



Uttar Pradesh Metro Rail Corporation Limited

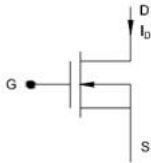
उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लिमिटेड

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Participant ID	
Participant Name	
Test Center Name	
Test Date	14/05/2024
Test Time	12:30 PM - 2:30 PM
Subject	Maintainer S and T

Section : Section A

Q.1



The given symbol represents:

- Ans
- A. N-channel enhancement type MOSFET
 - B. P-channel depletion type MOSFET
 - C. P-channel enhancement type MOSFET
 - D. N-channel depletion type MOSFET

Question ID : 630680774893
Status : Answered
Chosen Option : A

Q.2 Identify whether the following statements are true or false.

Statement 1:

Rectifier efficiency is defined as the ratio of output DC power to the applied input AC power.

Statement 2:

The maximum efficiency of a half wave rectifier is 46%.

- Ans
- A. Both the statements are true
 - B. Only statement 1 is true
 - C. Only statement 2 is true
 - D. Both the statements are false

Question ID : 630680774877
Status : Answered
Chosen Option : B

Q.3 Which of the following statements is true for the switching speed of IGBT when compared with Power MOSFET and BJT?

- Ans
- A. Superior to that of a Power MOSFET and BJT
 - B. Inferior to that of a Power MOSFET and superior to that of a BJT
 - C. Inferior to that of a Power MOSFET and BJT
 - D. Superior to that of a Power MOSFET and inferior to that of a BJT

Question ID : 630680774897
Status : Answered
Chosen Option : B

Q.4 Identify whether the following statements are true or false.

Statement 1:

The rectifier in the UPS is used to convert alternating current (AC) input into direct current (DC).

Statement 2:

The battery in the UPS is used to convert low voltage DC into high voltage AC power.

- Ans
- A. Both the statements are true
 - B. Only statement 1 is true
 - C. Both the statements are false
 - D. Only statement 2 is true

Question ID : 630680774926
Status : Answered
Chosen Option : B

Q.5 Which of the following statements is NOT true for the β of a common emitter BJT?

- Ans A. It is the current gain in CE transistor, calculated as a ratio of DC collector current to DC base current.
 B. Its value is high (about 100).
 C. It does not vary due to variations in the level of the base current.
 D. It is also referred to as H_{FE} .

Question ID : 630680774882
 Status : Answered
 Chosen Option : D

Q.6 A circuit consists of two resistances $6\ \Omega$ and $3\ \Omega$ connected in parallel and takes a total current of 12 A from the supply. Calculate the current through the $3\ \Omega$ resistance.

- Ans A. 2 A
 B. 1 A
 C. 8 A
 D. 4 A

Question ID : 630680774858
 Status : Answered
 Chosen Option : C

Q.7 Use of temperature sensitive devices such as diodes, transistors, thermistors to provide additional current to maintain the operating point stable for a BJT is known as:

- Ans A. addition technique
 B. diffusion technique
 C. compensation technique
 D. transition technique

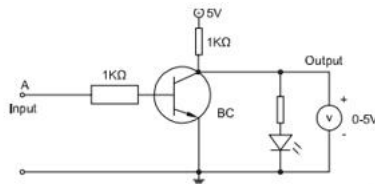
Question ID : 630680774891
 Status : Not Answered
 Chosen Option : --

Q.8 Which of the following conditions in a RS NOR latch will cause resetting the latch?

- Ans A. $R = 1, S = 1$
 B. $R = 1, S = 0$
 C. $R = 0, S = 0$
 D. $R = 0, S = 1$

Question ID : 630680774913
 Status : Answered
 Chosen Option : B

Q.9



The transistor in the given circuit is operated as:

- Ans A. NOT gate
 B. NOR gate
 C. OR gate
 D. AND gate

Question ID : 630680774902
 Status : Answered
 Chosen Option : A

Q.10 Select the most appropriate preposition to fill in the blank.

It is washed _____ boric acid before being sent to the laboratory.

- Ans A. through
 B. by
 C. above
 D. with

Question ID : 630680310192
 Status : Answered
 Chosen Option : A

Q.11 If ₹1,100 is divided among A, B and C such that the shares are in the ratio of 1 : 3 for A to B and 5 : 8 for B to C, find the sh

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- A. ₹ 500
- B. ₹ 700
- C. ₹ 400
- D. ₹ 600

Question ID : 630680531143

Status : Not Answered

Chosen Option : --

Q.12 The voltage induced per turn of the secondary winding in a transformer is the same as the self-induced voltage per turn in the primary winding. The coefficient of mutual coupling between primary and secondary winding is:

- Ans A. > 1
- B. 0
- C. < 1
- D. 1

Question ID : 630680774859

Status : Answered

Chosen Option : C

Q.13 The Minority Affairs Ministry was allocated over ₹5,020 crore in 2022 - 23 Union Budget. This allocation was NOT done for which of the following schemes?

- Ans A. Skill development and livelihood schemes
- B. Post-matric scholarship
- C. Religious tourism schemes
- D. Pre-matric scholarship

Question ID : 630680170393

Status : Not Answered

Chosen Option : --

Q.14 The maximum clock frequency for silicon gate CMOS logic family is:

- Ans A. 40 MHz
- B. 50 kHz
- C. 40 kHz
- D. 50 MHz

Question ID : 630680774908

Status : Answered

Chosen Option : D

Q.15 A pulse wave is used to toggle the flip-flops for frequency division. If the input frequency is 160 kHz, what will be the frequency after the third flip-flop?

- Ans A. 80 kHz
- B. 20 kHz
- C. 160 kHz
- D. 40 kHz

Question ID : 630680774922

Status : Answered

Chosen Option : D

Q.16 Identify whether the following statements are true or false.

Statement 1:

The varactor diodes can be used in the RF filters to tune.

Statement 2:

The varactor diodes are used to change the capacitance in tank LC circuits.

- Ans A. Only statement 1 is true
- B. Both the statements are false
- C. Only statement 2 is true
- D. Both the statements are true

Question ID : 630680774876

Status : Answered

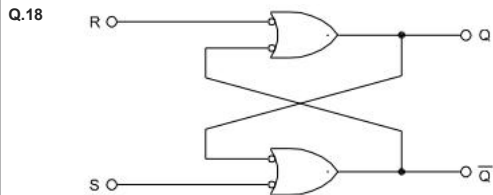
Chosen Option : D

Q.17 This question is based on the following words:
PUPIL LARGE TRAIN ORDER

If the first letter of each of the above words is replaced by 'G', which of the following will form a meaningful English word?

- Ans
- A. ORDER
 - B. PUPIL
 - C. TRAIN
 - D. LARGE

Question ID : 630680187835
Status : Not Answered
Chosen Option : --



The circuit shown in the given figure is a:

- Ans
- A. clocked NAND latch
 - B. NAND latch
 - C. clocked NOR latch
 - D. NOR latch

Question ID : 630680774914
Status : Answered
Chosen Option : D

Q.19 Who among the following was the governor of a larger part of Punjab when Babur captured the Bhera fort?

- Ans
- A. Dilawar Khan Lodi
 - B. Sikandar Lodi
 - C. Ibrahim Lodi
 - D. Daulat Khan Lodi

Question ID : 630680333531
Status : Not Answered
Chosen Option : --

Q.20 What can be the most probable cause if the Inverter output is high?

- Ans
- A. Too high input voltage
 - B. Fault in switching device
 - C. Fault in feed back loop
 - D. Problem with PWM IC

Question ID : 630680774925
Status : Answered
Chosen Option : C

Section : Section B

Q.1 The ideal quiescent point on the load line of the BJT should be:

- Ans
- A. the middle point between the cut-off point and the saturation point
 - B. beyond the saturation point
 - C. near the cut-off point
 - D. near the saturation point

Question ID : 630680774883
Status : Answered
Chosen Option : A

Q.2 Kerala's Veterinary Doctor John Abraham got a patent for biodiesel from _____ in 2021.

- Ans A. lemongrass
 B. cotton
 C. cow dung
 D. slaughtered chicken waste

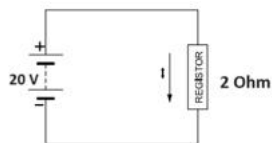
Question ID : 630680112007
 Status : Not Answered
 Chosen Option : --

Q.3 The total secondary voltage of the transformer in a half wave rectifier is $100 V_{rms}$. Calculate the output V_{dc} .

- Ans A. 111 V
 B. 85.45 V
 C. 44.83 V
 D. 60.6 V

Question ID : 630680774875
 Status : Answered
 Chosen Option : C

Q.4



Find the current in the resistor by applying Ohm's law.

- Ans A. 20 amps
 B. 5 amps
 C. 10 amps
 D. 4 amps

Question ID : 630680774853
 Status : Answered
 Chosen Option : C

Q.5 What is the state of the latch when the clock is low for the D-latch?

- Ans A. Set condition
 B. Inactive state
 C. Reset condition
 D. Racing condition

Question ID : 630680774916
 Status : Answered
 Chosen Option : B

Q.6 A transformer has an output of 250 V when on no-load and has an output of 200 V when on its rated resistive load. Calculate the regulation of the transformer.

- Ans A. 18%
 B. 10%
 C. 25%
 D. 15%

Question ID : 630680774864
 Status : Answered
 Chosen Option : C

Q.7 Identify whether the following statements are true or false.

Statement 1:
 The transistor switch is operated in ON-state when the transistor is in the cut-off region.

Statement 2:
 The transistor switch is used in counter and pulse generator circuits.

- Ans A. Both the statements are true
 B. Only statement 2 is true
 C. Both the statements are false
 D. Only statement 1 is true

Question ID : 630680774886
 Status : Answered
 Chosen Option : B

Q.8 Identify whether the following statements are true or false.

Statement 1:

An online UPS offers the best power protection against all types of disturbances.

Statement 2:

The tolerance of output voltage of an online UPS is 5%.

- Ans
- A. Only statement 2 is true
 - B. Both the statements are true
 - C. Both the statements are false
 - D. Only statement 1 is true

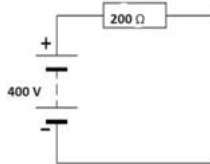
Question ID : 630680774931
Status : Answered
Chosen Option : B

Q.9 For a UPS with a single LED, if the light turns a bright red along with a continuous blinking, it indicates that:

- Ans
- A. critical two minutes are left for the power of the battery to drain out and crash abruptly
 - B. the system is working on the main power line
 - C. power is restored by switching on a generator
 - D. the UPS is working with back-up power

Question ID : 630680774934
Status : Answered
Chosen Option : A

Q.10



What is the total power dissipated by the given circuit?

- Ans
- A. 200 watts
 - B. 400 watts
 - C. 100 watts
 - D. 800 watts

Question ID : 630680774857
Status : Answered
Chosen Option : D

Q.11 Identify whether the following statements are true or false.

Statement 1:

Low power transistors are generally used at the last stage of amplification.

Statement 2:

High power transistors are used to amplify signals from a microphone, tape head, transducers, etc.

- Ans
- A. Only statement 2 is true
 - B. Only statement 1 is true
 - C. Both the statements are false
 - D. Both the statements are true

Question ID : 630680774898
Status : Answered
Chosen Option : A

Q.12 Select the option that can be used as a one-word substitute for the given group of words.

The study of dreams based on science

- Ans
- A. Hallucination
 - B. Oneirology
 - C. Illusion
 - D. Perception

Question ID : 630680467179
Status : Answered
Chosen Option : C

Q.13 The standard TTL chip has a power dissipation of about:

- Ans A. 50 mW/gate
 B. 20 mW/gate
 C. 40 mW/gate
 D. 10 mW/gate

Question ID : 630680774904
 Status : Answered
 Chosen Option : D

Q.14 Convert $[3B02]_{16}$ to Decimal.

- Ans A. $[15106]_{10}$
 B. $[16926]_{10}$
 C. $[14186]_{10}$
 D. $[16116]_{10}$

Question ID : 630680774901
 Status : Answered
 Chosen Option : A

Q.15 What should come in place of '?' in the given series?

15 24 35 48 63 ?

- Ans A. 83
 B. 76
 C. 80
 D. 87

Question ID : 630680523604
 Status : Answered
 Chosen Option : C

Q.16 The phase difference between the output and the input voltage in a CE amplifier is:

- Ans A. 90°
 B. 45°
 C. 180°
 D. 0°

Question ID : 630680774889
 Status : Answered
 Chosen Option : C

Q.17 Which of the following graphs represents the V_{GS} VS I_D for the p-channel enhancement type MOSFET?

- Ans
- A.
 - B.
 - C.
 - D.

Question ID : 630680774894
 Status : Answered
 Chosen Option : B

Q.18 Rakha spends 55% of her income on food and 36% of the remaining on dresses monthly. If she gives the remaining amount o

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- A. ₹2,10,000
- B. ₹2,30,000
- C. ₹2,40,000
- D. ₹2,20,000

Q.19 The main dome of Buddha Vihar in Karnataka is tiled with _____ for a grand look.

- Ans A. quartz
- B. granite
- C. wood
- D. marble

Question ID : 630680227895
Status : Not Answered
Chosen Option : --

Q.20 In case of JK flip-flop, when J = 1 and K = 0, what will happen in the next positive clock edge?

- Ans A. It will inactive the flip-flop.
- B. It will set the flip-flop.
- C. It will reset the flip-flop.
- D. It will race the flip-flop.

Question ID : 630680774918
Status : Answered
Chosen Option : D

Section : Section C

Q.1 The basic gate used to find the carry for a half adder is:

- Ans A. a NOR gate
- B. an OR gate
- C. a NAND gate
- D. an AND gate

Question ID : 630680774910
Status : Answered
Chosen Option : D

Q.2 Which of the following materials is introduced between the transistor body and the aluminium heatsink surface?

- Ans A. A mica film
- B. A silicon wafer
- C. A Bakelite strip
- D. A plastic coat

Question ID : 630680774899
Status : Answered
Chosen Option : C

Q.3 In the pro-electron type code BY127, the second letter Y indicates that it is a:

- Ans A. tunnel diode
- B. varactor diode
- C. rectifier diode
- D. Zener diode

Question ID : 630680774873
Status : Answered
Chosen Option : B

Q.4 तरलता पाश (liquidity trap) के बारे में निम्नलिखित में से कौन सा कथन सही है?

- Ans A. इस स्थिति के दौरान, ब्याज दरें बहुत अधिक होती हैं और बचत दरें कम होती हैं।
 B. उपभोक्ता नकद जमा नहीं करते और अधिक भुगतान वाले निवेश विकल्प की तलाश करते हैं।
 C. मौद्रिक नीति इस स्थिति के दौरान प्रभावी नहीं होती है।
 D. इस स्थिति के दौरान, उपभोक्ता मानक जमा खातों में धनराशि नहीं रखते हैं।

Question ID : 630680218410
 Status : Answered
 Chosen Option : D

Q.5 Select the most appropriate meaning of the given proverb.

A stitch in time saves nine.

- Ans A. It's easier to win people by persuasion and politeness than by confrontation.
 B. It is necessary to work hard in order to make progress.
 C. It is better to try to be happy than remaining unhappy.
 D. It is better to deal with problems immediately than letting them become bigger.

Question ID : 630680292734
 Status : Not Answered
 Chosen Option : --

Q.6 उत्तर की ओर अभिमुख 25 व्यक्तियों की एक पंक्ति में, मीरा दाएँ छोर से 18वें स्थान पर बैठी है। यदि रीमा, मीरा के दायें से आठवें स्थान पर बैठी है, तो पंक्ति के बायें छोर से रीमा का स्थान क्या है?

- Ans A. 10^{वाँ}
 B. 16^{वाँ}
 C. 15^{वाँ}
 D. 12^{वाँ}

Question ID : 630680361850
 Status : Not Answered
 Chosen Option : --

Q.7 Identify whether the following statements are true or false.

Statement 1:

Germanium transistors work better over a wide temperature range compared to silicon transistors.

Statement 2:

NPN transistors are preferred for the reason that NPN has higher switching speed compared to PNP.

- Ans A. Only statement 2 is true
 B. Both the statements are true
 C. Both the statements are false
 D. Only statement 1 is true

Question ID : 630680774879
 Status : Answered
 Chosen Option : A

Q.8 Identify whether the following statements are true or false.

Statement 1:

Core type transformers are widely used as voltage and power transformers.

Statement 2:

Shell type transformers have a higher efficiency as compared to core type transformers.

- Ans A. Only statement 1 is true
 B. Both the statements are true
 C. Both the statements are false
 D. Only statement 2 is true

Question ID : 630680774863
 Status : Answered
 Chosen Option : A

Q.9



The 4-band colour coding in a resistor is violet, green, blue, and gold. Calculate the value of the resistor.

- Ans A. $75 \text{ M}\Omega \pm 10\%$
 B. $75 \text{ M}\Omega \pm 5\%$
 C. $75 \text{ k}\Omega \pm 10\%$
 D. $75 \text{ k}\Omega \pm 5\%$

Question ID : 630680774849
 Status : Answered
 Chosen Option : B

- Q.10 Identify whether the following statements are true or false.
 Statement 1:
 An offline UPS has the provision for stabilising the mains AC.
 Statement 2:
 For an offline UPS, in case of under voltage and over voltage of mains AC, the power transfer switch gets activated and connects the AC obtained from inverter to the output.
- Ans A. Only statement 1 is true
 B. Both the statements are false
 C. Only statement 2 is true
 D. Both the statements are true

Question ID : 630680774929
 Status : Answered
 Chosen Option : C

- Q.11 Which of the following logic gates has the maximum propagation delay time?
- Ans A. TTL low power Schottky gate
 B. TTL Schottky gate
 C. CMOS metal gate
 D. CMOS silicon gate

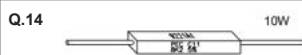
Question ID : 630680774903
 Status : Answered
 Chosen Option : D

- Q.12 Which of the following is true for the triggering of master flip-flop and slave flip-flop in the JK master slave flip-flop?
- Ans A. Both the master flip-flop and slave flip-flop are positive edge triggered.
 B. Master flip-flop is positive edge triggered, slave flip-flop is negative edge-triggered.
 C. Master flip-flop is negative edge triggered, slave flip flop is positive edge-triggered.
 D. Both the master flip-flop and slave flip-flop are negative edge triggered.

Question ID : 630680774919
 Status : Not Answered
 Chosen Option : --

- Q.13 Which of the following parameters of BJT indicates whether the transistor is low, medium or a high power transistor?
- Ans A. $V_{BE(max)}$
 B. $V_{CE(max)}$
 C. $I_{E(max)}$
 D. $I_C(max)$

Question ID : 630680774881
 Status : Answered
 Chosen Option : B



What type of resistor is shown in the above figure?

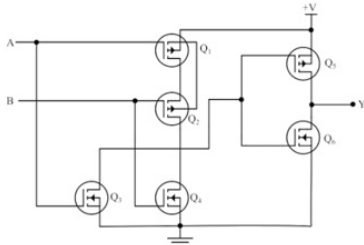
- Ans A. Wire wound resistor
 B. Carbon composition resistor
 C. Ceramics type resistor
 D. Metal film resistor

Question ID : 630680774852
 Status : Answered
 Chosen Option : A

- Q.15 The age of Ramlal is 35 years more than the age of his son Sunil. After 15 years, the ratio of their ages will be 15 : 8. What is the present age (in years) of Sunil?
- Ans A. 24
 B. 20
 C. 22
 D. 25

Question ID : 630680756609
 Status : Answered
 Chosen Option : D

Q.16



Identify the two-input gate formed by CMOS logic, shown in the above figure.

- Ans
- A. AND gate
 - B. NAND gate
 - C. OR gate
 - D. NOR gate

Question ID : 630680774909
 Status : Not Answered
 Chosen Option : --

Q.17 The maximum reverse voltage that a diode can withstand is known as:

- Ans
- A. barrier voltage
 - B. peak inverse voltage
 - C. break down voltage
 - D. avalanche voltage

Question ID : 630680774871
 Status : Answered
 Chosen Option : C

Q.18 Identify whether the following statements are true or false.
 Statement 1:
 The position of core can not be changed in ferrite core transformers.
 Statement 2:
 The value of K is almost equal to 1 for air core transformers.

- Ans
- A. Only statement 2 is true
 - B. Both the statements are true
 - C. Both the statements are false
 - D. Only statement 1 is true

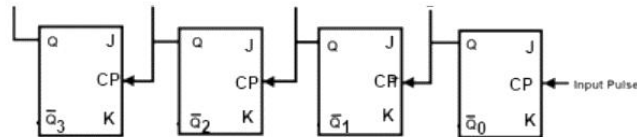
Question ID : 630680774862
 Status : Answered
 Chosen Option : B

Q.19 With reference to Brahmaputra River which of the following statements are correct?
 A. Brahmaputra River is known as the Tsang Po in Tibet.
 B. Brahmaputra River is known as the Jamuna in Bangladesh.
 C. The Dibang and the Lohit are tributaries of Brahmaputra River.

- Ans
- A. Only B and C are correct
 - B. Only A and C are correct
 - C. A, B and C are correct
 - D. Only A and B are correct

Question ID : 630680536517
 Status : Not Answered
 Chosen Option : --

Q.20



The counter in the figure can count up to:

- Ans
- A. 16
 - B. 8
 - C. 4
 - D. 15

Question ID : 630680774920
 Status : Answered
 Chosen Option : D

Q.1 Which of the following conditions are true for a properly biased or correctly biased transistor?

- Ans A. Base-emitter junction is reverse biased and base-collector junction is forward biased.
 B. Both base-emitter junction and base-collector junction are forward biased.
 C. Both base-emitter junction and base-collector junction are reverse biased.
 D. Base-emitter junction is forward biased and base-collector junction is reverse biased.

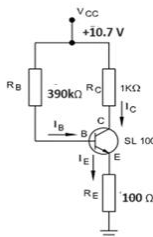
Question ID : 630680774884
 Status : Answered
 Chosen Option : D

Q.2 The voltage ratio of an isolation transformer is:

- Ans A. 4
 B. 2
 C. 0.5
 D. 1

Question ID : 630680774865
 Status : Answered
 Chosen Option : D

Q.3



Calculate the collector current I_C when β_{dc} is 100 and V_{BE} is 0.7 V for the given circuit.

- Ans A. 9.26 mA
 B. 10.7 mA
 C. 3.3 mA
 D. 2.5 mA

Question ID : 630680774885
 Status : Answered
 Chosen Option : B

Q.4 Identify whether the following statements are true or false.

Statement 1:
Wire-wound resistors can withstand high temperature, and still maintain the exact ohmic values.

Statement 2:
Wire-wound resistors can be made to have fractional ohmic values, which is not possible in carbon composition resistors.

- Ans A. Only statement 1 is true
 B. Both the statements are true
 C. Both the statements are false
 D. Only statement 2 is true

Question ID : 630680774851
 Status : Answered
 Chosen Option : B

Q.5 A power transformer has 400 turns of N_p and 40 turns of N_s . Calculate the secondary voltage V_s when the primary voltage is 440 V.

- Ans A. 440 V
 B. 4400 V
 C. 240 V
 D. 44 V

Question ID : 630680774860
 Status : Answered
 Chosen Option : D

Q.6 If the system of component numbering of an item is 2SB364 in the JIS type code, then it is:

- Ans A. npn lf
 B. pnp lf
 C. pnp hf
 D. npn hf

Question ID : 630680774874
Status : Not Answered
Chosen Option : --

Q.7 Convert $[45]_{10}$ to Binary.

- Ans A. $[101011]_2$
 B. $[100010]_2$
 C. $[101101]_2$
 D. $[100011]_2$

Question ID : 630680774900
Status : Answered
Chosen Option : C

Q.8 A vessel is in the form of an inverted cone. Its height is 16 cm and the radius of its top, which is open is 12 cm. It is filled with water up to the brim. When tiny little cones, each of which is of radius 2 cm and height 4 cm are dropped into the vessel, five-eighths of the water flows out. What is the number of tiny little cones dropped in the vessel?

- Ans A. 96
 B. 90
 C. 72
 D. 84

Question ID : 630680368867
Status : Not Answered
Chosen Option : --

Q.9 This question is based on the following words:
SPACE ROUND TITLE MATCH

If the first letter of each of the above words is dropped, which of the following will form meaningful English word/words?

- Ans A. Only 'SPACE'
 B. Only 'TITLE' and 'MATCH'
 C. Only 'MATCH'
 D. Only 'ROUND'

Question ID : 630680187834
Status : Answered
Chosen Option : A

Q.10 Which of the following is NOT a component in UPS?

- Ans A. Static transfer switch
 B. Inverter
 C. Wicking braid
 D. Rectifier

Question ID : 630680774927
Status : Answered
Chosen Option : C

Q.11 Which of the following transformers is commonly used for coupling the drive circuitry for power MOSFETs?

- Ans A. Auto transformer
 B. Current transformer
 C. Potential transformer
 D. Pulse transformer

Question ID : 630680774895
Status : Answered
Chosen Option : A

Q.12 How many characters are there in the extended ASCII table with 8-bit ASCII code?

- Ans
- A. 127
 - B. 128
 - C. 255
 - D. 256

Question ID : 630680774906
Status : Answered
Chosen Option : C

Q.13 Identify whether the following statements are true or false.

Statement 1:

A shift register is a register that is able to shift or transfer its content within itself without changing the order of the bits.

Statement 2:

The shift register can be built using RS, JK or D flip-flops.

- Ans
- A. Both the statements are false
 - B. Only statement 1 is true
 - C. Both the statements are true
 - D. Only statement 2 is true

Question ID : 630680774921
Status : Answered
Chosen Option : C

Q.14 If the applied voltage across a 10-watt resistor is 20 volts, resulting in 0.2 amps of current through the resistor, the power dissipated by the resistor will be:

- Ans
- A. 8 watts
 - B. 4 watts
 - C. 10 watts
 - D. 5 watts

Question ID : 630680774850
Status : Answered
Chosen Option : B

Q.15 Who among the following is the author of the book 'The Buddha and His Dhamma'?

- Ans
- A. Dr. BR Ambedkar
 - B. Dadabhai Naoroji
 - C. Jawaharlal Nehru
 - D. Mahatma Gandhi

Question ID : 630680318900
Status : Answered
Chosen Option : B

Q.16 Which of the following combinations can be used for a 2-bit parallel full adder?

- Ans
- A. Two half adders and one Exclusive OR gate.
 - B. Two half adders and one OR gate
 - C. Two half adders and one Exclusive NOR gate.
 - D. Two half adders and one AND gate

Question ID : 630680774911
Status : Answered
Chosen Option : D

Q.17 Choose the most appropriate proverb to substitute the underlined segment in the given sentence.

Don't be fooled by all their wealth and privilege, they may appear attractive, but it may not be their true nature.

- Ans
- A. every rose has its thorn
 - B. early bird catches the worm
 - C. all that glitters is not gold
 - D. an apple a day keeps the doctor away

Question ID : 630680153855
Status : Marked For Review
Chosen Option : C

Q.18 Which of the following transformers can be used for variable voltage operation by using a sliding contact like a potentiometer?

- Ans A. Auto transformer
 B. Step up transformer
 C. Step down transformer
 D. Isolation transformer

Question ID : 630680774866
 Status : Answered
 Chosen Option : A

Q.19 Which of the following statements is INCORRECT about the Deccan Plateau?

- Ans A. The Mahadev and the Kaimur hills are to the east of the plateau.
 B. The Satpura range is to the north of the plateau.
 C. Godavari and Krishna are the principal rivers of the plateau.
 D. The plateau is a rectangular landmass to the north of Narmada.

Question ID : 630680511318
 Status : Not Answered
 Chosen Option : --

Q.20 Identify whether the following statements are true or false.

Statement 1:

Most standard TTL ICs require a power supply voltage between +4.75 V and +5.25 V to operate properly.

Statement 2:

The ICs of the standard TTL family are identified by numbers that start with 54 and for military specification, devices are identified by numbers that start with 74.

- Ans A. Only statement 2 is true
 B. Only statement 1 is true
 C. Both the statements are false
 D. Both the statements are true

Question ID : 630680774907
 Status : Answered
 Chosen Option : A

Section : Section E

Q.1 Which of the following gates are normally used in digital comparators for comparing their respective pairs of bits?

- Ans A. NOR gates
 B. NAND gates
 C. Exclusive-OR gates
 D. Exclusive-NOR gates

Question ID : 630680774912
 Status : Answered
 Chosen Option : C

Q.2 Select the most appropriate article to fill in the blank.

Being only _____ M.A. in Political Science, he could not be appointed to the position of a Professor in the university.

- Ans A. a
 B. No article required
 C. the
 D. an

Question ID : 63068084728
 Status : Answered
 Chosen Option : B

Q.3 Identify whether the following statements are true or false.

Statement 1:

Once the forward voltage goes above 0.3 V for the silicon diode, it starts conducting.

Statement 2:

Above the cut-in voltage, the forward biased diode behaves almost like a closed switch.

- Ans A. Both the statements are false
 B. Only statement 2 is true
 C. Only statement 1 is true
 D. Both the statements are true

Question ID : 630680774870
 Status : Answered
 Chosen Option : B

Q.4 Three resistances of values $8\ \Omega$, $12\ \Omega$, and $24\ \Omega$ are connected in series. Find the equivalent resistance.

- Ans
- A. $4\ \Omega$
 - B. $11\ \Omega$
 - C. $22\ \Omega$
 - D. $44\ \Omega$

Question ID : 630680774854
Status : Answered
Chosen Option : D

Q.5 Identify whether the following statements are true or false.

Statement 1:

In MOSFET, ferrous dioxide is used as an insulating layer between the gate and the substrate of the transistor.

Statement 2:

In MOSFETs with CMOS configuration, only significant power is consumed during the switching and not while it is on hold state.

- Ans
- A. Both the statements are false
 - B. Both the statements are true
 - C. Only statement 1 is true
 - D. Only statement 2 is true

Question ID : 630680774892
Status : Answered
Chosen Option : A

Q.6 Which of the following is NOT one of the specifications for the performance of a three-phase UPS?

- Ans
- A. Runtime at no load
 - B. Switchover time
 - C. Runtime at half load
 - D. Runtime at full load

Question ID : 630680774935
Status : Not Answered
Chosen Option : --

Q.7 An electric heater is rated $500\ \text{W}$, $100\ \text{V}$. Find the resistance of the heating element.

- Ans
- A. $10\ \Omega$
 - B. $20\ \Omega$
 - C. $40\ \Omega$
 - D. $5\ \Omega$

Question ID : 630680774856
Status : Answered
Chosen Option : B

Q.8 When P and N materials are put together, at the junction of P and N materials, some electrons from the N-material jump across the boundary and recombine with the hole near the boundary of the P-material. This process is called:

- Ans
- A. depletion
 - B. exclusion
 - C. dipole movement
 - D. diffusion

Question ID : 630680774869
Status : Answered
Chosen Option : D

Q.9 Identify whether the following statements are true or false.

Statement 1:

The input resistance of a common base amplifier is very high (more than $100\ \text{k}\Omega$).

Statement 2:

Common base amplifiers are mostly suitable for high frequency applications.

- Ans
- A. Only statement 1 is true
 - B. Only statement 2 is true
 - C. Both the statements are false
 - D. Both the statements are true

Question ID : 630680774890
Status : Answered
Chosen Option : D

Q.10 When the base of a BJT is open, the resistance between the emitter and collector pins will be:

- Ans A. high
 B. very low
 C. low
 D. zero

Question ID : 630680774880
Status : Answered
Chosen Option : A

Q.11 P, Q and R start a business. If the ratio of their periods of investment is 4 : 6 : 9 and their profits are in the ratio of 2 : 3 : 5, then the ratio of the capitals of P, Q and R is _____.

- Ans A. 10 : 9 : 9
 B. 6 : 9 : 10
 C. 9 : 9 : 10
 D. 9 : 6 : 10

Question ID : 630680530316
Status : Not Answered
Chosen Option : --

Q.12 Which of the following packaging is used for BJT for very high frequency applications and for higher temperature stability?

- Ans A. Plastic packaging with metal heat sink
 B. Plastic packaging
 C. Metal packaging
 D. Ceramic packaging

Question ID : 630680774878
Status : Answered
Chosen Option : C

Q.13 What types of diode are used in switching circuits such as digital electronics?

- Ans A. Extra high power diodes
 B. Medium power diodes
 C. Low power diodes
 D. High power diodes

Question ID : 630680774872
Status : Answered
Chosen Option : C

Q.14 Which of the following code combinations is NOT used in the 8421 BCD code?

- Ans A. 1010
 B. 0000
 C. 1000
 D. 0111

Question ID : 630680774905
Status : Answered
Chosen Option : D

Q.15 Each of the digits in the number 7146532 is arranged in the ascending order from left to right. The position(s) of how many digits will remain unchanged as compared to that/those in the original number?

- Ans A. One
 B. Two
 C. Three
 D. None

Question ID : 630680542539
Status : Not Answered
Chosen Option : --

Q.16 Which of the following statements is the true difference between flip-flops and latches?

- Ans A. Flip-flops perform asynchronous operations whereas latches perform synchronous operations.
- B. Flip-flops operate at a faster speed whereas latches operate at a lower speed.
- C. Flip-flops require less power whereas latches require more power.
- D. Flip-flops are edge triggered whereas latches are level-triggered.

Question ID : 630680774915
Status : Answered
Chosen Option : D

Q.17 Green India Awards (an initiative of Green Society of India) was held in which of the following cities of India concurrently with World Environment Expo (5-7 June 2023)?

- Ans A. New Delhi
- B. Indore
- C. Mumbai
- D. Hyderabad

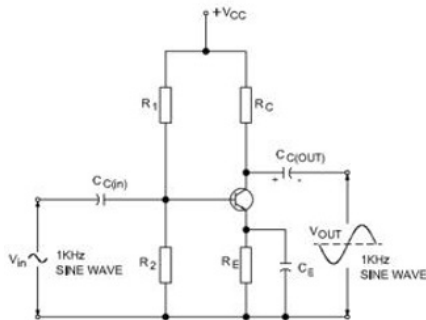
Question ID : 630680350901
Status : Not Answered
Chosen Option : --

Q.18 What role does the banking sector play in the implementation of fiscal policy?

- Ans A. Banks facilitate the government's fiscal operations, including tax collection and government spending.
- B. The banking sector directly sets and adjusts fiscal policy.
- C. The banking sector only provides loans to support government fiscal policy.
- D. Banks have no role in fiscal policy, which is solely the domain of the government.

Question ID : 630680595456
Status : Not Answered
Chosen Option : --

Q.19



In the given BJT, $R_1 = 10 \text{ k}\Omega$, $R_2 = 5 \text{ k}\Omega$, $R_E = 40 \Omega$ and $\beta = 100$.

Calculate the input impedance.

- Ans A. 2.8 k Ω
- B. 2.2 k Ω
- C. 1.8 k Ω
- D. 1.2 k Ω

Question ID : 630680774888
Status : Not Answered
Chosen Option : --

Q.20 Which of the following amplifiers is most suitable for impedance matching?

- Ans A. Common collector
- B. Common emitter
- C. Common base
- D. Emitter feedback

Question ID : 630680774887
Status : Answered
Chosen Option : A