnographic research

Options :

64635061923. 1

64635061924. 2

64635061925. 3

64635061926. 4

Question Number : 8 Question Id : 64635015759 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Plagiarism in research is

(1)   Creative use of previous data

(2)   Copying unscrupulously and making use of it

(3)   Quoting someone and citing him/her

(4)   Referring to previous data and working over it with new objectives

Options :

64635061927. 1

64635061928. 2

64635061929. 3

64635061930. 4

Question Number : 9 Question Id : 64635015760 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A university teacher plans to study the effect of level of aspiration of students in terms of their socio-economic background on their scholastic performance at the term end evaluation conducted by an external testing agency. What is the dependent variable in this study?

(1)   Level of aspiration of students   (2)   Socio-economic background of students

(3)   Scholastic performance of students   (4)   Term end evaluation

Options :

64635061931. 1

64635061932. 2

64635061933. 3

64635061934. 4

Question Number : 10 Question Id : 64635015761 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Critical language testing in a research report is

(1)   Testing language from an ethical point of view, revealing its misuses
(2)   Evaluating the stylistic characteristics of language
(3)   Critiquing the ideology of the author
(4)   Observing the gender role played by language

Options :
64635061935. 1
64635061936. 2
64635061937. 3
64635061938. 4

<table>
<tr><td>Sub-Section Number:</td><td>2</td></tr>
<tr><td>Sub-Section Id:</td><td>646350750</td></tr>
<tr><td>Question Shuffling Allowed :</td><td>Yes</td></tr>
</table>

Question Id : 64635015762   Question Type : COMPREHENSION   Sub Question Shuffling Allowed : Yes   Group Comprehension Questions : No
Question Numbers : (11 to 15)
Question Label : Comprehension

Unquestionably a literary life is for the most part an unhappy life, because if you have genius, you must suffer the penalty of genius; and if you have only talent, there are so many cares and worries incidental to the circumstances of men of letters, as to make life exceedingly miserable. Besides the pangs of composition, and the continuous disappointment which a true artist feels at his inability to reveal himself, there is the ever-recurring difficulty of gaining the public ear. Young writers are buoyed up by the hope and the belief that they have only to throw that poem at the world's feet to get back in return the laurel-crown; that they have only to push as a new light in literature. You can never convince a young author that the editors of magazines and the publishers of books are a practical body of men, who are by no means frantically anxious about placing the best literature before the pubic. Nay, that for the most part they are mere brokers, who conduct their business on the hardest lines of a profit and loss account. But supposing your book fairly launches, its perils are only beginning. You have to run the gauntlet of the critics. When you are a little older, you will find that criticism is not much more serious than the bye-play of clowns in a circus, when they beat around the ring, the victim with bladders stung at the end of long poles. A time comes in the life of every author when he regards critics as comical rather than formidable, and goes his way unheeding. But there are sensitive souls that yield under the chastisement and, perhaps after suffering much silent torture, abandon the profession of the pen forever.

Sub questions

Question Number : 11   Question Id : 64635015763   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical
Correct Marks : 2   Wrong Marks : 0

Literary life is unhappy because

(1)   One has to carry the load of being a genius while not being one

(2)   The genius can still remain a genius and be amidst misery in the face of adversity

(3)   Talent brings pseudo happiness

(4)   There is a constant desire to outshine others

Options :

64635061939. 1

64635061940. 2

64635061941. 3

64635061942. 4

Question Number : 12 Question Id : 64635015764 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Young authors aspire to

(1)   Equate themselves to the established authors

(2)   Remain content in their work only

(3)   Achieve glory by their merit yet always in a hurry

(4)   Become critics subsequently

Options :

64635061943. 1

64635061944. 2

64635061945. 3

64635061946. 4

Question Number : 13 Question Id : 64635015765 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The perception towards the publishers and critics in the above passage is

(1)   That of a scathing attack

(2)   That of sympathy

(3)   That of generosity

(4)   That of cynicism

Options :

64635061947. 1

64635061948. 2

64635061949. 3

64635061950. 4

Question Number : 14 Question Id : 64635015766 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Experience and age of an author

(1)   Makes the author stoic to criticism

(2)   Makes the author angry and lovely

(3)   Turns the author to a buffoon

(4)   Drives the author to cynicism

Options :

64635061951. 1

64635061952. 2

64635061953. 3

64635061954. 4

Question Number : 15 Question Id : 64635015767 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The effective way of tackling criticism is

(1)   To defend oneself through print media

(2)   To be vocal about one's craft

(3)   To become a critic of one's own art and start analysing its merit

(4)   To be gracefully glued to the artistic exercise

Options :

64635061955. 1

64635061956. 2

64635061957. 3

64635061958. 4

Sub-Section Number:	3	
Sub-Section Id:	646350751	
Question Shuffling Allowed :	Yes	

Question Number : 16 Question Id : 64635015768 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following are barriers to effective communication?

(a) Physical noise
(b) Semantic noise
(c) Psychological noise
(d) Non-semantic noise

Choose the correct answer from the options given below

(1) (a), (b) and (d)
(2) (a), (b) and (c)
(3) (a), (c) and (d)
(4) (a) and (d) only

Options :

64635061959. 1

64635061960. 2

64635061961. 3

64635061962. 4

Question Number : 17 Question Id : 64635015769 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

'Non-content behaviours such as rate of speaking, loudness, tendency to interrupt and pronunciation peculiarities' are referred to as ————— behaviour.

(1) Extra-personal
(2) Animated
(3) Extra-linguistic
(4) Involuntary

Options :

64635061963. 1

64635061964. 2

64635061965. 3

64635061966. 4

Question Number : 18 Question Id : 64635015770 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a classroom, delayed feedback can happen due to

(1) Use of technology
(2) Expanded communication
(3) Semantic noise
(4) Participatory environment

Options :

64635061967. 1

64635061968. 2

64635061969. 3

64635061970. 4

In analog communication, contents are considered to be

(1)   Convergent

(2)   Static

(3)   Physical

(4)   Ethereal

Options :
64635061971. 1
64635061972. 2
64635061973. 3
64635061974. 4

Match the following :

Set-I (Communication elements)		Set-II (Description of process part)	
(a)	Sender	(i)	Brain
(b)	Receiver	(ii)	Electro-magnetic impulses
(c)	Message	(iii)	The central nervous system
(d)	Medium	(iv)	Sensory organs

Choose the correct answer from the options given below :

	(a)	(b)	(c)	(d)
(1)	(i)	(iii)	(ii)	(iv)
(2)	(iii)	(i)	(iv)	(ii)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(ii)	(iv)	(iii)	(i)

Options :
64635061975. 1
64635061976. 2
64635061977. 3
64635061978. 4

Question Number : 21 Question Id : 64635015773 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Choose the missing term out of the given alternatives

TEF, UGH, ——————, WKL

(1)   CMN

(2)   UJI

(3)   VIJ

(4)   IJT

Options :

64635061979. 1

64635061980. 2

64635061981. 3

64635061982. 4

Question Number : 22 Question Id : 64635015774 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The sum of deviation taken from which of the descriptive statistical measure is always equal to zero?

(1)   Mean

(2)   Median

(3)   Mode

(4)   Percentile

Options :

64635061983. 1

64635061984. 2

64635061985. 3

64635061986. 4

Question Number : 23 Question Id : 64635015775 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If x and y are two positive numbers and x is 25% greater than y, what is the value of the ratio $\frac{y}{x}$?

(1)   0.75   (2)   0.80

(3)   1.20   (4)   1.25

Question Number : 24 Question Id : 64635015776 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

5% of the inhabitants of a village having died of malaria, a panic set in. During this, 20% of the remaining inhabitants left the village. The population is then reduced to 4750. Find the number of original inhabitants

(1)   5000

(2)   5250

(3)   6250

(4)   7500

Question Number : 25 Question Id : 64635015777 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If the simple interest on a certain sum for 1 year 3 months at $8\frac{1}{2}$% per annum exceeds the simple interest on the same sum for 8 months at 7½ % per annum by Rs. 45, then the sum is

(1)   Rs. 600

(2)   Rs. 800

(3)   Rs. 6,000

(4)   Rs. 8,000

Question Number : 26 Question Id : 64635015778 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If proposition 'All pens are not pencils' is taken to be True then which of the following propositions can be False?

(1)   All pens are pencils

(2)   Some pencils are pens

(3)   No pen is pencil

(4)   Some pens are pencils

Question Number : 27 Question Id : 64635015779 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Given below are two premises with four conclusions drawn from them. Which of the following conclusions could be validly drawn from the premises?

Premises :

(i)   All fans are tubes

(ii)   Bulbs are not tubes

Conclusions :

(a)   Fans are not bulbs

(b)   All tubes are fans

(c)   Fans are bulbs

(d)   No tube is bulb

Select the correct answer from the options given below :

(1)   (a), (b), (c)   (2)   (a) and (d)

(3)   (a) only   (4)   (b), (c) and (d)

Options :

64635062003. 1

64635062004. 2

64635062005. 3

64635062006. 4

Question Number : 28 Question Id : 64635015780 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

When subject and predicate of both the premises is same but they differ only in quantity, it

is known as

(1)   Subaltern

(2)   Contraries

(3)   Subcontraries

(4)   Contradictories

Options :

64635062007. 1

64635062008. 2

64635062009. 3

64635062010. 4

Question Number : 29 Question Id : 64635015781 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Identify the reasoning in the following argument :

'Writing on paper is similar to writing on the board'.

(1)   Deductive

(2)   Hypothetical

(3)   Analogical

(4)   Inductive

Options :

64635062011. 1
64635062012. 2
64635062013. 3
64635062014. 4

Question Number : 30 Question Id : 64635015782 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

The proposition 'All leaves are green' is equivalent to which of the following propositions?

(a)   No leaves are green

(b)   No leaves are non-green

(c)   No leaves are in other color than green

(d)   No green is leaf

Select the correct answer from the options given below :

(1)   (b), (c) and (d)

(2)   (a) and (b)

(3)   (b) only

(4)   (b) and (c)

Options :

64635062015. 1
64635062016. 2
64635062017. 3
64635062018. 4

Question Id : 64635015783 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (31 to 35)

Question Label : Comprehension

Consider the following table that shows the total number of tickets sold of five movies P, Q, R, S and T, across two cinema houses A and B on a particular day. In accordance with the table, answer the questions that follow (Question 31-35) :

Sale of Movie Tickets Cinema house wise		
Movies	Cinema	
	A	B
P	200	300
Q	350	400
R	250	350
S	300	350
T	400	250

Sub questions

Question Number : 31 Question Id : 64635015784 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The number of tickets sold of movie T at Cinema house A is what percent of the number of tickets of movie P sold at Cinema A?

(1)   220%   (2)   200%

(3)   210%   (4)   190%

Options :

64635062019. 1

64635062020. 2

64635062021. 3

64635062022. 4

Question Number : 32 Question Id : 64635015785 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the total number of tickets sold of movies Q and R together at both the Cinemas A and B together?

(1)   1050

(2)   1200

(3)   1250

(4)   1350

Options :

64635062023. 1
64635062024. 2
64635062025. 3
64635062026. 4

Question Number : 33 Question Id : 64635015786 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the ratio of the number of tickets sold of movie P at Cinema B to the number of tickets sold of movie Q at Cinema B?

(1)   2 : 3

(2)   3 : 4

(3)   1 : 2

(4)   3 : 5

Options :

64635062027. 1
64635062028. 2
64635062029. 3
64635062030. 4

Question Number : 34 Question Id : 64635015787 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the difference between the total number of tickets sold of all movies together at Cinema A and the total number of tickets sold of all movies together at Cinema B?

(1)   180   (2)   170

(3)   150   (4)   160

Options :

64635062031. 1
64635062032. 2
64635062033. 3
64635062034. 4

Question Number : 35 Question Id : 64635015788 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the average number of tickets sold at Cinema B for movies T and S together?

(1) 360

(2) 320

(3) 300

(4) 340

Options :

64635062035. 1

64635062036. 2

64635062037. 3

64635062038. 4

Sub-Section Number:	5
Sub-Section Id:	646350753
Question Shuffling Allowed :	Yes

Question Number : 36 Question Id : 64635015789 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following statement(s) is/are True in respect to ICT?

P : ICT is an acronym that stands for information and competitive technology.

Q : The effective use of ICT to support learning in the inclusive education exemplifies good teaching for all learners.

(1) P only

(2) Q only

(3) Both P and Q

(4) Neither P nor Q

Options :

64635062039. 1

64635062040. 2

64635062041. 3

64635062042. 4

Question Number : 37 Question Id : 64635015790 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is spyware in respect of computer software?

(1)   Software that aims to gather information about a person without his/her knowledge, and that may send such information to another entity

(2)   Legitimate software that allows companies to monitor and supervise the computers of their employees from a central location

(3)   Software used to disrupt computer operation or gain access to private computer systems

(4)   A computer program hidden within another seemingly harmless program that produces copies of itself and inserts them into another programs or files

Options :
64635062043. 1
64635062044. 2
64635062045. 3
64635062046. 4

Question Number : 38 Question Id : 64635015791 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Which of the following best describes a wiki?

(1)   A system that allows users to add information onto a website but does not change any pre-existing information

(2)   A system that allows collaborative modification of its content and structure directly from the web browser

(3)   A system that serves as a publically accessible personal journal for an individual

(4)   A system that monitors the modification of content within a blog

Options :
64635062047. 1
64635062048. 2
64635062049. 3
64635062050. 4

Question Number : 39 Question Id : 64635015792 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Anjali's teacher uses VLE, a software tool designed to deliver courses online. The acronym VLE stands for

(1)   Video Learning Environment

(2)   Visual Learning Environment

(3)   Virtual Learning Environment

(4)   Visual Local Environment

Options :
64635062051. 1

64635062052. 2
64635062053. 3
64635062054. 4

Question Number : 40 Question Id : 64635015793 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the decimal equivalent of binary number 1100110?

(1)   102

(2)   204

(3)   153

(4)   51

Options :

64635062055. 1

64635062056. 2

64635062057. 3

64635062058. 4

Question Number : 41 Question Id : 64635015794 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which are the examples of potential kinetic energy? Select your answer from the options given below :

(i)   Water that is behind a dam

(ii)   Radio signals

(iii)   An airplane idling on the runway

(iv)   A satellite before it is launched

(v)   A coiled spring

(vi)   Heat harnessed from the oceans

Options :

(1)   (i),   (iii),   (iv) and (v)

(2)   (i),   (ii),   (iii) and (vi)

(3)   (ii),   (iii),   (iv) and (v)

(4)   (ii),   (iv),   (v) and (vi)

Options :

64635062059. 1

64635062060. 2

64635062061. 3

64635062062. 4

**Question Number : 42 Question Id : 64635015795 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

Statement I :   The Millennium Development Goals were adopted in the United Nations in the year 2010

Statement II :   Developing a global partnership for development was one of the Millennium Development Goals.

Which of the above statements is/are correct?

(1)   Only I

(2)   Only II

(3)   Both I and II

(4)   Neither I nor II

Options :

64635062063. 1

64635062064. 2

64635062065. 3

64635062066. 4

**Question Number : 43 Question Id : 64635015796 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

Which one of the following conferences/summit is also known as UN Conference on Sustainable Development (UNCSD)?

(1)   The Stockholm Conference, 1972

(2)   The Rio de Janerio Conference, 1992

(3)   The Johannesburg Summit, 2002

(4)   The Rio + 20 Conference, 2012

Options :

64635062067. 1

64635062068. 2

64635062069. 3

64635062070. 4

**Question Number : 44 Question Id : 64635015797 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

In the formation of surface Ozone, which of the following do play an important role?

(a)   Oxides of nitrogen

(b)   Oxides of sulphur

(c)   Sunlight

(d)   Carbon monoxide

Choose the correct answer from the code given below :

(1)   (a), (b), (c)

(2)   (b), (c), (d)

(3)   (a), (c), (d)

(4)   (a), (b), (d)

Options :

64635062071. 1

64635062072. 2

64635062073. 3

64635062074. 4

Question Number : 45 Question Id : 64635015798 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following belongs to the category of geophysical hazards?

(1)   Infestation   (2)   Avalanches

(3)   Invasive species   (4)   Diseases

Options :

64635062075. 1

64635062076. 2

64635062077. 3

64635062078. 4

Question Number : 46 Question Id : 64635015799 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

GIAN (Global Initiative of Academic Networks) has been launched by Government of India in order to

(1)   Encourage Indian Scholars to learn abroad

(2)   Discourage Indian Scholars from researching in India

(3)   Encourage global scholars engage with their counter parts in India

(4)   Encourage global scholars to engage with Indian Scholars abroad

Options :

64635062079. 1

64635062080. 2

64635062081. 3

64635062082. 4

Question Number : 47 Question Id : 64635015800 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following forms a necessary component of Conventional Education System in India?

(1)   Learning from books

(2)   Learning from the teacher

(3)   Learning from thinking

(4)   Learning through instructional material

Options :

64635062083. 1

64635062084. 2

64635062085. 3

64635062086. 4

Question Number : 48 Question Id : 64635015801 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following five year plans of India has given special emphasis on "Education and Manpower"?

(1)   Third Five Year Plan

(2)   Fourth Five Year Plan

(3)   Second Five Year Plan

(4)   Fifth Five Year Plan

Options :

64635062087. 1

64635062088. 2

64635062089. 3

64635062090. 4

Question Number : 49 Question Id : 64635015802 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Brain drain problem which was dominant in the middle of 20th Century in India is indicative of which one of the following aspects?

(i) Lack of adequate facilities for advanced study and research in India

(ii) The capacity of the developed nations to buy the talent at a price beyond the means of the developing nations

(iii) Increase of population and under utilization of human research

Choose the correct option from below :

(1) Only (i) and (iii)

(2) Only (ii) and (iii)

(3) Only (iii)

(4) Only (i) and (ii)

Options :

64635062091. 1

64635062092. 2

64635062093. 3

64635062094. 4

Question Number : 50 Question Id : 64635015803 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The premier organisation established in India to deal with capacity building and research in planning and management of education in India and South Asia is

(1) AIU

(2) SAARC University

(3) NUEPA

(4) Nalanda University

Options :

64635062095. 1

64635062096. 2

64635062097. 3

64635062098. 4

PART II Electronic Science

Section Id :	646350365
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	92
Number of Questions to be attempted:	92
Section Marks:	200
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number: 1

Question Number : 51 Question Id : 64635015804 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In an open circuited p-n junction, the contact difference of potential is

1. $\dfrac{kT}{q}$

2. $\dfrac{kT}{q} \ln \dfrac{N_A N_D}{n_i^2}$

3. $\dfrac{kT}{q} \ln \dfrac{N_D}{n_i^2}$

4. $\dfrac{kT}{q} \ln \dfrac{N_A}{N_D, n_i^2}$

Options :

64635062099. 1

64635062100. 2

64635062101. 3

64635062102. 4

Question Number : 52 Question Id : 64635015805 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The equation for $f(E)$ is the Fermi-Dirac probability function and is

1. $\dfrac{1}{1 + \exp[(E - E_F)/kT]}$

2. $\dfrac{1}{1 - \exp[(E - E_F)/kT]}$

3. $\dfrac{1}{1 + \exp[(E_F - E)/kT]}$

4. $\dfrac{1}{1 - \exp[(E_F - E)/kT]}$

Options :

64635062103. 1

64635062104. 2

64635062105. 3

64635062106. 4

Question Number : 53 Question Id : 64635015806 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If the forward bias is applied to the diode, holes are injected from p side to n side, the concentration P_n of holes in the n side above its thermal equilibrium value $P_{n(0)}$ is given by

1. $P_{n0} - P_{n(0)} \exp(-x/L_p)$

2. $P_{n0} + P_{n(0)} \exp(+x/L_p)$

3. $P_{n0} + P_{n(0)} \exp(-x/L_p)$

4. $P_{n0} - P_{n(0)} \exp(+x/L_p)$

Options :

64635062107. 1

64635062108. 2

64635062109. 3

64635062110. 4

Question Number : 54 Question Id : 64635015807 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

The Ebers-Moll equation for the emitter current is

1. $a_{11}\left[\exp\left(\dfrac{V_E}{V_T}\right)-1\right] + a_{12}\left[\exp\left(\dfrac{V_C}{V_T}\right)-1\right]$

2. $a_{11}\left[\exp\left(\dfrac{V_C}{V_T}\right)-1\right] + a_{12}\left[\exp\left(\dfrac{V_E}{V_T}\right)-1\right]$

3. $a_{11}\left[\exp\left(\dfrac{V_E}{V_T}\right)+1\right] + a_{12}\left[\exp\left(\dfrac{V_C}{V_T}\right)+1\right]$

4. $a_{11}\left[\exp\left(\dfrac{V_C}{V_T}\right)+1\right] + a_{12}\left[\exp\left(\dfrac{V_E}{V_T}\right)+1\right]$

Options :

64635062111. 1

64635062112. 2

64635062113. 3

64635062114. 4

Question Number : 55 Question Id : 64635015808 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

The device which is used for detecting light intensity is

1. LED

2. LCD

3. photodiode

4. P-I-N diode

Options :

64635062115. 1

64635062116. 2

64635062117. 3

64635062118. 4

Question Number : 56 Question Id : 64635015809 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The resistivity measurements are made on the flat ends of the crystal by the four point probe technique. The current I is passed through the outer probes and voltage is measured between the inner probes. If S is the probe spacing in centimetre, the measure resistance is converted to resistivity using the formula

1. $\left(\dfrac{V}{I}\right)S$

2. $\left(\dfrac{V}{I}\right)2\pi S$

3. $\left(\dfrac{I}{V}\right)2\pi S$

4. $\left(\dfrac{I}{V}\right)2\pi$

Options :

64635062119. 1

64635062120. 2

64635062121. 3

64635062122. 4

Question Number : 57 Question Id : 64635015810 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In X-ray lithography if S is the size of the X-ray source, g is the gap between wafer and mask and D is the distance between the source and the mask, then the blur is

1. $\dfrac{D}{gS}$

2. $\dfrac{gS}{D}$

3. $D - gS$

4. $\dfrac{g - D}{S}$

Options :

64635062123. 1

64635062124. 2

64635062125. 3

64635062126. 4

Question Number : 58 Question Id : 64635015811 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In ion implantation for Gaussian distribution profile, with standard deviation σ_p, if the total dose is ϕ, then the peak concentration can be expressed as

1. $\phi\sigma_p$

2. $\dfrac{0 \cdot 4\phi}{\sigma_p}$

3. $\dfrac{\sigma_p}{\phi}$

4. $\dfrac{\phi\sigma_p}{0 \cdot 4}$

Options :

64635062127. 1

64635062128. 2

64635062129. 3

64635062130. 4

Question Number : 59 Question Id : 64635015812 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Deal and Grove model is applicable in

1. diffusion

2. implantation

3. oxidation

4. epitaxy

Options :

64635062131. 1

64635062132. 2

64635062133. 3

64635062134. 4

Question Number : 60 Question Id : 64635015813 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The MOSFET will have higher cut-off frequency, if

1. g_m is large and c_{gs} is small

2. g_m and c_{gs} both are large

3. g_m and c_{gs} both are small

4. g_m is small but c_{gs} is large

Options :

64635062135. 1

64635062136. 2

64635062137. 3

64635062138. 4

Question Number : 61 Question Id : 64635015814 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In the figure below, impedance value of load Z_L which will cause maximum power to be transferred to the load, is

1. $(2 + j2)\Omega$

2. $-j2\Omega$

3. 2Ω
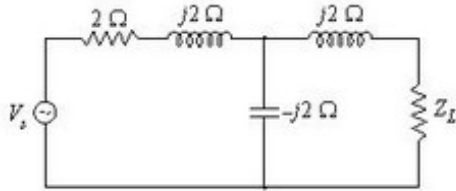
4. $(2j - 2)\Omega$

Options :

64635062139. 1

64635062140. 2

64635062141. 3

64635062142. 4

Question Number : 62 Question Id : 64635015815 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

For a two-port network $A = x_1$, $B = x_2$, $C = 1/x_2$. For the network to be reciprocal, D is equal to

1. $1/x_1$

2. 0
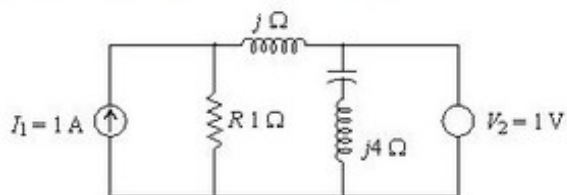
3. $2/x_1$

4. $2/x_2$

Options :

64635062143. 1

64635062144. 2

64635062145. 3

64635062146. 4

Question Number : 63 Question Id : 64635015816 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

By applying principle of superposition to the circuit

voltage V across resistance R is

1. 5 V

2. 4 V

3. 2 V

4. 1 V

Question Number : 64 Question Id : 64635015817 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Incidence matrix of a graph is given below :

$$A = \begin{bmatrix} -1 & 0 & 1 & 1 & -1 & 0 \\ 1 & -1 & 0 & 0 & 0 & -1 \\ 0 & 1 & -1 & -1 & 1 & 1 \end{bmatrix}$$

Number of possible trees are

1.   12

2.   11

3.   8

4.   14

Options :

64635062151. 1

64635062152. 2

64635062153. 3

64635062154. 4

Question Number : 65 Question Id : 64635015818 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is hybrid parameter h_{22} of a two-port network?

1. $\left. \dfrac{I_2}{V_2} \right|_{I_1=0}$

2. $\left. \dfrac{V_2}{I_2} \right|_{V_1=0}$

3. $\left. \dfrac{V_2}{V_1} \right|_{I_2=0}$

4. $\left. \dfrac{I_2}{I_1} \right|_{V_2=0}$

Options :

64635062155. 1

64635062156. 2

64635062157. 3

64635062158. 4

Question Number : 66 Question Id : 64635015819 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In case of a monolithic phase-locked loop, the equation of free running frequency of the voltage controlled oscillator is

1. $f_{out} \cong \dfrac{4}{1 \cdot 2 R_1 C_1}$ Hz

2. $f_{out} \cong \dfrac{1 \cdot 2 R_1 C_1}{4}$ Hz

3. $f_{out} \cong \dfrac{1 \cdot 2}{R_1 C_1}$ Hz

4. $f_{out} \cong \dfrac{1 \cdot 2}{4 R_1 C_1}$ Hz

Options :

64635062159. 1

64635062160. 2

64635062161. 3

64635062162. 4

Question Number : 67 Question Id : 64635015820 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The purpose of using a Bleeder resistor across the filter, when designing a d.c. power supply is

1. to maintain maximum current for the optimum operation of inductor

2. to improve voltage regulation of the supply only

3. to provide safety to the person handling the equipment only

4. both to improve regulation of supply and to provide safety to the person handling the equipment

Options :

64635062163. 1

64635062164. 2

64635062165. 3

64635062166. 4

Question Number : 68 Question Id : 64635015821 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In which of the following configurations, Miller effect capacitance is not a contributing concern for high-frequency applications?

1. Common emitter configuration only

2. Common base configuration only

3. Emitter follower configuration only

4. Both common base and emitter follower configurations

Options :

64635062167. 1

64635062168. 2

64635062169. 3

64635062170. 4

Question Number : 69 Question Id : 64635015822 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following parameters correctly describes a good current buffer?

1. High input impedance and high output impedance

2. High input impedance and low output impedance

3. Low input impedance and high output impedance

4. Low input impedance and low output impedance

Options :

64635062171. 1

64635062172. 2

64635062173. 3

64635062174. 4

Question Number : 70 Question Id : 64635015823 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following components are used for bias compensation in transistor circuits?

1. Thermistors only

2. Rectifying diodes only

3. Both thermistors and rectifying diodes

4. A combination of resistors

Options :

64635062175. 1

64635062176. 2

64635062177. 3

64635062178. 4

Question Number : 71 Question Id : 64635015824 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The figure of merit of a logic family is given by the product of

1. gain and bandwidth

2. propagation delay time and power dissipation

3. fan out and propagation delay

4. noise margin and power dissipation

Options :

64635062179. 1

64635062180. 2

64635062181. 3

64635062182. 4

Question Number : 72 Question Id : 64635015825 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following statements is not correct about a universal shift register?

1. Universal shift register is a bidirectional register whose inputs can be either in serial form or in parallel form

2. Universal shift register generates internal clock to synchronize the operations

3. We need 'N' number of D flipflops and 'N' number of MUX to design N-bit universal shift register

4. Universal shift register has a clear control that clears the contents of register to 0

Options :

64635062183. 1

64635062184. 2

64635062185. 3

64635062186. 4

Question Number : 73 Question Id : 64635015826 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The correct combination of characteristic equation Q_{n+1} of S-R flipflop and J-K flipflop respectively is

1. $Q_n R + \bar{S}$ and $JQ_n + \bar{K}Q_n$

2. $\bar{Q}_n R + S$ and $\bar{J}Q_n + \bar{K}Q_n$

3. $Q_n \bar{R} + S$ and $JQ_n + \bar{K}\bar{Q}_n$

4. $Q_n \bar{R} + S$ and $J\bar{Q}_n + \bar{K}Q_n$

Options :

64635062187. 1

64635062188. 2

64635062189. 3

64635062190. 4

Question Number : 74 Question Id : 64635015827 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which one of the following is equivalent to the Boolean expression $Y = AB + BC + CA$?

1. $\overline{AB + BC + CA}$

2. $\overline{(\bar{A}+\bar{B})(\bar{B}+\bar{C})(\bar{C}+\bar{A})}$

3. $(\bar{A}+\bar{B})(\bar{B}+\bar{C})(\bar{C}+\bar{A})$

4. $\overline{(A+B)(B+C)(C+A)}$

Options :

64635062191. 1

64635062192. 2

64635062193. 3

64635062194. 4

Question Number : 75 Question Id : 64635015828 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The number of directed arcs terminating on any state of a state diagram is

1. 2^n where n is the number of inputs

2. 2^n where n is the number of flipflops in the circuit

3. independent of the number of inputs

4. dependent on the number of outputs

Options :

64635062195. 1

64635062196. 2

64635062197. 3

64635062198. 4

Question Number : 76 Question Id : 64635015829 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Contents of which memory location is transferred to register AL after execution of the following 8086 program?

```
        MOV  CX, 2050H
        MOV  DS, CX
        MOV  AL, [F025]
```

1. 0F025

2. F0250

3. 2F525

4. 20500

Options :

64635062199. 1

64635062200. 2

64635062201. 3

64635062202. 4

Question Number : 77 Question Id : 64635015830 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is 16 bit register of 8051 microcontroller?

1. DPL

2. SBUF

3. SP

4. TCON

Options :

64635062203. 1

64635062204. 2

64635062205. 3

64635062206. 4

Question Number : 78 Question Id : 64635015831 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which is invalid 8051 microcontroller instruction?

1. MOVX @DPTR, A

2. RA A

3. MOV DPTR,# 2500

4. DA B

Options :

64635062207. 1

64635062208. 2

64635062209. 3

64635062210. 4

**Question Number : 79 Question Id : 64635015832 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

If 8051 microcontroller is rated at 25 MHz, what is the maximum frequency that can be
connected to it?

1. 12·5 MHz

2. 25 MHz

3. 50 MHz

4. 30 MHz

Options :

64635062211. 1

64635062212. 2

64635062213. 3

64635062214. 4

**Question Number : 80 Question Id : 64635015833 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

Which bit address is assigned to PCON register?

1. B8H

2. 78H

3. 80H

4. 87H

Options :

64635062215. 1

64635062216. 2

64635062217. 3

64635062218. 4

**Question Number : 81 Question Id : 64635015834 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 2 Wrong Marks : 0

Velocity factor of transmission line

1. is directly proportional to the dielectric constant of insulation between conductors

2. is inversely proportional to the dielectric constant of insulation between conductors

3. is inversely proportional to the square root of dielectric constant of insulation between conductors

4. does not depend on dielectric constant of insulation between conductors

Options :

64635062219. 1

64635062220. 2

64635062221. 3

64635062222. 4

Question Number : 82 Question Id : 64635015835 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following uses slow wave structure?

1. Reflex klystron

2. Travelling wave tube

3. Magnetron

4. Gunn diode

Options :

64635062223. 1

64635062224. 2

64635062225. 3

64635062226. 4

Question Number : 83 Question Id : 64635015836 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following equations is electromagnetic wave equation?

1. $\nabla^2 \bar{E} - \dfrac{\sigma}{\mu} \dfrac{\partial \bar{E}}{\partial t} - \dfrac{\mu}{\epsilon} \dfrac{\partial^2 \bar{E}}{\partial t^2} = 0$

2. $\nabla^2 \bar{E} - \sigma \epsilon \dfrac{\partial \bar{E}}{\partial t} - \mu\sigma \dfrac{\partial^2 \bar{E}}{\partial t^2} = 0$

3. $\nabla^2 \bar{E} - \mu\epsilon \dfrac{\partial \bar{E}}{\partial t} - \mu\sigma \dfrac{\partial^2 \bar{E}}{\partial t^2} = 0$

4. $\nabla^2 \bar{E} - \mu\sigma \dfrac{\partial \bar{E}}{\partial t} - \mu\epsilon \dfrac{\partial^2 \bar{E}}{\partial t^2} = 0$

Given that $\bar{E}$ is time and space dependent electric field intensity vector and μ, σ and ϵ are permeability, conductivity and permittivity respectively of the medium.

Options :

64635062227. 1

64635062228. 2

64635062229. 3

64635062230. 4

Question Number : 84   Question Id : 64635015837   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

A 250 MHz electromagnetic wave is propagating through a perfect non-magnetic dielectric with $E_R = 6$. Its wavelength will be equal to

1. 0·245 m

2. 0·490 m

3. 49 m

4. 4·9 m

Options :

64635062231. 1

64635062232. 2

64635062233. 3

64635062234. 4

Question Number : 85   Question Id : 64635015838   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

For TE_{10} mode of propagation in a rectangular waveguide filled with air, the broader dimension is 2 cm. The cut-off frequency is

1. 7·5 GHz

2. 7·5 MHz

3. 750 GHz

4. 0·75 GHz

Options :

64635062235. 1

64635062236. 2

64635062237. 3

64635062238. 4

Question Number : 86   Question Id : 64635015839   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

Which type of optical fiber is used to eliminate modal dispersion during optical communication?

1. Single mode step index fiber

2. Multimode step index fiber

3. Multimode graded index fiber

4. Does not depend on type of fiber

Options :

64635062239. 1

64635062240. 2

64635062241. 3

64635062242. 4

Question Number : 87   Question Id : 64635015840   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

What is the speed of satellite moving in an elliptical orbit at perigee and apogee?

1. Constant at both positions

2. Highest at perigee and lowest at apogee

3. Lowest at perigee and highest at apogee

4. Highest at both positions

Options :

64635062243. 1

64635062244. 2

64635062245. 3

64635062246. 4

Question Number : 88 Question Id : 64635015841 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If the desired transmission bit rate for a coherent binary FSK system is 4 Kbits/sec, the best possible interval between the carriers is

1. 0·25 mS

2. 0·5 mS

3. 1 mS

4. 5 mS

Options :

64635062247. 1

64635062248. 2

64635062249. 3

64635062250. 4

Question Number : 89 Question Id : 64635015842 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a 10-bit PCM system, a message signal having maximum frequency of 4 KHz is to be transmitted. If the bit rate of this PCM system is 60 Kbits/sec, the appropriate sampling frequency is

1. 6 KHz

2. 7 KHz

3. 8 KHz

4. 9 KHz

Options :

64635062251. 1

64635062252. 2

64635062253. 3

64635062254. 4

Question Number : 90 Question Id : 64635015843 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the relation between bandwidth B of BPSK signal and the bandwidth B_m of M-ary PSK signal, for a given data rate?

1. $B_m = MB$

2. $B_m = B \log_2 M$

3. $B = B_m \log_2 M$

4. $B = M \cdot B_m$

Options :

64635062255. 1

64635062256. 2

64635062257. 3

64635062258. 4

Question Number : 91 Question Id : 64635015844 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

dV / dt protection is provided to thyristor circuit by using

1. triggering circuits

2. phase shifting circuits

3. commutation circuits

4. snubber circuits

Options :

64635062259. 1

64635062260. 2

64635062261. 3

64635062262. 4

Question Number : 92 Question Id : 64635015845 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

For constant load and supply voltage, two DC series motors will develop maximum torque when both are connected in

1. series

2. parallel

3. series or parallel

4. None of the above

Options :

64635062263. 1

64635062264. 2

64635062265. 3

64635062266. 4

Question Number : 93 Question Id : 64635015846 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

At certain loading condition, back e.m.f. in DC motor was found half of the supply voltage. Then power delivered by DC motor is

1. half of the rated power

2. maximum

3. minimum

4. double of the rated power

Options :

64635062267. 1

64635062268. 2

64635062269. 3

64635062270. 4

Question Number : 94 Question Id : 64635015847 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

An SCR is connected across 200 V battery through 0·2 H inductance. If the latching current in the circuit is 3 mA, what is the minimum width of the gating pulse required to properly turn on the SCR?

1. 1 μS

2. 2 μS

3. 3 μS

4. 4 μS

Options :

64635062271. 1

64635062272. 2

64635062273. 3

64635062274. 4

Question Number : 95 Question Id : 64635015848 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In forward blocking region of SCR which of the following statements is correct?

1. Outer junction J_1 and J_3 are in reversed biased while middle junction J_2 is forward biased

2. Outer junctions J_1 and J_3 are in forward biased while J_2 is in reversed biased

3. Junctions J_1 and J_2 are in forward biased while junction J_3 is in reversed biased

4. All the three junctions J_1, J_2 and J_3 are in forward biased

Options :

64635062275. 1

64635062276. 2

64635062277. 3

64635062278. 4

Question Number : 96 Question Id : 64635015849 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A capacitance transducer can be used for the measurement of

1. moisture

2. thickness

3. displacement

4. All of the above

Options :

64635062279. 1

64635062280. 2

64635062281. 3

64635062282. 4

Question Number : 97 Question Id : 64635015850 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A platinum RTD has a resistance of 100 ohm at °C. If temperature coefficient is 0·004/°C, what would be the change in resistance if temperature rise is 50 °C?

1. $10\ \Omega$

2. $15\ \Omega$

3. $20\ \Omega$

4. $25\ \Omega$

Options :

64635062283. 1

64635062284. 2

64635062285. 3

64635062286. 4

Question Number : 98 Question Id : 64635015851 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

There is a spectrum analyzer with a third-order intercept point of +30 dB and noise level of −95 dB. Dynamic range of the spectrum analyzer is approximately

1. 83 dB

2. 73 dB

3. 187 dB

4. 41 dB

Options :

64635062287. 1

64635062288. 2

64635062289. 3

64635062290. 4

Question Number : 99 Question Id : 64635015852 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A sinusoidal voltage is measured by CRO. Vertical distance between the positive and negative peaks is 8 cm. If the scale of the CRO is set at 5 mV/cm, then peak value of voltage will be

1. 20 mV

2. 40 mV

3. 5 mV

4. 10 mV

Options :

64635062291. 1

64635062292. 2

64635062293. 3

64635062294. 4

Question Number : 100 Question Id : 64635015853 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a Schering bridge, dial of variable capacitor is calibrated directly in terms of dissipation factor of unknown arm. At 50 Hz frequency the value of dissipation factor of unknown capacitor was found to be D. What would be the value of dissipation factor at 60 Hz?

1. 6 D

2. 1/6 D

3. 5/6 D

4. 6/5 D

Options :

64635062295. 1

64635062296. 2

64635062297. 3

64635062298. 4

Question Number : 101 Question Id : 64635015854 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a Zener diode shunt voltage regulator, the diode regulates so long as is kept in

(a) forward condition

(b) reverse condition

(c) loaded condition

(d) unloaded condition

Choose the correct option :

1. (a) is correct but (b) is wrong

2. (b) is correct but (d) is wrong

3. (c) is correct but (d) is wrong

4. (a) and (d) are correct

Options :

64635062299. 1

64635062300. 2

64635062301. 3

64635062302. 4

Question Number : 102 Question Id : 64635015855 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The field effect transistor has

 (a) very high input resistance

 (b) high electrical noise

 (c) low input resistance

 (d) low electrical noise

Choose the correct option :

 1. (a) and (d) are correct

 2. (b) and (c) are correct

 3. (c) and (d) are correct

 4. (a) and (b) are correct

Options :

64635062303. 1

64635062304. 2

64635062305. 3

64635062306. 4

Question Number : 103 Question Id : 64635015856 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The evaporating rate R from a clean surface is related to the equilibrium vapour pressure P_e (in pascal) of the evaporating species (M is the molecular weight in gm) by a relation

 (a) $R = 4\cdot43 \times 10^{-4} \left(\dfrac{M}{T}\right)^{1/2} P_e$

 (b) $R = 4\cdot43 \times 10^{-4} \left(\dfrac{M}{T}\right) P_e$

 (c) $R = 4\cdot43 \times 10^{-4} \left(\dfrac{M}{kT}\right)^{1/2} P_e$

 (d) $R = 4\cdot43 \times 10^{-4} \left(\dfrac{M}{T}\right)^{3/2} P_e$

Choose the correct option :

 1. (a) is correct but (c) is wrong

 2. (a) is wrong but (d) is correct

 3. Both (a) and (b) are correct

 4. (a), (b) and (d) are correct

Options :

64635062307. 1

64635062308. 2

64635062309. 3

64635062310. 4

Question Number : 104 Question Id : 64635015857 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a *p-n* junction solar cell under low injection condition, the one-dimensional continuity equations are

(a) $G_n - \dfrac{n_p - n_{po}}{\tau_n} + \dfrac{1}{q}\dfrac{dJ_n}{dn} = 0$

(b) $G_n + \dfrac{n_p - n_{po}}{\tau_n} - \dfrac{1}{q}\dfrac{dJ_n}{dn} = 0$

(c) $G_p - \dfrac{P_n - P_{no}}{\tau_p} - \dfrac{1}{q}\dfrac{dJ_p}{dn} = 0$

(d) $G_p + \dfrac{P_n - P_{no}}{\tau_p} - \dfrac{1}{q}\dfrac{dJ_p}{dn} = 0$

Choose the correct option :

1. (a) and (b) are correct
2. (c) and (d) are correct
3. (a) and (c) are correct
4. (b) and (d) are correct

Options :

64635062311. 1

64635062312. 2

64635062313. 3

64635062314. 4

Question Number : 105 Question Id : 64635015858 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Transfer function of an electrical low pass RC network are

(a) $RCs | (1+RCs)$

(b) $RC | (1+RCs)$

(c) $1/(1+RCs)$

(d) $s/(1+RCs)$

Choose the correct option :

1. (a) and (b) both are correct
2. (c) and (d) both are correct
3. (b) is correct but (d) is not correct
4. (a) is correct but (b) is not correct

Options :

64635062315. 1

64635062316. 2

64635062317. 3

64635062318. 4

Question Number : 106 Question Id : 64635015859 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Nodal method of circuit analysis is based on

    (a)   KVL and Ohm's law

    (b)   KVL, KCL and Ohm's law

    (c)   KCL and KVL

    (d)   KCL and Ohm's law

Which of the following options is correct?

    1.   (a) and (b) are correct

    2.   (c) and (d) are correct

    3.   (d) is wrong but (a) is correct

    4.   (d) is correct but (b) is wrong

Options :

64635062319. 1

64635062320. 2

64635062321. 3

64635062322. 4

Question Number : 107 Question Id : 64635015860 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Thermal runaway in a transistor biased in the active region is primarily due to

    (a)   heating of the transistor

    (b)   changes in β, which increases with temperature

    (c)   base emitter voltage V_{BE} which decreases with rise in temperature

    (d)   change in reverse saturation current due to rise in temperature

Which of the following options is correct?

    1.   (a) and (b) are correct

    2.   (c) and (b) are correct

    3.   (c) is correct and (d) is wrong

    4.   (c) is wrong and (d) is correct

Options :

64635062323. 1

64635062324. 2

64635062325. 3

64635062326. 4

Question Number : 108 Question Id : 64635015861 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

For an RC phase shift oscillator, the following statements are cited :

    (a)   Amplifier gain is negative

    (b)   Phase shift introduced by feedback circuit is either 0 or 360°

    (c)   Amplifier gain is positive

    (d)   Phase shift introduced by feedback circuit is 180°

Which of the following options is correct?

    1.   Only (a) is correct and rest are incorrect

    2.   Only (c) is correct and rest are incorrect

    3.   Both (a) and (d) are correct

    4.   Both (b) and (c) are correct

Options :

64635062327. 1

64635062328. 2

64635062329. 3

64635062330. 4

Question Number : 109 Question Id : 64635015862 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The preference for NMOS, when compared to other logic families arises

    (a)   as it uses more silicon area

    (b)   as it consumes less static power

    (c)   as it utilizes smaller silicon area

    (d)   as it has higher input impedance

Which of the following options is correct?

    1.   Both (a) and (b) are correct

    2.   Both (c) and (b) are correct

    3.   (c) is correct but (d) is wrong

    4.   (b) is correct but (a) is wrong

Options :

64635062331. 1

64635062332. 2

64635062333. 3

64635062334. 4

Question Number : 110 Question Id : 64635015863 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The following statements are given about programmable logic array PLA :

(a) It is easier to manufacture and program than a PROM and a PAL

(b) It combines the characteristics of a PROM and a PAL by providing both a programmable AND array and a programmable OR array

(c) In a PLA, both AND gates and OR gates have fusible links at the inputs

Choose the correct option :

1. (a) is true but both (b) and (c) are false

2. (a) and (b) are true but (c) is false

3. (a) and (c) are false but (b) is true

4. (a) is false but both (b) and (c) are true

Options :

64635062335. 1

64635062336. 2

64635062337. 3

64635062338. 4

Question Number : 111 Question Id : 64635015864 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Following are few statements regarding noise in communication system :

(a) Atmospheric noise, shot noise, solar noise are examples of external noise sources

(b) Noise temperature is useful in dealing with UHF noise

(c) Thermal agitation is the only source of noise in receiver

Choose the correct answer :

1. Only (b)

2. (a) and (b)

3. (b) and (c)

4. (a) and (c)

Options :

64635062339. 1

64635062340. 2

64635062341. 3

64635062342. 4

Question Number : 112 Question Id : 64635015865 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

If the contents of register AX is 4C26H, which of the following instructions clear the contents of accumulator (AX) in case of 8086 microprocessor?

    (a)   NOT AX

    (b)   XOR AX, AX

    (c)   SUB AX, AX

    (d)   NEG AX

Choose the correct answer :

    1.   (a) and (c)

    2.   (b) and (c)

    3.   (b), (c) and (d)

    4.   (a) and (b)

Options :

64635062343. 1

64635062344. 2

64635062345. 3

64635062346. 4

Question Number : 113 Question Id : 64635015866 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a plane travelling wave

    (a)   electric and magnetic energy densities are equal

    (b)   electric energy density is more than magnetic energy density

    (c)   magnetic energy density is zero

    (d)   electric energy density is less than magnetic energy density

Choose the correct answer :

    1.   (a) is correct but (b) is wrong

    2.   (b) is correct but (c) is wrong

    3.   Both (a) and (b) are correct

    4.   Both (c) and (d) are correct

Options :

64635062347. 1

64635062348. 2

64635062349. 3

64635062350. 4

Question Number : 114 Question Id : 64635015867 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Read the following statements regarding antennas :

    (a)   The rhombic antenna is a non-resonant antenna

    (b)   Marconi antenna is not wideband antenna

    (c)   Horn antenna is best excited from a waveguide

Choose the correct answer from the codes given below :

    1.   (a) and (b) are correct but (c) is false

    2.   (a), (b) and (c) are correct

    3.   (a) is false but (b) and (c) are correct

    4.   (a) and (c) are correct but (b) is false

Options :

64635062351. 1

64635062352. 2

64635062353. 3

64635062354. 4

Question Number : 115 Question Id : 64635015868 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following are control flags of 8086 microprocessor?

    (a)   Carry flag

    (b)   Zero flag

    (c)   Trap flag

    (d)   Direction flag

Choose the correct answer :

    1.   (a) and (b)

    2.   (c) and (d)

    3.   (a) and (c)

    4.   (b) and (d)

Options :

64635062355. 1

64635062356. 2

64635062357. 3

64635062358. 4

Question Number : 116 Question Id : 64635015869 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following are advantages of LASER over LED?

  (a) Higher bandwidth and higher data rate

  (b) Higher output power

  (c) Longer lifetime

  (d) Cheap

Select the correct answer :

  1. (c) and (d)

  2. (a) and (b)

  3. (a), (b) and (c)

  4. (b), (c) and (d)

Options :

64635062359. 1

64635062360. 2

64635062361. 3

64635062362. 4

Question Number : 117 Question Id : 64635015870 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In DC generators, wave windings are preferred for

  (a) high current, low voltage

  (b) high current, high voltage

  (c) low current, high voltage

  (d) low current, low voltage

Which of the following is correct?

  1. Both (a) and (b) are correct

  2. Both (c) and (d) are correct

  3. (c) is correct but (a) is incorrect

  4. (a) is correct but (d) is incorrect

Options :

64635062363. 1

64635062364. 2

64635062365. 3

64635062366. 4

Question Number : 118 Question Id : 64635015871 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Following statements are given for control systems :

    (a) Transfer function is a ratio of Laplace transform of output to input considering initial conditions are zero.

    (b) Transfer function is a ratio of Laplace transform of output to input irrespective of initial conditions.

    (c) Error signal is a difference of reference signal and feedback signal.

    (d) In signal flow graph the input is divided by transmittance to obtain the output signal.

Which of the following is correct?

    1. (a) and (c) are correct

    2. (b) and (c) are correct

    3. (a) and (d) are correct

    4. (b) and (d) are correct

Options :

64635062367. 1

64635062368. 2

64635062369. 3

64635062370. 4

Question Number : 119 Question Id : 64635015872 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

List of transducers are given below :

    (a) Photoconductive cell

    (b) Photovoltaic cell

    (c) Piezoelectric

    (d) Thermistor

Which of the above are active transducers?

    1. (a) and (b)

    2. (b) and (c)

    3. (c) and (d)

    4. (a), (b) and (c)

Options :

64635062371. 1

64635062372. 2

64635062373. 3

64635062374. 4

Question Number : 120 Question Id : 64635015873 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Following statements are given for electrodynamometer-type instruments :

    (a)   It is used for a.c. quantities only

    (b)   It is used for both a.c. and d.c. quantities

    (c)   It can be used to measure power and frequency

    (d)   It has only one coil

Out of the above statements, which are correct?

    1.   (a) and (b) are correct

    2.   (b) and (c) are correct

    3.   (c) and (d) are correct

    4.   (d) and (a) are correct

Options :

64635062375. 1

64635062376. 2

64635062377. 3

64635062378. 4

Question Number : 121 Question Id : 64635015874 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	Ripple factor	(i)	$\dfrac{1}{3\sqrt{2}}\dfrac{R_L}{\omega L}$
(b)	Ripple factor of L-section filter	(ii)	$\sqrt{\left(\dfrac{I_{rms}}{I_{dc}}\right)^2 - 1}$
(c)	Ripple factor of inductor filter	(iii)	$\dfrac{\sqrt{2}}{3}\dfrac{1}{2\omega C}\dfrac{1}{2\omega L}$
(d)	Percentage of regulation	(iv)	$\dfrac{R_t}{R_L}\times100\%$

Choose the correct option from those given below :

    1.   (a)–(i); (b)–(ii); (c)–(iv); (d)–(iii)

    2.   (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

    3.   (a)–(iii); (b)–(iv); (c)–(ii); (d)–(i)

    4.   (a)–(iv); (b)–(i); (c)–(iii); (d)–(ii)

Options :

64635062379. 1

64635062380. 2

64635062381. 3

64635062382. 4

Question Number : 122 Question Id : 64635015875 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	CMOS inverter	(i)	
(b)	Depletion load MOS inverter	(ii)	
(c)	Pass transistor	(iii)	
(d)	Transmission gate	(iv)	

Choose the correct option from those given below :

1. (a)–(iii); (b)–(iv); (c)–(ii); (d)–(i)

2. (a)–(iv); (b)–(i); (c)–(iii); (d)–(ii)

3. (a)–(i); (b)–(ii); (c)–(iv); (d)–(iii)

4. (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

Options :

64635062383. 1

64635062384. 2

64635062385. 3

64635062386. 4

Question Number : 123 Question Id : 64635015876 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	$\sin \omega t$	(i)	$\dfrac{\omega}{s^2 + \omega^2}$
(b)	$\cos \omega t$	(ii)	$\dfrac{s}{s^2 + \omega^2}$
(c)	$\sinh bt$	(iii)	$\dfrac{s}{s^2 - b^2}$
(d)	$\cosh bt$	(iv)	$\dfrac{b}{s^2 - b^2}$

Choose the correct option from those given below :

1. (a)–(i); (b)–(ii); (c)–(iii); (d)–(iv)

2. (a)–(ii); (b)–(i); (c)–(iv); (d)–(iii)

3. (a)–(i); (b)–(ii); (c)–(iv); (d)–(iii)

4. (a)–(ii); (b)–(i); (c)–(iii); (d)–(iv)

**Question Number : 124 Question Id : 64635015877 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

List–I (Analog Devices)		List–II (I/P impedances)	
(a)	BJT	(i)	$> 10^{12} \, \Omega$
(b)	MOSFET	(ii)	$> 10^{10} \, \Omega$
(c)	JFET	(iii)	$> 10^8 \, \Omega$
(d)	MESFET	(iv)	$< 10^4 \, \Omega$

Choose the correct option from those given below :

1.   (a)–(iv); (b)–(iii); (c)–(i); (d)–(ii)

2.   (a)–(i); (b)–(ii); (c)–(iii); (d)–(iv)

3.   (a)–(iii); (b)–(i); (c)–(ii); (d)–(iv)

4.   (a)–(iv); (b)–(ii); (c)–(iii); (d)–(i)

**Question Number : 125 Question Id : 64635015878 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

List–I (Characteristics)		List–II (Logic Family)	
(a)	Improved noise immunity/ increased complexity	(i)	TTL
(b)	Fastest of all logic families/ Greater power consumption	(ii)	ECL
(c)	Most popular logic family/ Moderate packing density	(iii)	MOS
(d)	Simplest to fabricate/Susceptible to static charge dosage	(iv)	CMOS

Choose the correct option from those given below :

1.   (a)–(iv); (b)–(ii); (c)–(i); (d)–(iii)

2.   (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

3.   (a)–(ii); (b)–(iii); (c)–(iv); (d)–(i)

4.   (a)–(i); (b)–(iv); (c)–(ii); (d)–(iii)

Question Number : 126 Question Id : 64635015879 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II in case of 8086 microprocessor :

	List–I		List–II
(a)	BIU	(i)	FIFO buffer that can store up to six bytes of instruction code
(b)	EU	(ii)	Responsible for performing all external bus operations
(c)	IP	(iii)	Responsible for decoding and execution of all instructions
(d)	Queue	(iv)	Contains the offset or logical address of the next byte to be read from the CS

Choose the correct option from those given below :

1. (a)–(iii); (b)–(iv); (c)–(i); (d)–(ii)

2. (a)–(iii); (b)–(ii); (c)–(iv); (d)–(i)

3. (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

4. (a)–(ii); (b)–(iii); (c)–(iv); (d)–(i)

Question Number : 127 Question Id : 64635015880 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	$\nabla \cdot \vec{D} = \rho$	(i)	Ampere's law
(b)	$\nabla \times \vec{E} = -\dfrac{\partial \vec{B}}{\partial t}$	(ii)	Faraday's law
(c)	$\nabla \times \vec{H} = \vec{J} + \dfrac{\partial \vec{D}}{\partial t}$	(iii)	Gauss's Law

Choose the correct option from those given below :

1. (a)–(i); (b)–(ii); (c)–(iii)

2. (a)–(ii); (b)–(i); (c)–(iii)

3. (a)–(i); (b)–(iii); (c)–(ii)

4. (a)–(iii); (b)–(ii); (c)–(i)

Options :

64635062403. 1

64635062404. 2

64635062405. 3

64635062406. 4

Question Number : 128 Question Id : 64635015881 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	Baudot code	(i)	Permits the correction of errors by receiver without retransmission
(b)	Hamming code	(ii)	Provides no error detection at all
(c)	Error detecting code	(iii)	Permits the detection of two errors or correction of only one error
(d)	Forward error correcting code	(iv)	Uses an extra parity bit at the end of each word to detect errors in received data

Choose the correct option from those given below :

1. (a)–(ii); (b)–(iii); (c)–(iv); (d)–(i)

2. (a)–(iii); (b)–(ii); (c)–(i); (d)–(iv)

3. (a)–(iv); (b)–(ii); (c)–(i); (d)–(iii)

4. (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

Options :

64635062407. 1

64635062408. 2

64635062409. 3

64635062410. 4

Question Number : 129 Question Id : 64635015882 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I (Bridges)		List–II (Applications)
(a)	Hay Bridge	(i)	Capacitance
(b)	Maxwell Bridge	(ii)	Frequency
(c)	Schering Bridge	(iii)	High Q-coils
(d)	Wein Bridge	(iv)	Medium Q-coils

Choose the correct option from those given below :

1. (a)–(iv); (b)–(ii); (c)–(iii); (d)–(i)

2. (a)–(iii); (b)–(iv); (c)–(ii); (d)–(i)

3. (a)–(iv); (b)–(ii); (c)–(i); (d)–(iii)

4. (a)–(iii); (b)–(iv); (c)–(i); (d)–(ii)

Options :

64635062411. 1

64635062412. 2

64635062413. 3

64635062414. 4

Question Number : 130 Question Id : 64635015883 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Match List–I with List–II :

	List–I		List–II
(a)	LVDT	(i)	Gas flow
(b)	Dielectric gauge	(ii)	Displacement
(c)	Pirani gauge	(iii)	Liquid level
(d)	Piezo-electric	(iv)	Acceleration

Choose the correct option from those given below :

1. (a)–(ii); (b)–(iii); (c)–(i); (d)–(iv)

2. (a)–(i); (b)–(iv); (c)–(ii); (d)–(iii)

3. (a)–(i); (b)–(iv); (c)–(iii); (d)–(ii)

4. (a)–(ii); (b)–(iii); (c)–(iv); (d)–(i)

Options :

64635062415. 1

64635062416. 2

64635062417. 3

64635062418. 4

Question Number : 131 Question Id : 64635015884 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Arrange in order of the increasing vacuum work function for the below mentioned metals :

(a) Au

(b) Ni

(c) Ag

(d) Al

Which of the following options is correct?

1. (d), (c), (b), (a)

2. (c), (d), (a), (b)

3. (b), (a), (c), (d)

4. (a), (b), (d), (c)

Options :

64635062419. 1

64635062420. 2

64635062421. 3

64635062422. 4

Question Number : 132 Question Id : 64635015885 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Some analog devices are listed below :

    (a)   Transistor in CE configuration

    (b)   Transistor in CB configuration

    (c)   Transistor in CC configuration

    (d)   OP-Amp

Select the right option about the current gain of these devices in descending order :

    1.   (a), (b), (c), (d)

    2.   (d), (c), (b), (a)

    3.   (d), (a), (b), (c)

    4.   (d), (c), (a), (b)

Options :

64635062423. 1

64635062424. 2

64635062425. 3

64635062426. 4

Question Number : 133 Question Id : 64635015886 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Arrange the following in terms of decreasing order of their propagation delay :

    (a)   RTL

    (b)   ECL

    (c)   TTL

    (d)   CMOS

The correct sequence of decreasing order of propagation delay is

    1.   (a), (d), (c), (b)

    2.   (a), (b), (d), (c)

    3.   (d), (a), (c), (b)

    4.   (b), (d), (c), (a)

Options :

64635062427. 1

64635062428. 2

64635062429. 3

64635062430. 4

Question Number : 134 Question Id : 64635015887 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The pin signals of 8051 microcontroller are as follows :

  (a) $\overline{PSEN}$

  (b) $\overline{RD}$

  (c) $\overline{R \times D}$

  (d) $\overline{EA}$

Arrange them in ascending order of their pin numbers. Choose the correct option :

  1. (c), (b), (a), (d)

  2. (b), (c), (d), (a)

  3. (d), (a), (b), (c)

  4. (a), (b), (d), (c)

Options :

64635062431. 1

64635062432. 2

64635062433. 3

64635062434. 4

Question Number : 135 Question Id : 64635015888 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Important elements of cathode ray tube are given below :

  (a) Pre-accelerating anode

  (b) Accelerating anode

  (c) Focusing anode

  (d) Heated cathode

Correct sequence of the above elements in a CRT in the direction of electron beam is

  1. (a), (b), (c), (d)

  2. (a), (c), (b), (d)

  3. (d), (a), (c), (b)

  4. (d), (c), (a), (b)

Options :

64635062435. 1

64635062436. 2

64635062437. 3

64635062438. 4

Question Number : 136 Question Id : 64635015889 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Assertion (A) : A transmission gate is a bidirectional switch.

Reason (R) : A transmission gate consists of two *n*-channel enhancement mode transistors.

Choose the correct answer :

1. Both (A) and (R) are true and (R) is the correct explanation of (A)

2. Both (A) and (R) are true, but (R) is not the correct explanation of (A)

3. (A) is true, but (R) is false

4. (A) is false, but (R) is true

Options :

64635062439. 1

64635062440. 2

64635062441. 3

64635062442. 4

Question Number : 137 Question Id : 64635015890 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Assertion (A) : A code converter is a logic circuit whose inputs are bit patterns representing numbers in one code and whose outputs are the corresponding representations in a different code.

Reason (R) : A sequential circuit performs this transformation by means of logic gates.

Choose the correct answer :

1. Both (A) and (R) are true and (R) is the correct explanation of (A)

2. Both (A) and (R) are true, but (R) is not the correct explanation of (A)

3. (A) is true, but (R) is false

4. (A) is false, but (R) is true

Options :

64635062443. 1

64635062444. 2

64635062445. 3

64635062446. 4

Question Number : 138 Question Id : 64635015891 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Assertion (A) : 8086 microprocessor is a true 16-bit microprocessor.

Reason (R) : It consists of two main sections, bus interface unit (BIU) and execution unit (EU).

Choose the correct answer :

1. Both (A) and (R) are true and (R) is the correct explanation of (A)

2. Both (A) and (R) are true, but (R) is not the correct explanation of (A)

3. (A) is true, but (R) is false

4. (A) is false, but (R) is true

Options :

64635062447. 1

64635062448. 2

64635062449. 3

64635062450. 4

Question Number : 139 Question Id : 64635015892 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Assertion (A) : In satellite communication, uplink and downlink frequencies are kept different.

Reason (R)   : The uplink frequency is chosen to be of lower value than the down link frequency.

Choose the correct answer :

1.   Both (A) and (R) are true and (R) is the correct explanation of (A)

2.   Both (A) and (R) are true, but (R) is not the correct explanation of (A)

3.   (A) is true, but (R) is false

4.   (A) is false, but (R) is true

Options :

64635062451. 1

64635062452. 2

64635062453. 3

64635062454. 4

Question Number : 140 Question Id : 64635015893 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Assertion (A) : If the frequencies are in microwave range, H, Y and Z parameters can not be measured.

Reason (R)   : Short and open circuits are difficult to achieve over a broad band of frequencies and active devices such as power transistors and tunnel diodes, frequently will not have stability for a short or open circuit.

Choose the correct answer :

1.   Both (A) and (R) are true and (R) is the correct explanation of (A)

2.   Both (A) and (R) are true, but (R) is not the correct explanation of (A)

3.   (A) is true, but (R) is false

4.   (A) is false, but (R) is true

Options :

64635062455. 1

64635062456. 2

64635062457. 3

64635062458. 4

Sub-Section Number:	2
Sub-Section Id:	646350755
Question Shuffling Allowed :	Yes

Question Id : 64635015894 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (141 to 145)

Question Label : Comprehension

Direction : Read the passage given below and answer the questions (Q. Nos. 91 to 95) that follow :

Supply voltages changes because of poor regulation and filtering. For any given op-amp any change in the value of supply voltages results in a change in the input offset voltage, which in turn causes a change in the output offset voltage. The change in an op-amp's input offset voltage caused by variations in the supply voltage is specified on data sheets by a variety of terms : Input offset voltage sensitivity, power supply rejection ratio and supply power rejection ratio are some of them. All these terms are equivalent since they convey the same information.

Op-amp can work as difference amplifier and can be effectively used with feedback for many applications. Based on this paragraph, answer the next 5 questions.

Sub questions

Question Number : 141 Question Id : 64635015895 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The ideal value of supply voltage rejection ratio (SVRR) of an op-amp is

1. zero

2. infinity

3. >100 db

4. <100 db

Options :

64635062459. 1

64635062460. 2

64635062461. 3

64635062462. 4

Question Number : 142 Question Id : 64635015896 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Some of the salient features of a 741 op-amp are listed below :

(a) High power consumption

(b) External frequency compensation

(c) No latch-up

(d) Offset null capability

Choose the correct option :

1. Only (a) is wrong and (b), (c) and (d) are correct

2. Both (a) and (b) are wrong while (c) and (d) are correct

3. Both (a) and (b) are correct while (c) and (d) are wrong

4. Both (a) and (c) are wrong while (b) and (d) are correct
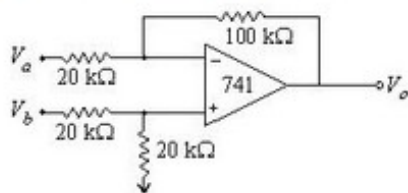
Options :

64635062463. 1

64635062464. 2

64635062465. 3

64635062466. 4

Question Number : 143 Question Id : 64635015897 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the output voltage V_o of the following circuit?

1. $-5 V_a + 2 \cdot 5 V_b$

2. $-5 V_a + 6 V_b$

3. $-6 V_a + 3 V_b$

4. $-5 V_a + 3 V_b$

Options :

64635062467. 1

64635062468. 2

64635062469. 3

64635062470. 4

Question Number : 144 Question Id : 64635015898 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The open-loop voltage gain of an operation amplifier is 2000. The noise level in the output without feedback is 102 mV. If negative feedback with $\beta = \dfrac{1}{40}$ is used, what will be the noise level in output?

1. 4 mV

2. 2 mV

3. 2·66 mV

4. 1·33 mV

Options :

64635062471. 1

64635062472. 2

64635062473. 3

64635062474. 4

Question Number : 145 Question Id : 64635015899 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following factors affect the values of input offset voltage, input bias current and input offset current?

1. Change in input impedance

2. Change in temperature

3. Change in supply voltages $+V_{CC}$ and $-V_{EE}$

4. Change in both temperature and supply voltage $+V_{CC}$ and $-V_{EE}$

Options :

64635062475. 1

64635062476. 2

64635062477. 3

64635062478. 4

Question Id : 64635015900 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (146 to 150)

Question Label : Comprehension

Direction : Read the passage given below and answer the questions (Q. Nos. 96 to 100) that follow :

Man is driving car on the road. The route, speed and acceleration of the car is determined and controlled by driver by observing traffic and road conditions. Driver has to manipulate the accelerator, clutch, gear-lever, brakes and steering wheel etc. to control the car. Speedometer is provided on the panel to display actual speed. Junctions of routes (roads) are having light (red and green) signal system for traffic control. Duration of red and green signals are pre-set.

Sub questions

Question Number : 146 Question Id : 64635015901 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Following statements are given regarding the above passage :

    (a)   Automobile driving system is an open-loop control system.

    (b)   Automobile driving system is a closed-loop control system.

    (c)   Traffic signal system is a closed-loop control system.

    (d)   Traffic signal system is an open-loop control system.

Out of the above statements, which are correct?

    1.   (a) and (d) are correct

    2.   (b) and (c) are correct

    3.   (a) and (c) are correct

    4.   (b) and (d) are correct

Options :

64635062479. 1

64635062480. 2

64635062481. 3

64635062482. 4

Question Number : 147 Question Id : 64635015902 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Traffic signal system is a

    1.   proportional and ON/OFF control system

    2.   proportional and derivative control system

    3.   proportional, integral and derivative control system

    4.   ON/OFF control system

Options :

64635062483. 1

64635062484. 2

64635062485. 3

64635062486. 4

Question Number : 148   Question Id : 64635015903   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

In an automobile driving system, eyes of the driver act as

    1.   error detector

    2.   summing block

    3.   visual link to feedback loop

    4.   feedback gain

Options :

64635062487. 1

64635062488. 2

64635062489. 3

64635062490. 4

Question Number : 149   Question Id : 64635015904   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

In an automobile driving system, brain of the driver acts as

    1.   error detector

    2.   integrating block

    3.   summing block

    4.   actuator

Options :

64635062491. 1

64635062492. 2

64635062493. 3

64635062494. 4

Question Number : 150   Question Id : 64635015905   Question Type : MCQ   Option Shuffling : No   Display Question Number : Yes Single Line Question Option : No   Option Orientation : Vertical

Correct Marks : 2   Wrong Marks : 0

In an automobile driving system, function of actuator is being performed by

    1.   accelerator only

    2.   brakes only

    3.   both accelerator and brakes

    4.   wheels only

Options :

64635062495. 1

64635062496. 2

64635062497. 3

64635062498. 4