National Testing Agency

Question Paper Name :	PGQP52 24th Sep 2021 Shift 2
Subject Name :	PGQP52
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Total Marks :	400
Display Marks:	Yes

PGQP52

Group Number :	1
Group Id :	864351344
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	400
Is this Group for Examiner? :	No

PART A - General

Section Id :	8643511232
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

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Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511465
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 86435130130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct option :

You may feel relieved when something bad _____.

1. happens
2. does not happen
3. is remembered
4. occurs

Options :

864351104971. 1

864351104972. 2

864351104973. 3

864351104974. 4

Question Number : 2 Question Id : 86435130131 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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Select the most suitable synonym :

BARBARIAN

1. impolite
2. unkind
3. uncivilized
4. unlikeness

Options :

864351104975. 1

864351104976. 2

864351104977. 3

864351104978. 4

Question Number : 3 Question Id : 86435130132 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which is the closest meaning of the phrase ***to be hard of hearing*** ?

1. deaf
2. deaf and dumb
3. careless
4. arrogant

Options :

864351104979. 1

864351104980. 2

864351104981. 3

864351104982. 4

Question Number : 4 Question Id : 86435130133 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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Identify the meaning of the idiom from the options given :

In black and white

1. useless
2. in short
3. in writing
4. in full swing

Options :

864351104983. 1

864351104984. 2

864351104985. 3

864351104986. 4

Question Number : 5 Question Id : 86435130134 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable antonym :

RAPTURE

1. despair
2. elation
3. ecstasy
4. hell

Options :

864351104987. 1

864351104988. 2

864351104989. 3

864351104990. 4

Question Number : 6 Question Id : 86435130135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

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Correct Marks : 4 Wrong Marks : 1

Complete the second sentence by selecting the appropriate option :

One way to improve your health is to eat more fruit and vegetables. Alternatively _____ .

1. you could fall ill
2. you could go on diet
3. you could exercise more
4. you could increase risk of your heart disease

Options :

864351104991. 1

864351104992. 2

864351104993. 3

864351104994. 4

Question Number : 7 Question Id : 86435130136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with right word :

An employee might be given a privilege as a form of _____.

1. punishment
2. reward
3. increment
4. commendation

Options :

864351104995. 1

864351104996. 2

864351104997. 3

864351104998. 4

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Question Number : 8 Question Id : 86435130137 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct option for use of 'the' :

1. the Delhi
2. the city of Delhi
3. the southern India
4. the long island

Options :

864351104999. 1

864351105000. 2

864351105001. 3

864351105002. 4

Question Number : 9 Question Id : 86435130138 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with correct preposition :

I am worried _____ exam.

1. on
2. in
3. about
4. of

Options :

864351105003. 1

864351105004. 2

864351105005. 3

864351105006. 4

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Question Number : 10 Question Id : 86435130139 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the idiom from the options given :

Hit the road

1. end the journey
2. an accident
3. begin the journey
4. happy times

Options :

864351105007. 1

864351105008. 2

864351105009. 3

864351105010. 4

Question Number : 11 Question Id : 86435130140 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What will come in place of the question mark (?) in the expression?

$4003 \times 77 - 21015 = ? \times 116$

1. 2467
2. 2476
3. 2477
4. 2478

Options :

864351105011. 1

864351105012. 2

864351105013. 3

864351105014. 4

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Question Number : 12 Question Id : 86435130141 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : For making statues, we are using bronze.

Reason R : Through the mixing of copper and tin, we produce bronze.

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

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

Options :

864351105015. 1

864351105016. 2

864351105017. 3

864351105018. 4

Question Number : 13 Question Id : 86435130142 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The sum of five numbers is 260. The average of the first two numbers is 30 and the average of the last two numbers is 70. What is the third number?

1. 40
2. 50
3. 55
4. 60

Options :

864351105019. 1

864351105020. 2

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864351105021. 3

864351105022. 4

Question Number : 14 Question Id : 86435130143 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Thirty-six workers can finish a piece of work in 14 days. If the work is to be completed in 8 days, how many extra workers are required?

1. 20
2. 23
3. 27
4. 29

Options :

864351105023. 1

864351105024. 2

864351105025. 3

864351105026. 4

Question Number : 15 Question Id : 86435130144 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What should come in the blank space in the following number series?

0, 2, _____, 18, 32, 50

1. 5
2. 6
3. 7
4. 8

Options :

864351105027. 1

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864351105028. 2

864351105029. 3

864351105030. 4

Question Number : 16 Question Id : 86435130145 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Three of the following four are alike in certain way based on the English alphabetical series and so form a group. Which is the one that does not belong to that group?

1. WXST
2. HCDE
3. QRMN
4. IJEF

Options :

864351105031. 1

864351105032. 2

864351105033. 3

864351105034. 4

Question Number : 17 Question Id : 86435130146 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If every alternate Saturdays and all Sundays are holidays in a 30 days month beginning on Saturday, then how many working days are there in that month?

1. 21
2. 22
3. 23
4. 24

Options :

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864351105035. 1

864351105036. 2

864351105037. 3

864351105038. 4

Question Number : 18 Question Id : 86435130147 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Pointing to a woman in the photograph, Neetu said, "Her son's father is the son-in-law of my mother". How is Neetu related to the woman?

1. Mother
2. Sister
3. Aunt
4. Mother-in-law

Options :

864351105039. 1

864351105040. 2

864351105041. 3

864351105042. 4

Question Number : 19 Question Id : 86435130148 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Suneeta travelled 5 km towards east direction. She turned right and went for 3 km. Then she turned west and travelled for 1 km. How far is she from the starting point?

1. 3 km
2. 5 km
3. 9 km
4. 10 km

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Options :

864351105043. 1

864351105044. 2

864351105045. 3

864351105046. 4

Question Number : 20 Question Id : 86435130149 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a certain code, TEMPORAL is written as OLDSMBSP. How is CONSIDER written in that code?

1. RMNBSFEJ
2. BNMRSFEJ
3. RMNBJEFS
4. TOPDQDCH

Options :

864351105047. 1

864351105048. 2

864351105049. 3

864351105050. 4

Question Number : 21 Question Id : 86435130150 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Whose creations are *Harshacharita and Kadambari*?

1. Kalhana
2. Panini
3. Banabhatta
4. Patanjali

Options :

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864351105051. 1

864351105052. 2

864351105053. 3

864351105054. 4

Question Number : 22 Question Id : 86435130151 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Present-day Istanbul in Turkey was earlier known as

1. Ankara
2. Ottoman
3. Constantinople
4. Byzantine

Options :

864351105055. 1

864351105056. 2

864351105057. 3

864351105058. 4

Question Number : 23 Question Id : 86435130152 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Space X is

1. an Indian autogiant
2. a movie on space
3. name of a spy agency
4. an American private space company

Options :

864351105059. 1

864351105060. 2

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864351105061. 3

864351105062. 4

Question Number : 24 Question Id : 86435130153 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

UN day is celebrated on

1. 26th November
2. 24th November
3. 26th October
4. 24th October

Options :

864351105063. 1

864351105064. 2

864351105065. 3

864351105066. 4

Question Number : 25 Question Id : 86435130154 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The famous novel, *Middlemarch* was written by

1. George Eliot
2. William Wordsworth
3. William Shakespeare
4. Ruskin Bond

Options :

864351105067. 1

864351105068. 2

864351105069. 3

864351105070. 4

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PART B - MICROELECTRONICS & VLSI

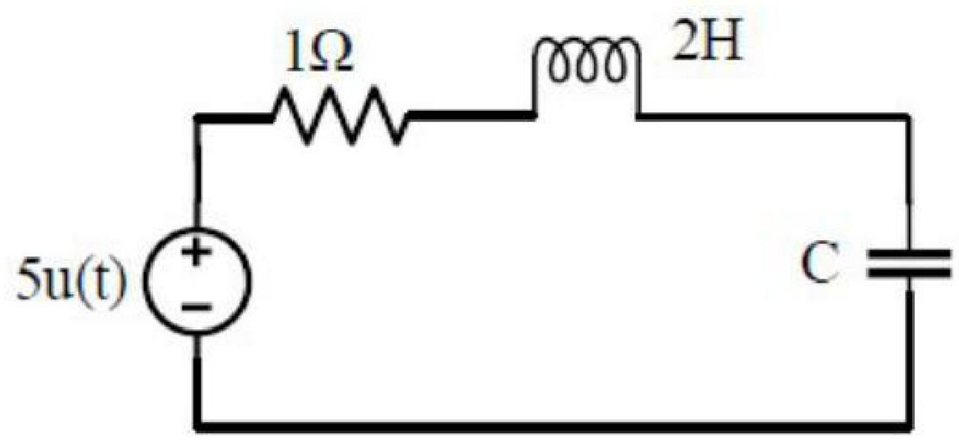
Section Id :	8643511233
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511466
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 86435130155 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of C which gives the critical damping in the given circuit is



1. 2 F
2. 4 F
3. 8 F
4. 1 F

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Options :

864351105071. 1

864351105072. 2

864351105073. 3

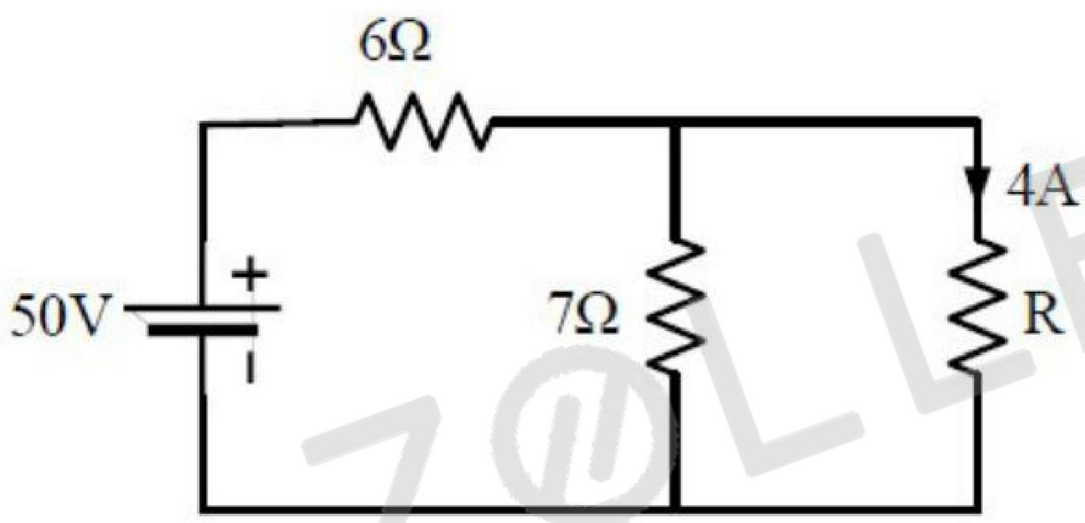
864351105074. 4

Question Number : 27 Question Id : 86435130156 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of resistance R shown in the given figure is



1. 3.5 Ω
2. 2.5 Ω
3. 1 Ω
4. 4.5 Ω

Options :

864351105075. 1

864351105076. 2

864351105077. 3

864351105078. 4

Question Number : 28 Question Id : 86435130157 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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In sigma-delta ADC high bit accuracy is achieved by

1. over sampling
2. under sampling
3. no-sampling
4. None of these

Options :

864351105079. 1

864351105080. 2

864351105081. 3

864351105082. 4

Question Number : 29 Question Id : 86435130158 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Gray code for number 7 is

1. 1001
2. 1100
3. 0100
4. 0110

Options :

864351105083. 1

864351105084. 2

864351105085. 3

864351105086. 4

Question Number : 30 Question Id : 86435130159 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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An electromagnetic wave incident on a perfect electric conductor is

1. entirely reflected
2. entirely transmitted
3. partially reflected
4. partially transmitted

Options :

864351105087. 1

864351105088. 2

864351105089. 3

864351105090. 4

Question Number : 31 Question Id : 86435130160 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following does not exist in waveguide?

1. TE wave
2. TM wave
3. TEM wave
4. None of these

Options :

864351105091. 1

864351105092. 2

864351105093. 3

864351105094. 4

Question Number : 32 Question Id : 86435130161 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

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Correct Marks : 4 Wrong Marks : 1

In the capacitor, the electric charge is stored in

1. dielectric
2. metal plate
3. dielectric as well as metal plate
4. neither dielectric nor metal plate

Options :

864351105095. 1

864351105096. 2

864351105097. 3

864351105098. 4

Question Number : 33 Question Id : 86435130162 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When L is doubled and C is halved, the resonance frequency of series tuned circuit becomes

1. Doubled
2. Halved
3. One quarter
4. Unchanged

Options :

864351105099. 1

864351105100. 2

864351105101. 3

864351105102. 4

Question Number : 34 Question Id : 86435130163 Question Type : MCQ Option Shuffling : No

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Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Mark the incorrect relation

1. $J=\sigma E$
2. $B=\mu D$
3. $D=\varepsilon E$
4. $B=\mu H$

Options :

864351105103. 1

864351105104. 2

864351105105. 3

864351105106. 4

Question Number : 35 Question Id : 86435130164 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The channel capacity under the Gaussian noise environment for a discrete memoryless channel with a bandwidth of 4MHz and SNR of 31 is

1. 20 Mbps
2. 8 Kbps
3. 4 Kbps
4. 4 Mbps

Options :

864351105107. 1

864351105108. 2

864351105109. 3

864351105110. 4

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Question Number : 36 Question Id : 86435130165 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Laplace transform of $t^2 + 2t + 3$ is

1. $-\frac{2}{s^3} - \frac{2}{s^2} - \frac{3}{s}$
2. $\frac{2}{s^3} - \frac{2}{s^2} + \frac{3}{s}$
3. $\frac{2}{s^3} + \frac{2}{s^2} - \frac{3}{s}$
4. $\frac{2}{s^3} + \frac{2}{s^2} + \frac{3}{s}$

Options :

864351105111. 1

864351105112. 2

864351105113. 3

864351105114. 4

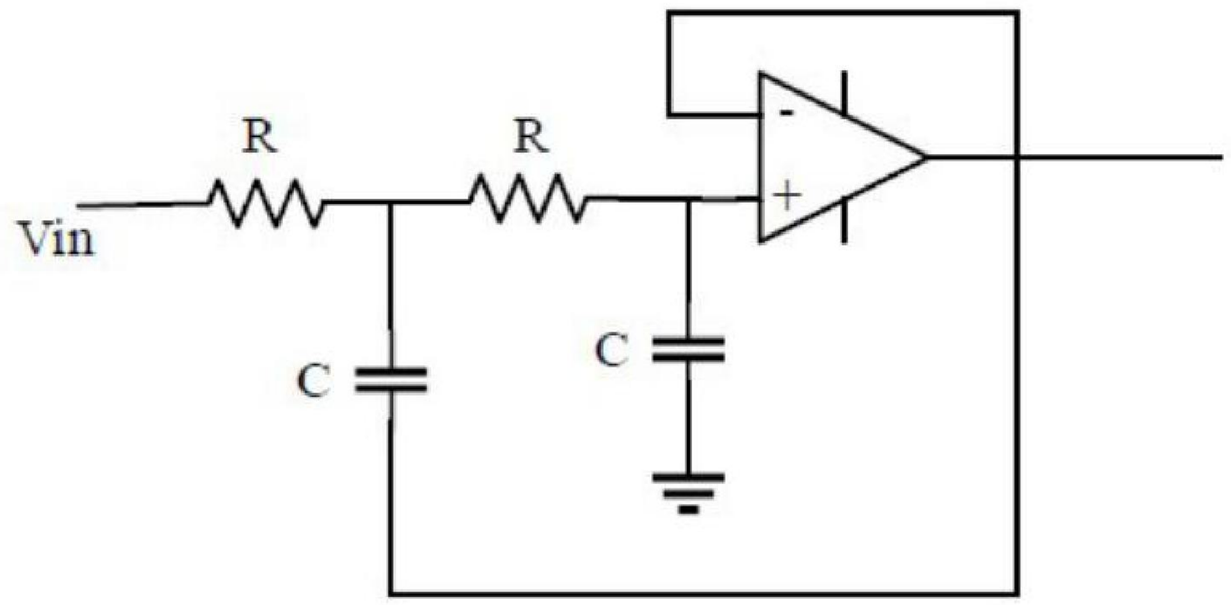
Question Number : 37 Question Id : 86435130166 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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The circuit shown in Figure is



1. High pass filter
2. Band pass filter
3. Low pass filter
4. Band reject filter

Options :

864351105115. 1

864351105116. 2

864351105117. 3

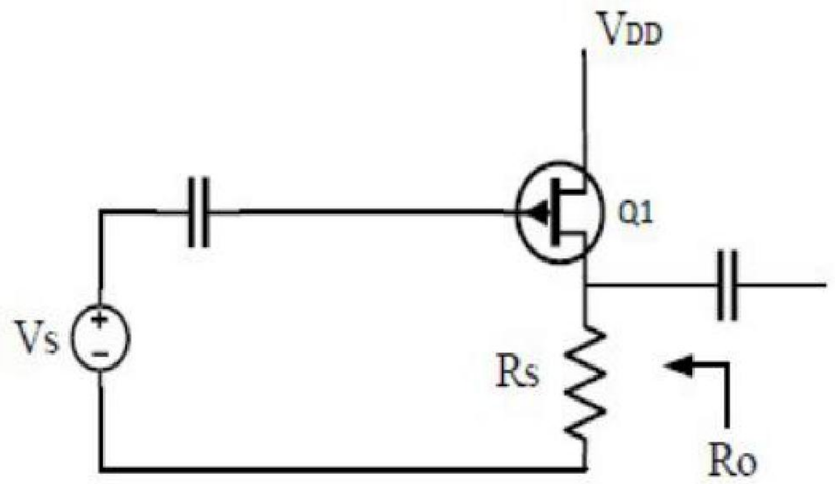
864351105118. 4

Question Number : 38 Question Id : 86435130167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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For the circuit shown below, if $g_m=3\times10^{-3}$ and $R_s=3000\Omega$, then the approximate value of R_o is



1. 3000 Ω
2. 1000/3 Ω
3. 300 Ω
4. 100 Ω

Options :

864351105119. 1

864351105120. 2

864351105121. 3

864351105122. 4

Question Number : 39 Question Id : 86435130168 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Where does the operating point of a class-B power amplifier lie?

1. At the middle of a.c. load line
2. approximately at collector cut-off on both the d.c. and a.c. load lines
3. inside the collector cut-off region on a.c. load line
4. at the middle of d.c. load line

Options :

864351105123. 1

864351105124. 2

864351105125. 3

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864351105126. 4

Question Number : 40 Question Id : 86435130169 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The following transistor configuration has the highest input impedance

1. CC
2. CB
3. CE
4. All of these

Options :

864351105127. 1

864351105128. 2

864351105129. 3

864351105130. 4

Question Number : 41 Question Id : 86435130170 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An 8-bit ADC has a full-scale input of 2.55V. If other cumulative errors are 2.55mV, the maximum error will be

1. 10 mV
2. 7.45 mV
3. 12.55 mV
4. 2.55 mV

Options :

864351105131. 1

864351105132. 2

864351105133. 3

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864351105134. 4

Question Number : 42 Question Id : 86435130171 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A counter is designed with six stages of Flip-Flops. Determine the output frequency at the sixth (last) stage, when the input frequency is 1MHz.

1. 1 MHz
2. 160 KHz
3. 15.625 KHz
4. 1.562 KHz

Options :

864351105135. 1

864351105136. 2

864351105137. 3

864351105138. 4

Question Number : 43 Question Id : 86435130172 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Minimum number of 2-input NAND gates that will be required to implement the function Y=AB+CD+EF is

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

Options :

864351105139. 1

864351105140. 2

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864351105141. 3

864351105142. 4

Question Number : 44 Question Id : 86435130173 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Laplace transform of e^{-2t} is

1. 1/s
2. 2/s
3. 2/(s+1)
4. 1/(s+2)

Options :

864351105143. 1

864351105144. 2

864351105145. 3

864351105146. 4

Question Number : 45 Question Id : 86435130174 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

As compared to a full-wave rectifier using two diodes, the four-diode bridge rectifier has the dominant advantage of

1. higher current carrying capacity
2. lower peak inverse voltage
3. lower ripple factor
4. higher efficiency

Options :

864351105147. 1

864351105148. 2

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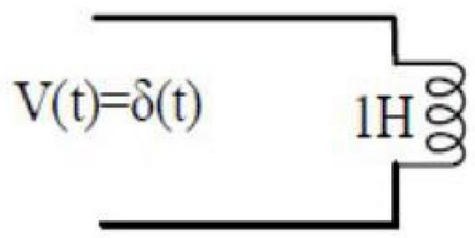
864351105149. 3

864351105150. 4

Question Number : 46 Question Id : 86435130175 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When a unit impulse voltage is applied to an inductor of 1H, the energy supplied by the source is



1. ∞
2. $\frac{1}{2}$ J
3. 1 J
4. 0

Options :

864351105151. 1

864351105152. 2

864351105153. 3

864351105154. 4

Question Number : 47 Question Id : 86435130176 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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The divergence of magnetic flux density is

1. j
2. ρ
3. 0
4. ∞

Options :

864351105155. 1

864351105156. 2

864351105157. 3

864351105158. 4

Question Number : 48 Question Id : 86435130177 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An audio frequency of 15KHz is frequency modulated with a deviation of 75 KHz. The resulting bandwidth is

1. 180 KHz
2. 150 KHz
3. 210 KHz
4. 240 KHz

Options :

864351105159. 1

864351105160. 2

864351105161. 3

864351105162. 4

Question Number : 49 Question Id : 86435130178 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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A 1 KW carrier is amplitude modulated to a depth of 60%. The total power in the modulated carrier is

1. 1.08 KW
2. 1.06 KW
3. 1.6 KW
4. 1.18 KW

Options :

864351105163. 1

864351105164. 2

864351105165. 3

864351105166. 4

Question Number : 50 Question Id : 86435130179 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The closed loop transfer function of a unity feedback control system is $G(s) = \frac{1}{(s+2)^2}$. The closed loop transfer function will have poles at

1. $-2, \pm j$
2. $-2, -2$
3. $-2, -1$
4. $-2, 2$

Options :

864351105167. 1

864351105168. 2

864351105169. 3

864351105170. 4

Question Number : 51 Question Id : 86435130180 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

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Correct Marks : 4 Wrong Marks : 1

When signal frequency is 2000KHz and IF is 455 KHz, the image frequency could be

1. 2910
2. 2090
3. 2455
4. 1645

Options :

864351105171. 1

864351105172. 2

864351105173. 3

864351105174. 4

Question Number : 52 Question Id : 86435130181 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following conditions will not guarantee distortionless line?

1. R=0, G=0
2. Very low frequency range (R>>ωL, G>>ωC)
3. Very high frequency range (R<<ωL, G<<ωC)
4. $\frac{R}{L} = \frac{G}{C}$

Options :

864351105175. 1

864351105176. 2

864351105177. 3

864351105178. 4

Question Number : 53 Question Id : 86435130182 Question Type : MCQ Option Shuffling : No

ZOLLEGE.in

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A memory system of size 16K bytes is required to be designed using memory chips which have 12 addresses lines and 4 data lines each. Then the number of such chip required to design the memory system is

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

Options :

864351105179. 1

864351105180. 2

864351105181. 3

864351105182. 4

Question Number : 54 Question Id : 86435130183 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The impedance of a series RLC circuit is

1. $\sqrt{R^2 + X_L^2 + X_c^2}$
2. $\sqrt{R^2 + X_L^2 - X_c^2}$
3. $\sqrt{R^2 + (X_L + X_c)^2}$
4. $\sqrt{R^2 + (X_L - X_c)^2}$

Options :

864351105183. 1

864351105184. 2

864351105185. 3

864351105186. 4

ZOLLEGE.in

Question Number : 55 Question Id : 86435130184 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Convolution of x(t+5) with impulse function $\bar{o}(t-7)$ is equal to

1. x(t–2)
2. x(t–12)
3. x(t+12)
4. x(t+2)

Options :

864351105187. 1

864351105188. 2

864351105189. 3

864351105190. 4

Question Number : 56 Question Id : 86435130185 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\lim_{x\to 0} x \log \sin(x)$ is

1. 0
2. ½
3. 1
4. 2

Options :

864351105191. 1

864351105192. 2

864351105193. 3

864351105194. 4

ZOLLEGE.in

Question Number : 57 Question Id : 86435130186 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following types of devices is not field programmable?

1. FPGA
2. CPLD
3. ASIC
4. PLD

Options :

864351105195. 1

864351105196. 2

864351105197. 3

864351105198. 4

Question Number : 58 Question Id : 86435130187 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A power MOSFET is

1. current controlled device
2. frequency controlled device
3. voltage controlled device
4. None of these

Options :

864351105199. 1

864351105200. 2

864351105201. 3

864351105202. 4

ZOLLEGE.in

Question Number : 59 Question Id : 86435130188 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The advantage of differential PSK (DPSK) over coherent PSK is

1. DPSK required less bandwidth compared to coherent PSK
2. DPSK receiver design is simple compared to coherent PSK
3. DPSK Bit-Error rate is lower than coherent PSK
4. for same bandwidth, DPSK bit rate is higher compared to coherent PSK

Options :

864351105203. 1

864351105204. 2

864351105205. 3

864351105206. 4

Question Number : 60 Question Id : 86435130189 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An idle current meter should have

1. zero resistance
2. finite resistance
3. infinite resistance
4. very large resistance

Options :

864351105207. 1

864351105208. 2

864351105209. 3

864351105210. 4

ZOLLEGE.in

Question Number : 61 Question Id : 86435130190 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is correct?

1. $\nabla . J = \frac{\partial \rho}{\partial t}$
2. $\nabla . J = 0$
3. $\nabla . J = -\frac{\partial \rho}{\partial t}$
4. $\nabla . J = \frac{\partial E}{\partial t}$

Options :

864351105211. 1

864351105212. 2

864351105213. 3

864351105214. 4

Question Number : 62 Question Id : 86435130191 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A mealy state machine's output depends on

1. state and output
2. input
3. state
4. state and inputs

Options :

864351105215. 1

864351105216. 2

864351105217. 3

864351105218. 4

ZOLLEGE.in

Question Number : 63 Question Id : 86435130192 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A differential amplifier is used in the input stage of OP-AMP to achieve very high

1. open loop gain
2. bandwidth
3. slew rate
4. CMRR

Options :

864351105219. 1

864351105220. 2

864351105221. 3

864351105222. 4

Question Number : 64 Question Id : 86435130193 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If every order of minor 'r' of a matrix 'A' is zero then rank of 'A' is

1. greater than 'r'
2. equal to 'r'
3. less than or equal to 'r'
4. less than 'r'

Options :

864351105223. 1

864351105224. 2

864351105225. 3

864351105226. 4

ZOLLEGE.in

Question Number : 65 Question Id : 86435130194 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The content of the accumulator of 8085 microprocessor after execution of the following instructions will be

MVI A, $A7_H$
ORA A
RLC

1. FF_H
2. $3F_H$
3. $4F_H$
4. CE_H

Options :

864351105227. 1

864351105228. 2

864351105229. 3

864351105230. 4

Question Number : 66 Question Id : 86435130195 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following principles is applied while designing the output matching network for a high-power Class-C amplifier?

1. Norton's Theorem
2. Thevenin's Theorem
3. Maximum Power Transfer Theorem
4. Power=V^2/R_L

Options :

864351105231. 1

864351105232. 2

ZOLLEGE.in

864351105233. 3

864351105234. 4

Question Number : 67 Question Id : 86435130196 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Ampere's Law relates

1. Electric field and charge
2. Magnetic field and charge
3. Electric field and current
4. Magnetic field and current

Options :

864351105235. 1

864351105236. 2

864351105237. 3

864351105238. 4

Question Number : 68 Question Id : 86435130197 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What does the following integral evaluate to?

$$\int_0^{\frac{\pi}{2}} sin^6\theta . d\theta$$

1. 5π/8
2. 5π/16
3. 5π/32
4. 0

Options :

ZOLLEGE.in

864351105239. 1

864351105240. 2

864351105241. 3

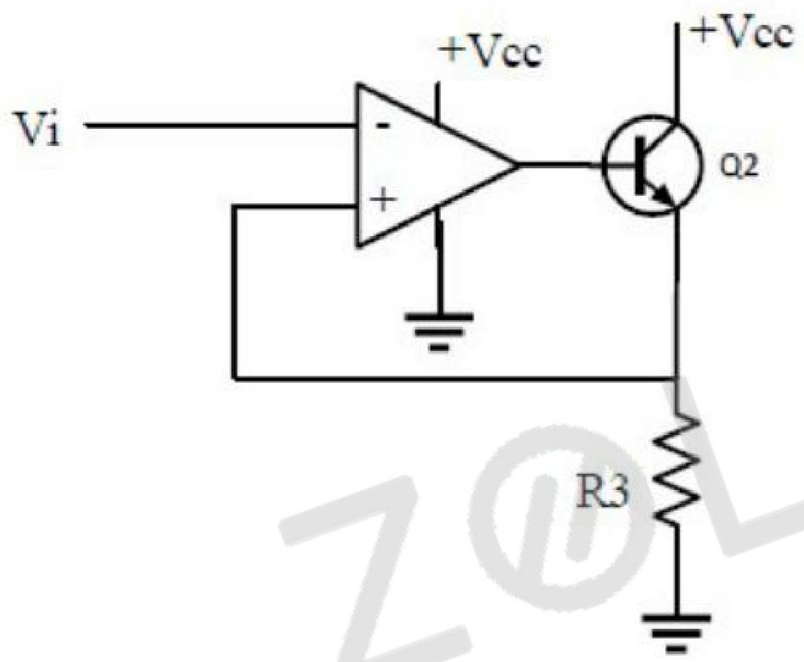
864351105242. 4

Question Number : 69 Question Id : 86435130198 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Assume that V_i=2V, R3=10Ω, β of Q_1=50, Vcc=15V, Find out I_{out}



1. 3.92 mA
2. 6.84 mA
3. 5.33 mA
4. 2.8 mA

Options :

864351105243. 1

864351105244. 2

864351105245. 3

864351105246. 4

Question Number : 70 Question Id : 86435130199 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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An amplifier is assumed to have a single-pole high-frequency transfer function. The rise time of its output response to a step function input is 35 nsec. The upper 3 dB frequency (in MHz) for the amplifier to as sinusoidal input is approximately at

1. 4.55
2. 10
3. 20
4. 28.6

Options :

864351105247. 1

864351105248. 2

864351105249. 3

864351105250. 4

Question Number : 71 Question Id : 86435130200 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For a fast communication which of the following requirements have to be met?

1. Large bandwidth
2. High S/N ratio
3. High channel capacity
4. None of these

Options :

864351105251. 1

864351105252. 2

864351105253. 3

864351105254. 4

Question Number : 72 Question Id : 86435130201 Question Type : MCQ Option Shuffling : No

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Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The transistor amplifier with 85% of efficiency is likely to be

1. Class A
2. Class B
3. Class AB
4. Class C

Options :

864351105255. 1

864351105256. 2

864351105257. 3

864351105258. 4

Question Number : 73 Question Id : 86435130202 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$(\cos 5\theta - i \sin 5\theta)^2$ is same as

1. $\cos 10\theta + i \sin 10\theta$
2. $\cos 25\theta - i \sin 25\theta$
3. $(\cos \theta + i \sin \theta)^{-10}$
4. $(\cos \theta - i \sin \theta)^{-10}$

Options :

864351105259. 1

864351105260. 2

864351105261. 3

864351105262. 4

Question Number : 74 Question Id : 86435130203 Question Type : MCQ Option Shuffling : No

ZOLLEGE.in

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The modulation index of an amplitude modulated wave is changed from 0 to 1. The transmitted power is

1. doubled
2. halved
3. increased by 50%
4. unchanged

Options :

864351105263. 1

864351105264. 2

864351105265. 3

864351105266. 4

Question Number : 75 Question Id : 86435130204 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When VSWR is 3, the magnitude of the reflection coefficient will be

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

Options :

864351105267. 1

864351105268. 2

864351105269. 3

864351105270. 4

ZOLLEGE.in

Question Number : 76 Question Id : 86435130205 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In satellite communication frequency modulation is used because satellite channel has

1. high modulation index
2. large bandwidth and severe noise
3. small bandwidth and negligible noise
4. maximum bandwidth and minimum noise

Options :

864351105271. 1

864351105272. 2

864351105273. 3

864351105274. 4

Question Number : 77 Question Id : 86435130206 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If α and β are the roots of the equation $x^2 - px + q$=0, then $\sum \alpha^2$ is

1. $p^2 + 2q$
2. $p + 2q$
3. $p^2 - 2q$
4. $p - 2q$

Options :

864351105275. 1

864351105276. 2

864351105277. 3

864351105278. 4

ZOLLEGE.in

Question Number : 78 Question Id : 86435130207 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The band gap of elements arranged in ascending order is

1. Diamond, Ge, Si
2. Si, Ge, Diamond
3. Ge, Si, Diamond
4. Diamond, Si, Ge

Options :

864351105279. 1

864351105280. 2

864351105281. 3

864351105282. 4

Question Number : 79 Question Id : 86435130208 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a feedback series regulator circuit, the output voltage is regulated by controlling the

1. magnitude of the I/P voltage
2. gain of the feedback transistor
3. voltage drops across the series pass transistor
4. reference voltages

Options :

864351105283. 1

864351105284. 2

864351105285. 3

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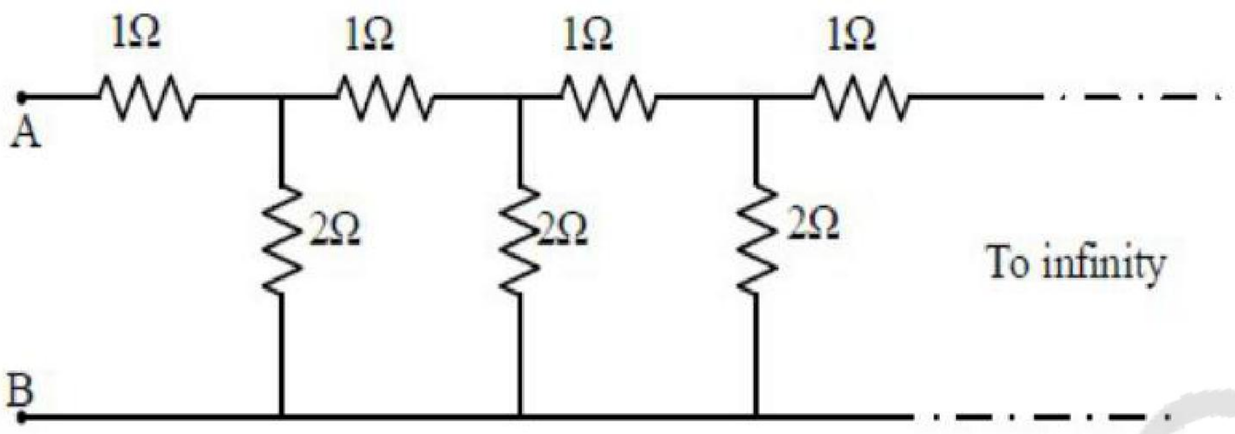
864351105286. 4

Question Number : 80 Question Id : 86435130209 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The approximate equivalent resistance between terminal A and B for the following infinite ladder network comprising of 1Ω and 2Ω resistor is



1. 0.5 Ω

2. 1 Ω

3. 2 Ω

4. 4 Ω

Options :

864351105287. 1

864351105288. 2

864351105289. 3

864351105290. 4

Question Number : 81 Question Id : 86435130210 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ZOLLEGE.in

A student 'X' can solve 80% of question paper and student 'Y' can solve 60%. The probability that at least one of the them will solve a problem from the question paper selected at random is

1. 0.48
2. 0.70
3. 0.88
4. 0.92

Options :

864351105291. 1

864351105292. 2

864351105293. 3

864351105294. 4

Question Number : 82 Question Id : 86435130211 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The current flowing through a capacitor in an AC circuit is

1. non-existent
2. conduction current
3. displacement current
4. None of these

Options :

864351105295. 1

864351105296. 2

864351105297. 3

864351105298. 4

Question Number : 83 Question Id : 86435130212 Question Type : MCQ Option Shuffling : No

ZOLLEGE.in

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Schottky clamping is resorted in TTL gate

1. to reduce propagation delay
2. to increase noise margin
3. to increase packing density
4. to increase fan-out

Options :

864351105299. 1

864351105300. 2

864351105301. 3

864351105302. 4

Question Number : 84 Question Id : 86435130213 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If for a silicon NPN transistor, the base-to-emitter voltage (V_{BE}) is 0.7V and the collector-to-base voltage (V_{CB}) is 0.2 V, then the transistor is operating in the

1. normal active mode
2. saturation mode
3. inverse active mode
4. cut-off mode

Options :

864351105303. 1

864351105304. 2

864351105305. 3

864351105306. 4

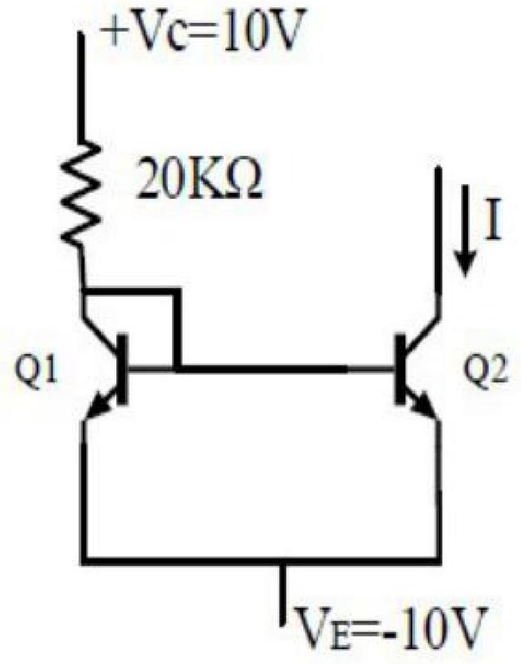
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Question Number : 85 Question Id : 86435130214 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For the current mirror circuit shown below, if the emitter area of Q2 is thrice of Q1, the current I is (assume transistor is Ge transistor)



1. 0.328 mA
2. 0.105 mA
3. 2.955 mA
4. 0.012 mA

Options :

864351105307. 1

864351105308. 2

864351105309. 3

864351105310. 4

Question Number : 86 Question Id : 86435130215 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ZOLLEGE.in

Output of an OP-AMP is 1V peak and slew rate is 5V/μs. The maximum frequency of input sinusoidal signal that can be reproduced is

1. 398 Hz
2. 796 KHz
3. 796 Hz
4. 398 KHz

Options :

864351105311. 1

864351105312. 2

864351105313. 3

864351105314. 4

Question Number : 87 Question Id : 86435130216 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A sine wave is applied to a balanced modulator. The peak output envelop power is 1000 times the minimum output envelope power. Estimate the carrier suppression in dBc.

1. 30 dBc
2. 36 dBc
3. 24 dBc
4. 40 dBc

Options :

864351105315. 1

864351105316. 2

864351105317. 3

864351105318. 4

Question Number : 88 Question Id : 86435130217 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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An impedance of –10–j2 ohms is connected to another impedance of 45+j5 ohms through a transmission line having a characteristic impedance of 50 ohms. Assess the stability of this circuit.

1. Highly stable
2. Highly unstable
3. Marginally unstable
4. Stability cannot be determined from the given information

Options :

864351105319. 1

864351105320. 2

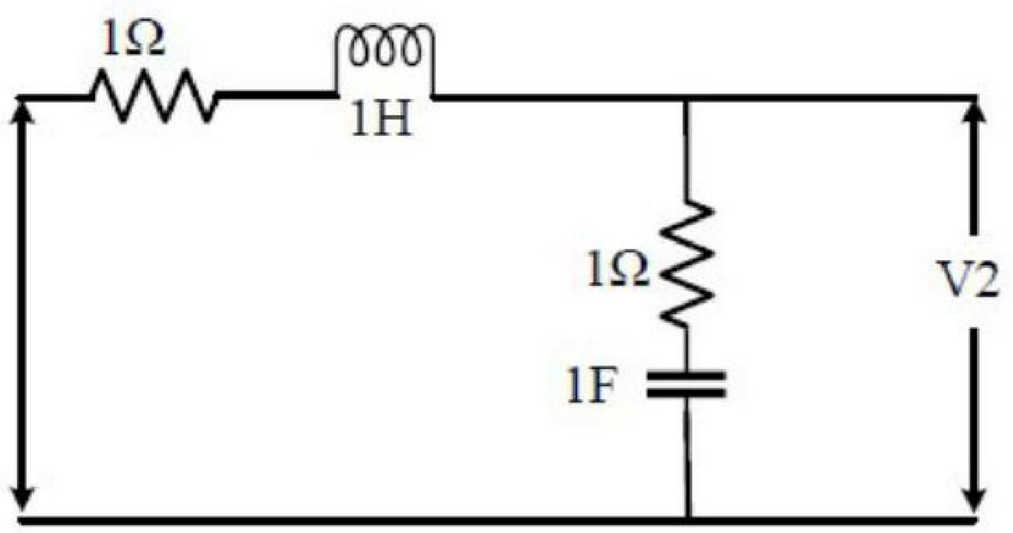
864351105321. 3

864351105322. 4

Question Number : 89 Question Id : 86435130218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the transfer function of the network given below?



1. (s+1)/(2s+1)
2. 1/(1+s)
3. 1/(1+2s)
4. $1/(s^2+2s+1)$

Options :

864351105323. 1

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864351105324. 2

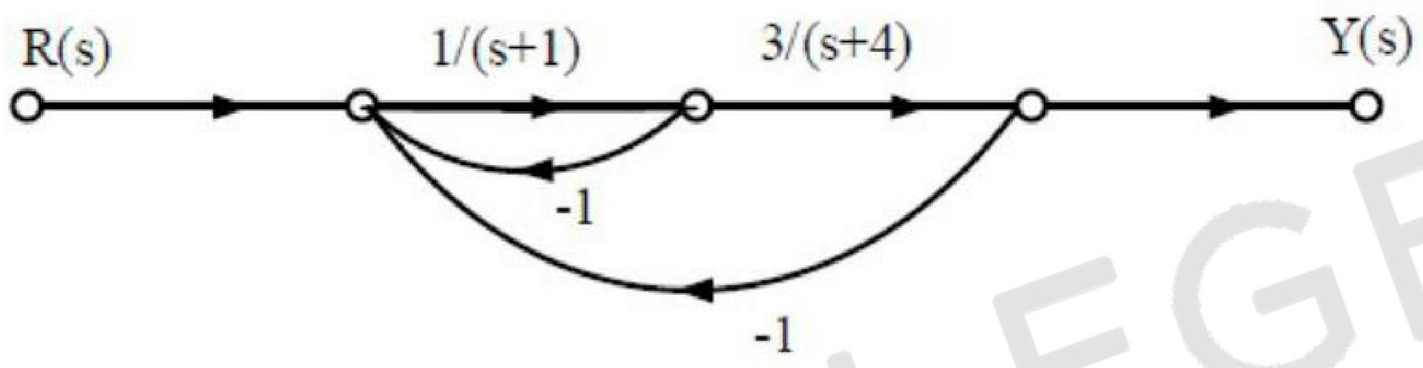
864351105325. 3

864351105326. 4

Question Number : 90 Question Id : 86435130219 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For the flow diagram shown below in Figure, the transfer function $\frac{Y(s)}{R(s)}$ is



1. $\frac{3}{s^2+6s+11}$
2. $\frac{3}{s^2+6s+8}$
3. $\frac{3}{s^2+5s+4}$
4. $\frac{-3}{s^2+6s+11}$

Options :

864351105327. 1

864351105328. 2

864351105329. 3

864351105330. 4

Question Number : 91 Question Id : 86435130220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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One way in which the operation of an NPN transistor differs from that of a PNP transistor is that,

1. the emitter junction is reversed-biased in the NPN

2. the emitter injects minority carriers into the base region of the PNP and majority carriers in the base region of the NPN

3. the emitter injects holes into the base region of the PNP and electrons into the base region of the NPN

4. the emitter injects electrons into the base region of the PNP and holes into the base region of the NPN

Options :

864351105331. 1

864351105332. 2

864351105333. 3

864351105334. 4

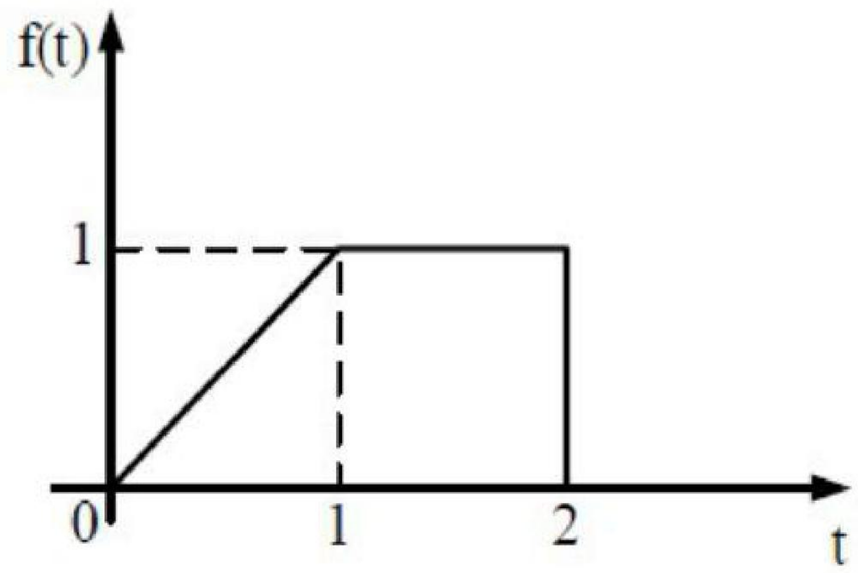
Question Number : 92 Question Id : 86435130221 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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The function f(t) shown in the given Figure will have Laplace transform as



1. $\frac{1}{s^2} - \frac{1}{s}e^{-s} - \frac{1}{s^2}e^{-2s}$
2. $\frac{1}{s^2}(1 - e^{-s} - e^{-2s})$
3. $\frac{1}{s}(1 - e^{-s} - e^{-2s})$
4. $\frac{1}{s^2}(1 - e^{-s} - se^{-2s})$

Options :

864351105335. 1

864351105336. 2

864351105337. 3

864351105338. 4

Question Number : 93 Question Id : 86435130222 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The main component responsible for the fall of gain of an RC-coupled amplifier in low-frequency range is

1. the active device itself
2. coupling capacitor (C_c)
3. stray shunt capacitance (C_s)
4. the grid leak resistor (R_G)

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Options :

864351105339. 1

864351105340. 2

864351105341. 3

864351105342. 4

Question Number : 94 Question Id : 86435130223 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The voltage gain of an amplifier is 100. On applying negative feedback with β=0.03, its gain will reduce to

1. 70
2. 99.97
3. 25
4. 3

Options :

864351105343. 1

864351105344. 2

864351105345. 3

864351105346. 4

Question Number : 95 Question Id : 86435130224 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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The system with the open loop transfer function $G(s)H(s) = \frac{1}{s(s^2+S+1)}$ has a gain margin of

1. –6 dB
2. 0 dB
3. 35 dB
4. 6 dB

Options :

864351105347. 1

864351105348. 2

864351105349. 3

864351105350. 4

Question Number : 96 Question Id : 86435130225 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A fair coin is tossed independently four times. The probability of the event "the number of times heads shown up is more than the number of times tail shown up" is

1. 1/16
2. 1/4
3. 1/3
4. 5/16

Options :

864351105351. 1

864351105352. 2

864351105353. 3

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864351105354. 4

Question Number : 97 Question Id : 86435130226 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A silicon PN junction is forward biased with a constant current at room temperature. When the temperature is increased by 10°C, the forward bias voltage across the PN junction

1. increases by 60 mV
2. decreases by 60 mV
3. increases by 25 mV
4. decreases by 25 mV

Options :

864351105355. 1

864351105356. 2

864351105357. 3

864351105358. 4

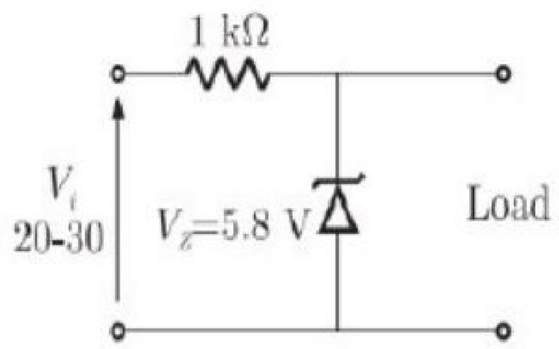
Question Number : 98 Question Id : 86435130227 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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The Zener diode in the regulator circuit shown in the figure has a Zener voltage of 5.8 volts and a Zener knee current of 0.5 mA. The maximum load current drawn from this current ensuring proper functioning over the input voltage range between 20 and 30 volts, is



1. 23.7 mA
2. 14.2 mA
3. 13.7 mA
4. 24.2 mA

Options :

864351105359. 1

864351105360. 2

864351105361. 3

864351105362. 4

Question Number : 99 Question Id : 86435130228 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The ROC of z-transform of the discrete time sequence $x(n) = \left(\frac{1}{3}\right)^n u(n) - \left(\frac{1}{2}\right)^n u(-n-1)$ is

1. $|z| < 1/3$
2. $|z| > 1/2$
3. $2 < |z| < 3$
4. $1/3 < |z| < 1/2$

Options :

ZOLLEGE.in

864351105363. 1

864351105364. 2

864351105365. 3

864351105366. 4

Question Number : 100 Question Id : 86435130229 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A rectangular waveguide of internal dimensions (a = 4 cm and b = 3 cm) is to be operated in *TE*11 mode. The minimum operating frequency is

1. 6.25 GHz
2. 6.0 GHz
3. 5.0 GHz
4. 3.75 GHz

Options :

864351105367. 1

864351105368. 2

864351105369. 3

864351105370. 4

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