UPMRC
JE
Previous Year Paper
(Electrical)
11 May, 2024

Uttar Pradesh Metro Rail Corporation Limited
उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लिमिटेड

UP Metro Rail Corporation

A joint Venture of Govt. of India and Govt. of Uttar Pradesh

Participant ID	
Participant Name	
Test Center Name	
Test Date	11/05/2024
Test Time	9:00 AM - 11:00 AM
Subject	Junior Engineer Electrical

Section : **Section A**

Q.1 Which logic gate does the truth table given below represent?

(A and B are the inputs and Y is the output.)

A	B	Y
0	0	1
1	0	1
0	1	1
1	1	0

Ans
- ✗ A. NOR
- ✓ B. NAND
- ✗ C. AND
- ✗ D. OR

Question ID : **630680777283**
Status : **Answered**
Chosen Option : **B**

Q.2 **Select the most appropriate meaning of the given proverb.**
There is no garden without its weeds.

Ans
- ✗ A. All gardens have some or the other kind of troubles.
- ✓ B. There is no perfection; everybody and everything has faults.
- ✗ C. It is impossible to imagine a garden without weeds.
- ✗ D. Searching for a perfect garden is a false attempt.

Question ID : **630680317849**
Status : **Answered**
Chosen Option : **B**

Q.3 **Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which is the one that does not belong to that group?**

Ans
- ✗ A. NKI
- ✗ B. TQO
- ✓ C. KGD
- ✗ D. HEC

Question ID : **630680360177**
Status : **Answered**
Chosen Option : **C**

Q.4 An AC source of peak value 20 V is connected in series with a silicon diode and a load resistance of 1000 Ω. Neglecting the forward resistance of the diode, what is the peak value of output voltage?

Ans
✔ A. 19.3 V
✘ B. 19.7 V
✘ C. 0 V
✘ D. 10 V

Question ID : **630680777255**
Status : **Answered**
Chosen Option : **D**

Q.5 Which of the following is generally used as an electrolyte in lead-acid batteries?

Ans
✘ A. Potassium hydroxide
✘ B. Nitric acid
✘ C. Hydrochloric acid
✔ D. Sulphuric acid

Question ID : **630680777263**
Status : **Answered**
Chosen Option : **D**

Q.6 In March 2021, the Parliament passed the Constitution (Scheduled Castes) Order (Amendment) Bill, 2021. This bill was introduced to modify the list of Scheduled Castes in which state of India?

Ans
✔ A. Tamil Nadu
✘ B. Karnataka
✘ C. Kerala
✘ D. Andhra Pradesh

Question ID : **630680116395**
Status : **Answered**
Chosen Option : **B**

Q.7 A low-pass filter has an input signal-to-noise ratio of 25. What will be the noise voltage if the input voltage is 5 mV?

Ans
✔ A. 1 mV
✘ B. 0.02 mV
✘ C. 0.5 mV
✘ D. 0.04 mV

Question ID : **630680777299**
Status : **Answered**
Chosen Option : **B**

Q.8 The bandwidth of a CRO is 0–20 MHz. What is the fastest rise time of the sine wave that can be reproduced accurately?

Ans
✔ A. 17.5 ns
✘ B. 20 ns
✘ C. 70 ns
✘ D. 35 ns

Question ID : **630680777300**
Status : **Answered**
Chosen Option : **A**

Q.9 Which of the following statements is/are true?
1. An electric drive is simple, clean and reliable.
2. Electric drive is costlier in terms of initial as well as in maintenance cost.

Ans
✘ A. Only 1
✘ B. Only 2
✔ C. Both 1 and 2
✘ D. Neither 1 nor 2

Question ID : **630680777235**
Status : **Answered**
Chosen Option : **A**

Q.10 As per the census 2011, which of the following states had the highest gap in literacy rates between males and females?

Ans
✗ A. Bihar
✗ B. Kerala
✓ C. Rajasthan
✗ D. Jharkhand

Question ID : **630680283346**
Status : **Marked For Review**
Chosen Option : **A**

Q.11 The person who calls people to pray in a mosque is called:

Ans
✗ A. Haji
✗ B. Paigamber
✗ C. Imam
✓ D. Muezzin

Question ID : **630680571602**
Status : **Answered**
Chosen Option : **C**

Q.12 What will be the susceptance of a circuit if its impedance is (2 – j4) Ω?

Ans
✗ A. 0.25 S
✗ B. 0.5 S
✓ C. 0.2 S
✗ D. 0.4 S

Question ID : **630680777207**
Status : **Answered**
Chosen Option : **B**

Q.13 30 litres of a mixture contains milk and water in the ratio 8 : 4. If 6 litres of this mixture is replaced by 6 litres of milk, the ratio of milk to water in the new mixture will be:

Ans
✗ A. 1 : 4
✗ B. 1 : 8
✗ C. 11 : 8
✓ D. 11 : 4

Question ID : **630680131489**
Status : **Answered**
Chosen Option : **C**

Q.14 A shunt generator delivers an armature current of 200 A at full load. If the load voltage is 200 V and the resistance of the armature winding is 0.1 Ω, then what is the induced EMF?

Ans
✗ A. 180 V
✗ B. 190 V
✗ C. 210 V
✓ D. 220 V

Question ID : **630680777218**
Status : **Answered**
Chosen Option : **D**

Q.15 शब्द BLUSTERING के प्रत्येक स्वर को अंग्रेजी वर्णानुक्रम में उसके बाद आने वाले दूसरे अक्षर से बदल दिया जाता है और प्रत्येक व्यंजन को अंग्रेजी वर्णानुक्रम में उसके ठीक पहले आने वाले अक्षर से बदल दिया जाता है। इस प्रकार बने अक्षरों के समूह में कितने अक्षर दो बार आयेंगे?

Ans
✓ A. एक
✗ B. तीन
✗ C. दो
✗ D. शून्य

Question ID : **630680533509**
Status : **Answered**
Chosen Option : **A**

Q.16 1 Wh of energy is equivalent to _____ joules.

Ans
✔ A. 3600
✘ B. 3.6
✘ C. 3.6×10^{6}
✘ D. 3.6×10^{3}

Question ID : **630680777200**
Status : **Answered**
Chosen Option : **A**

Q.17 The HCF of $\frac{1}{3}, \frac{2}{5}, \frac{3}{7}$ and $\frac{4}{7}$ is:

Ans
✘ A. $\frac{1}{15}$
✔ B. $\frac{1}{105}$
✘ C. $\frac{1}{7}$
✘ D. $\frac{1}{21}$

Question ID : **630680630073**
Status : **Answered**
Chosen Option : **D**

Q.18 What is the Boolean expression for two input (A and B) NOR gate?

Ans
✔ A. $\overline{A+B}$
✘ B. $A + B$
✘ C. $\overline{A} + \overline{B}$
✘ D. AB

Question ID : **630680777279**
Status : **Answered**
Chosen Option : **A**

Q.19 Which of the following options does NOT represent a property of a soft ferromagnetic material?

Ans
✘ A. It is used to make electromagnets.
✔ B. It has high coercivity.
✘ C. It has a narrow hysteresis loop.
✘ D. It can be easily magnetised.

Question ID : **630680777276**
Status : **Answered**
Chosen Option : **B**

Q.20 What is the frequency of the EMF induced in the armature winding of a DC generator in terms of speed (N) (in rpm) and the number of poles (P)?

Ans
✘ A. $\frac{NP}{60}$
✘ B. Zero
✘ C. $\frac{NP}{2}$
✔ D. $\frac{NP}{120}$

Question ID : **630680775252**
Status : **Answered**
Chosen Option : **D**

Q.21 Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. Because they must be constantly on the lookout for predators, the marine mammals have developed a neat trick of maintaining partial consciousness even as part of their brain sleeps.
B. Dolphins are known to be one of the smartest animals on the planet, possibly because they can conserve their brain power.
C. But they have found that even after five days of having their nocturnal alertness constantly tested, they've remained as alert and perceptive as ever.
D. Researchers have tested whether this 'half sleep' negatively impacts the animals' alertness during the day.

Ans
- ✔ A. BADC
- ✘ B. BACD
- ✘ C. BCDA
- ✘ D. BCAD

Question ID : **630680204442**
Status : **Answered**
Chosen Option : **A**

Q.22 Which of the following statements is/are true?
1. The O. C. test on a transformer, conducted on the LV side of the transformer, gives the core loss when the LV side is applied with its rated voltage.
2. The S. C. test on a transformer, conducted on the HV side of the transformer, gives the full-load copper loss when the full-load current is allowed to flow through the windings.

Ans
- ✘ A. Only 2
- ✘ B. Only 1
- ✔ C. Both 1 and 2
- ✘ D. Neither 1 nor 2

Question ID : **630680777228**
Status : **Answered**
Chosen Option : **C**

Q.23 Which of the following types of motor does NOT possess inherent regenerative braking?

Ans
- ✘ A. DC shunt motor
- ✘ B. Three-phase induction motor
- ✔ C. DC series motor
- ✘ D. Separately excited DC motor

Question ID : **630680777240**
Status : **Answered**
Chosen Option : **C**

Q.24 Which day is observed as Social Empowerment Day to commemorate Mahad Satyagraha undertaken by Dr. Baba Saheb Ambedkar in Kolaba District in Maharashtra?

Ans
- ✔ A. 20 March
- ✘ B. 20 January
- ✘ C. 20 February
- ✘ D. 20 April

Question ID : **63068087069**
Status : **Not Answered**
Chosen Option : **--**

Q.25 A moving-coil voltmeter has a uniform scale with 200 divisions and the full-scale reading is 200 V. What is the resolution of the voltmeter if one-fifth of the scale division can be estimated accurately?

Ans
- ✔ A. 0.2 V
- ✘ B. 0.1 V
- ✘ C. 0.5 V
- ✘ D. 1 V

Question ID : **630680777292**
Status : **Answered**
Chosen Option : **A**

Q.26 **Specific gravity of the electrolyte is an indication of state of charge of the battery. How is the specific gravity measured?**

Ans
- ✗ A. By using a barometer
- ✓ B. By using a hydrometer
- ✗ C. By using a calorimeter
- ✗ D. By using a pH meter

Question ID : **630680777269**
Status : **Answered**
Chosen Option : **D**

Q.27 **Which of the following statements is/are true?**
1. In a feedback system, the controlled variable follows the desired variable.
2. Feedback control allows accurate control of the output.

Ans
- ✗ A. Only 1
- ✓ B. Both 1 and 2
- ✗ C. Only 2
- ✗ D. Neither 1 nor 2

Question ID : **630680777258**
Status : **Answered**
Chosen Option : **B**

Q.28 **Which motor is used in generator type DC welding set?**

Ans
- ✗ A. Cumulatively compounded DC generator
- ✗ B. DC series generator
- ✓ C. Differentially compounded DC generator
- ✗ D. DC shunt generator

Question ID : **630680777241**
Status : **Answered**
Chosen Option : **C**

Section : **Section B**

Q.1 **What is the unit of luminous intensity?**

Ans
- ✓ A. Lumens/steradian
- ✗ B. Lumens/radian
- ✗ C. Lumens/m
- ✗ D. Lumens/watt

Question ID : **630680777233**
Status : **Answered**
Chosen Option : **A**

Q.2 **Who among the following is the first Indian woman to clinch the International Cricket Council's 'Player of the Month' award?**

Ans
- ✗ A. Smriti Mandhana
- ✗ B. Jhulan Goswami
- ✗ C. Jemimah Rodrigues
- ✓ D. Harmanpreet Kaur

Question ID : **630680196031**
Status : **Answered**
Chosen Option : **D**

Q.3 **Which of the following is the correct expression for illumination on a surface that is inclined at angle 'θ' from the surface that is normal to the light rays?**
(Consider that 'I' is the luminous intensity of the source and 'r' is the distance of the source from the surface that is normal to the light rays.)

Ans

✔ A. $\frac{I\cos\theta}{r^2}$

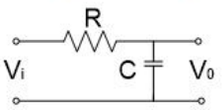
✘ B. $\frac{I^2\cos\theta}{r}$

✘ C. $\frac{I^2\cos\theta}{r^2}$

✘ D. $\frac{I\cos\theta}{r}$

Question ID : **630680777238**
Status : **Answered**
Chosen Option : **A**

Q.4 What is the transfer function of the RC circuit shown below?



Ans

✘ A. $\frac{s}{1+sRC}$

✘ B. $\frac{sR}{1+sRC}$

✔ C. $\frac{1}{1+sRC}$

✘ D. $\frac{s}{s+RC}$

Question ID : **630680777260**
Status : **Answered**
Chosen Option : **A**

Q.5 **उपादान लागत की गणना कैसे की जाती है?**

Ans

✘ A. बाज़ार मूल्य – मूल्यह्रास

✘ B. बाज़ार मूल्य + मूल्यह्रास

✘ C. बाज़ार मूल्य + निवल अप्रत्यक्ष कर

✔ D. बाज़ार मूल्य– निवल अप्रत्यक्ष कर

Question ID : **63068068823**
Status : **Answered**
Chosen Option : **D**

Q.6 **निम्नलिखित में से किसने अपनी रचनाओं में रज़िया सुल्तान के लिंग (जेंडर) के कारण शासक के रूप में उसकी स्थिति के प्रति असंतोष प्रकट किया था?**

Ans

✘ A. अबुल फ़ज़ल

✔ B. मिन्हाज-उस-सिराज

✘ C. याह्या-बिन अहमद सरहिंदी

✘ D. हसन निज़ामी

Question ID : **630680333529**
Status : **Not Answered**
Chosen Option : **--**

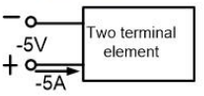
Q.7 **Select the most appropriate meaning of the given idiom.**

Too many irons in the fire

Ans
- ✗ A. A person who is frustrated and disappointed
- ✗ B. A person who interferes in others affair
- ✓ C. A person who is engaged in many activities
- ✗ D. A person having many friends to offer help

Question ID : **630680134948**
Status : **Answered**
Chosen Option : **C**

Q.8 What is the power absorbed by the two-terminal element shown in the figure below?



Ans
- ✗ A. −25 W
- ✓ B. 25 W
- ✗ C. −10 W
- ✗ D. 10 W

Question ID : **630680777199**
Status : **Answered**
Chosen Option : **B**

Q.9 **A DC motor develops 180 V when connected to a 200 V supply. What is the current drawn from the supply if the armature resistance is 0.5 Ω?**

Ans
- ✓ A. 40 A
- ✗ B. 80 A
- ✗ C. 20 A
- ✗ D. 400 A

Question ID : **630680777217**
Status : **Answered**
Chosen Option : **A**

Q.10 **'N_s' is the speed of the rotating magnetic field and 'N' is the speed of the rotor of a three-phase induction motor with respect to the stator. What is the difference between the two speeds (N_s − N) in terms of the slip of the motor (s)?**

Ans
- ✗ A. $(1-s)^2 N_s$
- ✓ B. sN_s
- ✗ C. $(1-s)N_s$
- ✗ D. $s^2 N_s$

Question ID : **630680777225**
Status : **Answered**
Chosen Option : **B**

Q.11 **Equal resistances of 100 Ω each are connected in each arm of a Wheatstone bridge, which is supplied by a 2 V battery source. The galvanometer used has negligible resistance and can sense as low as 1 μA. What is the smallest value of resistance that can be measured with this arrangement?**

Ans
- ✗ A. 20 μΩ
- ✗ B. 200 mΩ
- ✓ C. 20 mΩ
- ✗ D. 2 μΩ

Question ID : **630680777301**
Status : **Not Answered**
Chosen Option : **--**

Q.12 Select the most appropriate option to fill in the blank.
There is something undoubtedly very _____ about his demeanour.

Ans
✗ A. dormant
✓ B. strange
✗ C. ample
✗ D. meagre

Question ID : **630680317811**
Status : **Answered**
Chosen Option : **B**

Q.13 Which of the following is a property of a diamagnetic material?

Ans
✗ A. Relative permeability being much greater than unity
✗ B. Relative permeability being slightly greater than unity
✗ C. Relative permeability being less than 0
✓ D. Relative permeability being less than 1

Question ID : **630680777266**
Status : **Answered**
Chosen Option : **D**

Q.14 Which of the following statements about a synchronous motor is FALSE?

Ans
✓ A. A synchronous motor behaves like a capacitor when it is underexcited.
✗ B. A synchronous motor runs at one speed.
✗ C. A synchronous motor can operate at a range of leading and lagging power factors.
✗ D. A synchronous motor is not a self-starting motor.

Question ID : **630680777229**
Status : **Answered**
Chosen Option : **A**

Q.15 Find the duration (in years) in which ₹1200 will amount to ₹2460 at a rate of 12% per annum simple interest.

Ans
✗ A. 10.75
✗ B. 9.75
✗ C. 7.75
✓ D. 8.75

Question ID : **630680612347**
Status : **Answered**
Chosen Option : **D**

Q.16 A right triangle with sides 5 cm, 12 cm and 13 cm is rotated about the side of 5 cm to form a cone. The volume (in cm^3) of the

Ans
✗ A. 115π
✗ B. 120π
✗ C. 110π
✓ D. 100π

Question ID : **63068(**
Status : **Answe**
Chosen Option : **B**

Q.17 The decimal equivalent of $(412)_{16}$ is _____.

Ans
✗ A. 982
✓ B. 1042
✗ C. 1082
✗ D. 882

Question ID : **630680777281**
Status : **Answered**
Chosen Option : **B**

Q.18 निम्नलिखित में से किस प्रकार की वनस्पति गंगा डेल्टा की तटीय पट्टी में पाई जाती है?

Ans
- ✔ A. ज्वारीय
- ✘ B. उष्णकटिबंधीय सदाबहार
- ✘ C. पर्वतीय
- ✘ D. झाड़ियाँ और कांटेदार

Question ID : **630680601273**
Status : **Answered**
Chosen Option : **B**

Q.19 As per the Boolean theorem, what is $A + \bar{A}$?

Ans
- ✘ A. 0
- ✔ B. 1
- ✘ C. A
- ✘ D. $\bar{A}$

Question ID : **630680777278**
Status : **Answered**
Chosen Option : **B**

Q.20 **What should come in place of the question mark (?) in the given series?**

36 57 82 111 144 ?

Ans
- ✘ A. 167
- ✘ B. 152
- ✔ C. 181
- ✘ D. 176

Question ID : **630680542309**
Status : **Answered**
Chosen Option : **C**

Q.21 **What will be the effect on the energy stored in the magnetic field if the current flowing through a coil is doubled?**

Ans
- ✘ A. The energy stored will reduce by 50%.
- ✔ B. The energy stored will increase by 4 times.
- ✘ C. The energy stored will remain the same.
- ✘ D. The energy stored will double.

Question ID : **630680777208**
Status : **Answered**
Chosen Option : **B**

Q.22 **K, L, M, N, U, V और X एक वृत्ताकार मेज के चारों ओर केंद्र की ओर अभिमुख होकर बैठे हैं। V, X के बाएँ से तीसरे स्थान पर बैठा है। U, N के बाएँ से दूसरे स्थान पर बैठा है। L और U के बीच केवल X बैठा है। K, V का निकटतम पड़ोसी नहीं है। M के दाएँ से गिनने पर, M और U के बीच कुल कितने व्यक्ति बैठे हैं?**

Ans
- ✔ A. दो
- ✘ B. एक
- ✘ C. तीन
- ✘ D. चार

Question ID : **630680544697**
Status : **Answered**
Chosen Option : **A**

Q.23 **A meter reads 220.2 V, while the true value of the voltage is 220 V. What is the static error in measurement?**

Ans
- ✘ A. −0.2 V
- ✘ B. 0.1 V
- ✔ C. 0.2 V
- ✘ D. −0.1 V

Question ID : **630680777288**
Status : **Answered**
Chosen Option : **A**

Q.24 **Two capacitors of capacitances 40 μF and 160 μF are connected in series across a single-phase AC supply. What is the equivalent capacitance as seen by the source?**

Ans
- ✗ A. 200 μF
- ✓ B. 32 μF
- ✗ C. 120 μF
- ✗ D. 100 μF

Question ID : **630680777202**
Status : **Answered**
Chosen Option : **B**

Q.25 **Which of the following statements is/are true?**
1. Once a p-n junction is formed and the depletion layer is created, diffusion of free electrons starts.
2. There exists a potential difference across the depletion layer and it is called barrier potential.

Ans
- ✗ A. Neither 1 nor 2
- ✗ B. Only 1
- ✓ C. Only 2
- ✗ D. Both 1 and 2

Question ID : **630680777253**
Status : **Answered**
Chosen Option : **D**

Q.26 **Which method of heating is most suitable for sterilisation of bandages, sterile gauges and instruments?**

Ans
- ✗ A. Arc heating
- ✗ B. Induction heating
- ✓ C. Dielectric heating
- ✗ D. Direct resistance heating

Question ID : **630680777246**
Status : **Answered**
Chosen Option : **C**

Q.27 **A multi-range DC milliammeter has an internal resistance of 50 Ω and full-scale deflection current of 1 mA. If the range required is 0–10 mA, then what is the multiplying factor needed?**

Ans
- ✓ A. 10
- ✗ B. 0.01
- ✗ C. 1
- ✗ D. 0.1

Question ID : **630680777294**
Status : **Answered**
Chosen Option : **A**

Q.28 **The magnetic material of which class gets weakly magnetised when placed in an external field?**

Ans
- ✗ A. diamagnetic
- ✗ B. antimagnetic
- ✓ C. paramagnetic
- ✗ D. ferromagnetic

Question ID : **630680777270**
Status : **Answered**
Chosen Option : **C**

Section : **Section C**

Q.1 With reference to common emitter configuration of a transistor amplifier circuit, what is the ratio of a small change in the base-emitter voltage (ΔV_{BE}) to the resulting change in the base current (ΔI_B) at a constant collector-emitter voltage?

Ans
- ✗ A. Transfer resistance
- ✗ B. Effective collector load
- ✓ C. Input resistance
- ✗ D. Output resistance

Question ID : **630680777252**
Status : **Answered**
Chosen Option : **A**

Q.2 **A 200 CP lamp hung at a certain height produces an illumination of 50 lux at a point directly below the lamp. What is the mounting height of the lamp?**

Ans
- ✓ A. 2 m
- ✗ B. 1 m
- ✗ C. 8 m
- ✗ D. 4 m

Question ID : **630680777245**
Status : **Answered**
Chosen Option : **A**

Q.3 **सांची स्तूप की कौन सी संरचना जातकों की विभिन्न घटनाओं और बुद्ध के जीवन को दर्शाती है?**

Ans
- ✓ A. तोरण
- ✗ B. छत्री
- ✗ C. हर्मिका
- ✗ D. वेदिका

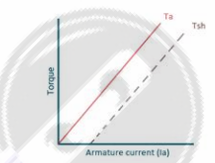
Question ID : **630680309130**
Status : **Answered**
Chosen Option : **D**

Q.4 **In which type of magnetic material do atoms have no magnetic moment and the susceptibility is small and negative?**

Ans
- ✗ A. Anti-ferromagnetic material
- ✓ B. Diamagnetic material
- ✗ C. Paramagnetic material
- ✗ D. Ferrimagnetic material

Question ID : **630680777274**
Status : **Answered**
Chosen Option : **C**

Q.5 Identify the type of motor whose toque-current characteristic is as shown in the figure below.



Ans
- ✗ A. Cumulatively compounded motor
- ✗ B. Series motor
- ✓ C. Shunt motor
- ✗ D. Differentially compounded motor

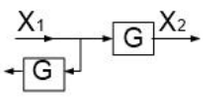
Question ID : **630680775238**
Status : **Answered**
Chosen Option : **C**

Q.6 **Select the most appropriate option to fill in the blank.**
_____ United States is one of the most powerful countries of the world.

Ans
✗ A. An
✓ B. The
✗ C. This
✗ D. A

Question ID : **630680328393**
Status : **Answered**
Chosen Option : **B**

Q.7 What is 'X_2' in the block diagram shown below?



Ans
✓ A. $X_1 G$
✗ B. $X_1(1-G)G$
✗ C. $X_1(1+G)$
✗ D. $X_1(1-G)$

Question ID : **630680777261**
Status : **Answered**
Chosen Option : **D**

Q.8 **The armature winding of a DC generator is lap wound with 6 poles and delivers an armature current of 120 A to an external load. What is the current carried by the armature conductors?**

Ans
✓ A. 20 A
✗ B. 60 A
✗ C. 40 A
✗ D. 120 A

Question ID : **630680777216**
Status : **Answered**
Chosen Option : **A**

Q.9 The voltage and the current of an impedance in a single-phase AC circuit are as given below.

$v = 50 \sin(314t - 80°)$

$i = 5 \sin(314t - 20°)$

What is the phase relationship between the two?

Ans
✗ A. i lags v by 60°
✗ B. i leads v by 100°
✗ C. i lags v by 100°
✓ D. i leads v by 60°

Question ID : **630680777205**
Status : **Answered**
Chosen Option : **D**

Q.10 **भारतीय पंचांग में, वर्ष को छह द्वैमासिक ऋतुओं में बाँटा गया है। निम्नलिखित विकल्पों में से उस ऋतु की पहचान करें जो पारंपरिक सावन-भादो महीनों में आती है।**

Ans
✓ A. वर्षा
✗ B. शरद
✗ C. ग्रीष्म
✗ D. शिशिर

Question ID : **630680115710**
Status : **Answered**
Chosen Option : **A**

Q.11 How much is the energy gap between the valence and conduction bands in a good insulator?

Ans
✔ A. more than 5 eV
✘ B. 0.3 eV
✘ C. 0.5 eV
✘ D. 1 eV

Question ID : **630680777264**
Status : **Answered**
Chosen Option : **A**

Q.12 A lead-acid battery maintains a constant current of 1.5 A for 20 hours before its terminal voltage drops to 1.8 V. What is the capacity of the battery?

Ans
✔ A. 30 Ah
✘ B. 15 Ah
✘ C. 36 Ah
✘ D. 18 Ah

Question ID : **630680777277**
Status : **Answered**
Chosen Option : **A**

Q.13 The value of $(0.\overline{37} + 0.\overline{47})$ is:

Ans
✘ A. $\frac{28}{99}$
✘ B. $\frac{28}{90}$
✘ C. $\frac{29}{33}$
✔ D. $\frac{28}{33}$

Question ID : **630680218056**
Status : **Answered**
Chosen Option : **C**

Q.14 What is the simplified form of the Boolean expression given by

$Y = (\bar{A} + B)(A + B)$?

Ans
✔ A. $Y = B$
✘ B. $Y = (A + B)$
✘ C. $Y = A$
✘ D. $Y = (\bar{A}B)$

Question ID : **630680777282**
Status : **Answered**
Chosen Option : **A**

Q.15 संख्या 5631748 में प्रत्येक अंक बाएँ से दाएँ आरोही क्रम में व्यवस्थित किया जाता है। इस प्रकार निर्मित नई संख्या में बाएँ से दूसरे और दाएँ से दूसरे अंकों का योग क्या होगा?

Ans
✘ A. 7
✘ B. 11
✘ C. 8
✔ D. 10

Question ID : **630680542542**
Status : **Answered**
Chosen Option : **D**

Q.16 Find the value of P and Q for which the given system of equations has infinitely many solutions

$5x-8y=4$

$(P+Q)x-(P+Q+4)y=5P+Q$

Ans

✗ A. $P=\frac{-1}{3}, Q=\frac{7}{2}$

✗ B. $P=\frac{-1}{3}, Q=\frac{-7}{2}$

✓ C. $P=\frac{-1}{3}, Q=7$

✗ D. $P=\frac{1}{3}, Q=-7$

Question ID : **630680541181**
Status : **Not Answered**
Chosen Option : **--**

Q.17 In a RS flip flop, when both the set and reset inputs are zero,, what are the outputs Q and $\bar{Q}$?

Ans

✗ A. $Q=0, \bar{Q}=0$

✓ B. $Q=1, \bar{Q}=1$

✗ C. $Q=1, \bar{Q}=0$

✗ D. $Q=0, \bar{Q}=1$

Question ID : **630680777285**
Status : **Answered**
Chosen Option : **A**

Q.18 As per De Morgan's theorem, $\overline{A.B}$ is equal to _____.

Ans

✗ A. AB

✗ B. $A+B$

✓ C. $\bar{A}+\bar{B}$

✗ D. $\overline{A+B}$

Question ID : **630680777280**
Status : **Answered**
Chosen Option : **C**

Q.19 **Which organisation announced in July 2021 that it is going to set up India's largest solar power project in Gujarat?**

Ans

✓ A. NTPC Limited

✗ B. Rural Electrification Corporation Limited

✗ C. Bharat Electronics Limited

✗ D. Engineers India Limited

Question ID : **630680158432**
Status : **Answered**
Chosen Option : **A**

Q.20 **The speed of a DC series motor is controlled by using a diverter across its field winding. Without the diverter, the speed of the motor is 1000 rpm. What will be its speed when the resistance of the diverter is equal to the resistance of the field winding?**

Ans

✓ A. 2000 rpm

✗ B. 1000 rpm

✗ C. 500 rpm

✗ D. 4000 rpm

Question ID : **630680777220**
Status : **Answered**
Chosen Option : **D**

Q.21 What is the full form of 'MSCP' with reference to illumination?

Ans
✗ A. Maximum Spherical Candle Power
✓ B. Mean Spherical Candle Power
✗ C. Mean Spherical Candela Power
✗ D. Maximum Spherical Candela Power

Question ID : **630680777236**
Status : **Answered**
Chosen Option : **B**

Q.22 An electric bulb is rated 200 V and 400 W. If it is operated on 100 V, what will be the power consumed?

Ans
✗ A. 25 W
✓ B. 100 W
✗ C. 50 W
✗ D. 75 W

Question ID : **630680777209**
Status : **Answered**
Chosen Option : **B**

Q.23 In a certain code language, 'WING' is coded as '2741' and 'PING' is coded as '4812'. What is the code for 'P' in the given code language?

Ans
✗ A. 4
✗ B. 2
✗ C. 1
✓ D. 8

Question ID : **630680568453**
Status : **Answered**
Chosen Option : **A**

Q.24 लाहौर में निम्नलिखित में से किस निजी कॉलेज की स्थापना आर्य समाज के तत्वावधान में की गई थी?

Ans
✗ A. सरस्वती एंग्लो वैदिक महाविद्यालय
✗ B. समाज महाविद्यालय
✗ C. आर्य समाज एंग्लो वैदिक महाविद्यालय
✓ D. दयानंद एंग्लो वैदिक महाविद्यालय

Question ID : **630680147269**
Status : **Not Answered**
Chosen Option : **--**

Q.25 with reference to the CRO, which of the following statements is/are true?
1. Gain of the vertical amplifier determines the smallest signal that the oscilloscope can satisfactorily reproduce on the screen.
2. Vertical sensitivity of the oscilloscope is the smallest deflection factor that can be selected with a rotary switch.

Ans
✗ A. Only 2
✗ B. Only 1
✗ C. Neither 1 nor 2
✓ D. Both 1 and 2

Question ID : **630680777295**
Status : **Answered**
Chosen Option : **D**

Q.26 A 4-pole DC machine has a wave-wound armature winding. How many parallel paths are present in the armature circuit?

Ans
✓ A. 2
✗ B. 8
✗ C. 4
✗ D. 16

Question ID : **630680777213**
Status : **Answered**
Chosen Option : **A**

Q.27 **What is the phase relationship between the current flowing through an arc and the voltage across it?**

Ans
- ✗ A. The arc current leads the voltage across the arc by 90°.
- ✗ B. The arc current lags the voltage across the arc by 90°.
- ✓ C. The arc current and the voltage across the arc are in phase.
- ✗ D. The arc current and the voltage across the arc are in phase opposition.

Question ID : **630680775266**
Status : **Answered**
Chosen Option : **B**

Q.28 **Sentences of a paragraph are given below. While the first and the last sentences (S1 and S6) are in the correct order, the sentences in between are jumbled up. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.**

S1) Paragliding is a recreational and competitive adventure sport of cross-country flying through the sky.
A) It is done using a light-weight, free-flying and foot launched glider aircraft with no rigid structure.
B) A certified and experienced paraglider can stay up in the air solely on wind power for hours.
C) This tandem flight in the sky is indeed expensive, but the experience is worth every paisa.
D) Flying over mountains and admiring the landscape is an activity which gives immense pleasure.
S6) Once a person has tasted one flight, he/she will always long for another, such is the experience.

Ans
- ✓ A. ABCD
- ✗ B. BADC
- ✗ C. DCAB
- ✗ D. CDAB

Question ID : **630680435565**
Status : **Answered**
Chosen Option : **A**

Section : **Section D**

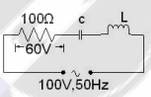
Q.1 **Select the most appropriate meaning of the given proverb.**

Blood is thicker than water.

Ans
- ✗ A. Once you lose sight of a thing, you can forget it altogether.
- ✗ B. Every person can have lucky days and favourable outcomes.
- ✓ C. Family relationships are always stronger than other relationships.
- ✗ D. Everything tastes good when you are hungry but have nothing to eat.

Question ID : **630680350894**
Status : **Answered**
Chosen Option : **C**

Q.2 What will be the power factor of the circuit shown below if the inductive reactance is more than the capacitive reactance at 50 Hz?



Ans
- ✓ A. 0.6 lag
- ✗ B. 0.6 lead
- ✗ C. 0.8 lead
- ✗ D. 0.5 lag

Question ID : **630680777212**
Status : **Answered**
Chosen Option : **A**

Q.3 निम्नलिखित में से किसने 1921 में विश्व-भारती विश्वविद्यालय की स्थापना की थी?

Ans
✗ A. मदन मोहन मालवीय
✗ B. महात्मा गांधी
✓ C. रविंद्रनाथ टैगोर
✗ D. सैयद अहमद खान

Question ID : **630680118815**
Status : **Answered**
Chosen Option : **C**

Q.4 Which of the following is NOT a part of a separately excited generator?

Ans
✗ A. Commutator
✓ B. Series field winding
✗ C. Armature winding
✗ D. Shunt field winding

Question ID : **630680777215**
Status : **Answered**
Chosen Option : **B**

Q.5 Which of the following was the venue of 55th National Cross-Country Championship 2021?

Ans
✗ A. Patiala
✗ B. Ludhiana
✗ C. Amritsar
✓ D. Chandigarh

Question ID : **630680134096**
Status : **Not Answered**
Chosen Option : **--**

Q.6 What will come in the place of the question mark (?) in the following equation if '+' and '−'are interchanged and '×' and '÷' are interchanged?
3 ÷ 88 × 2 − 130 + 40 = ?

Ans
✗ A. 220
✗ B. 224
✗ C. 198
✓ D. 222

Question ID : **630680404380**
Status : **Answered**
Chosen Option : **D**

Q.7 In case of a cathode-ray oscilloscope, the deflection on the screen per unit deflection voltage is called as _____.

Ans
✓ A. deflection sensitivity
✗ B. deflection factor
✗ C. deflection ratio
✗ D. deflection rate

Question ID : **630680777297**
Status : **Answered**
Chosen Option : **A**

Q.8 The separation between the conduction band and the valence band on an energy level diagram is called _____.

Ans
✓ A. forbidden gap
✗ B. prohibited gap
✗ C. inhibited gap
✗ D. impeded gap

Question ID : **630680777265**
Status : **Answered**
Chosen Option : **A**

Q.9 What is a drainage basin?

Ans
✗ A. Watershed
✗ B. Area drained by more than two rivers
✗ C. Area drained by two river systems
✓ D. Area drained by a single river system

Question ID : **630680302669**
Status : **Answered**
Chosen Option : **B**

Q.10 The flux produced by the primary exciting current of a power transformer depends _____.

Ans
✓ A. on both the voltage applied to the primary and its frequency
✗ B. only on the voltage applied to the primary
✗ C. on the load
✗ D. only on the frequency of voltage applied to the primary

Question ID : **630680775232**
Status : **Answered**
Chosen Option : **C**

Q.11 Select the most appropriate verb to fill in the blank.
The woodcutter picked up the branches that _____ to the ground.

Ans
✗ A. falls
✗ B. was falling
✗ C. have fallen
✓ D. fell

Question ID : **630680332747**
Status : **Answered**
Chosen Option : **C**

Q.12 What is the inductance offered by a coil of 100 turns in a magnetic circuit whose reluctance to flux is 100×10^6 AT/Wb?

Ans
✗ A. 0.01 mH
✗ B. 1 mH
✗ C. 10 mH
✓ D. 0.1 mH

Question ID : **630680777206**
Status : **Answered**
Chosen Option : **D**

Q.13 A 4 kVA transformer has iron loss of 200 W and full-load copper loss of 800 W. What is the kVA of the transformer at which it operates at the maximum efficiency?

Ans
✗ A. 8 kVA
✓ B. 2 kVA
✗ C. 4 kVA
✗ D. 1 kVA

Question ID : **630680777230**
Status : **Answered**
Chosen Option : **B**

Q.14 In a p-n junction diode, once the applied forward voltage exceeds the _____ voltage, the current starts increasing rapidly.

Ans
✗ A. saturation
✓ B. knee
✗ C. cut-off
✗ D. breakdown

Question ID : **630680777248**
Status : **Answered**
Chosen Option : **D**

Q.15 An open-circuit test is conducted on the LV side of a 11 kV/110 V, single-phase transformer with its 11 kV winding open. The input power measured by using a wattmeter is 110 W. If the test is conducted on the HV side of the transformer with the 110 V side open, what will be the input power?

Ans
✗ A. 1100 W
✗ B. 11,000 W
✗ C. 11 W
✓ D. 110 W

Question ID : **630680777231**
Status : **Answered**
Chosen Option : **D**

Q.16 In a common collector arrangement, which of the following expressions gives the current amplification factor in terms of change in the emitter current, change in the collector current and change in the base current?

Ans
✓ A. $\frac{\text{change in emitter current}}{\text{change in base current}}$
✗ B. $\frac{\text{change in base current}}{\text{change in emitter current}}$
✗ C. $\frac{\text{change in collector current}}{\text{change in emitter current}}$
✗ D. $\frac{\text{change in collector current}}{\text{change in base current}}$

Question ID : **630680777256**
Status : **Not Answered**
Chosen Option : **--**

Q.17 What is the maximum reverse voltage that can be applied to a p-n junction, without causing any damage to the junction, called?

Ans
✗ A. Pinch voltage
✗ B. Peak recovery voltage
✗ C. Knee voltage
✓ D. Peak inverse voltage

Question ID : **630680777254**
Status : **Answered**
Chosen Option : **D**

Q.18 Which of the following statements is/are true?
1. In PMMC meters, the scale is uniform.
2. In PMMC meters, the torque-to-weight ratio is low, which gives higher accuracy.

Ans
✗ A. Both 1 and 2
✓ B. Only 1
✗ C. Neither 1 nor 2
✗ D. Only 2

Question ID : **630680777289**
Status : **Answered**
Chosen Option : **B**

Q.19 A moving-coil instrument has a controlling torque of 45×10^{-6} N-m when the deflection of the pointer is 90°. What will be the controlling torque produced when the deflection is 120°?

Ans
✗ A. 45×10^{-6} N-m
✓ B. 60×10^{-6} N-m
✗ C. 30×10^{-6} N-m
✗ D. 120×10^{-6} N-m

Question ID : **630680777296**
Status : **Answered**
Chosen Option : **B**

Q.20 Which of the following losses in a transformer can be treated as variable loss(es) when it operates at a fixed applied voltage and frequency?
1. Copper loss
2. Eddy current loss
3. Hysteresis loss

Ans
✗ A. Only 1 and 2
✓ B. Only 1
✗ C. Only 1 and 3
✗ D. Only 2

Question ID : **630680777226**
Status : **Answered**
Chosen Option : **B**

Q.21 At what temperature does a ferromagnetic material transit into a paramagnetic material?

Ans
✓ A. Curie temperature
✗ B. Bragg temperature
✗ C. Bohr temperature
✗ D. Neel temperature

Question ID : **630680777272**
Status : **Answered**
Chosen Option : **A**

Q.22 The phasor current in the circuit consisting of a 2 H inductor is of $2\angle -50°$ A, when excited from a sinusoidally varying voltage of angular frequency 100 rad/s . What is the voltage applied?

Ans
✗ A. $200\angle -50°$ V
✗ B. $400\angle -140°$ V
✓ C. $400\angle 40°$ V
✗ D. $200\angle 40°$ V

Question ID : **630680775227**
Status : **Answered**
Chosen Option : **C**

Q.23 Three girls P, Q, and R can do a work in 18 hours, 21 hours, and 14 hours, respectively. They work turnwise in the given order for one hour each. The percentage of work done by R is:

Ans
✗ A. $28\frac{7}{18}\%$
✗ B. $37\frac{3}{20}\%$
✓ C. $38\frac{2}{21}\%$
✗ D. $35\frac{5}{19}\%$

Question ID : **630680588898**
Status : **Not Answered**
Chosen Option : **--**

Q.24 Which of the following is NOT primarily a traditional gharana in the Kathak dance form?

Ans
✗ A. Jaipur
✗ B. Lucknow
✓ C. Batala
✗ D. Benaras

Question ID : **630680403205**
Status : **Answered**
Chosen Option : **C**

Q.25 Solve the following equations for a, b and c.
a + 4b + 3c = −5
3a + 2b − 3c = 4
−3a + 8b + 7c = −7

Ans
✗ A. $a = -3, b = -4, c = 2$
✓ B. $a = -1, b = \frac{1}{2}, c = -2$
✗ C. $a = 2, b = -1, c = 3$
✗ D. $a = \frac{1}{4}, b = -2, c = 1$

Question ID : **630680517602**
Status : **Not Answered**
Chosen Option : **--**

Q.26 A, B, C, D, E, F और G एक वृत्ताकार मेज के चारों ओर केंद्र की ओर अभिमुख होकर बैठे हैं। D के दाएँ से गिनने पर, D और C के बीच केवल एक व्यक्ति बैठा है। C और B के बीच केवल एक व्यक्ति बैठा है। D और F के बीच में केवल एक व्यक्ति बैठा है। G और B के बीच केवल दो व्यक्ति बैठे हैं। E और F के बीच केवल एक व्यक्ति बैठा है। A के दाएँ से तीसरे स्थान पर कौन बैठा है?

Ans
✗ A. F
✗ B. G
✗ C. B
✓ D. C

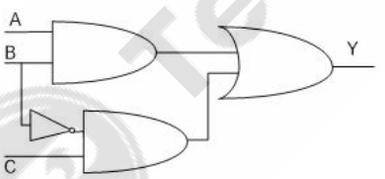
Question ID : **630680532578**
Status : **Not Answered**
Chosen Option : **--**

Q.27 Which of the following expressions is correct with reference to dielectric heating?
[V is the voltage applied to the dielectric]

Ans
✗ A. Heating $\propto V^3$
✓ B. Heating $\propto V^2$
✗ C. Heating $\propto V$
✗ D. Heating $\propto \sqrt{V}$

Question ID : **630680777244**
Status : **Answered**
Chosen Option : **B**

Q.28 What is the output 'Y' in the circuit shown below?



Ans
✗ A. $Y = AB + \bar{B}\bar{C}$
✗ B. $Y = A\bar{B}C$
✗ C. $Y = A\bar{B} + C$
✓ D. $Y = AB + \bar{B}C$

Question ID : **630680777287**
Status : **Answered**
Chosen Option : **A**

Section : **Section E**

Q.1 Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

4 – 24 – 48 – 68
8 – 28 – 56 – 76

Ans
✗ A. 20 – 40 – 80 – 90
✗ B. 9 – 39 – 78 – 98
✗ C. 13 – 52 – 104 – 114
✓ D. 12 – 32 – 64 – 84

Question ID : **630680467184**
Status : **Answered**
Chosen Option : **D**

Q.2 Which of the following types of motor is generally preferred for use in lathes?

Ans
✓ A. Squirrel-cage induction motor
✗ B. Capacitor start type induction motor
✗ C. Differentially compounded motor
✗ D. DC series motor

Question ID : **630680777242**
Status : **Answered**
Chosen Option : **A**

Q.3 Select the most appropriate ANTONYM of the highlighted word.

Mr. Justin's courage in the Ukraine war could not win him a promotion.

Ans
✗ A. mettle
✗ B. valor
✗ C. bravery
✓ D. meekness

Question ID : **630680499640**
Status : **Answered**
Chosen Option : **D**

Q.4 When a small amount of _____ impurity is added to a pure semiconductor, it becomes a p-type semiconductor.

Ans
✗ A. antimony
✗ B. arsenic
✓ C. gallium
✗ D. phosphorus

Question ID : **630680777250**
Status : **Answered**
Chosen Option : **D**

Q.5 At what power factor of the load does zero regulation occur in a single-phase transformer, irrespective of magnitude of the load on the transformer?

(Consider that 'R_{eq}' is the equivalent resistance; 'X_{eq}' is the equivalent reactance and 'Z_{eq}' is the equivalent impedance of the transformer referred to the secondary.)

Ans
✗ A. $\frac{R_{eq}}{Z_{eq}}$ *lagging*
✗ B. $\frac{R_{eq}}{X_{eq}}$ *leading*
✗ C. $\frac{R_{eq}}{X_{eq}}$ *lagging*
✓ D. $\frac{X_{eq}}{Z_{eq}}$ *leading*

Question ID : **630680775220**
Status : **Answered**
Chosen Option : **A**

Q.6 निम्नलिखित में से कौन-सी एजेंसी स्वयं सहायता समूहों का सहायता प्रदान करती है?

Ans
✔ A. डीडब्ल्यूसीआरए (DWCRA)
✘ B. एडीबी (ADB)
✘ C. यूटीआई (UTI)
✘ D. आईसीआईसीआई (ICICI)

Question ID : **630680314395**
Status : **Answered**
Chosen Option : **A**

Q.7 What is the overall transfer function of a negative feedback system whose forward path transfer function is G(s) and feedback transfer function is H(s)?

Ans
✔ A. $\frac{G(s)}{1+G(s)H(s)}$
✘ B. $\frac{G(s)H(s)}{1+H(s)}$
✘ C. $\frac{G(s)}{1+H(s)}$
✘ D. $\frac{G(s)H(s)}{1+G(s)H(s)}$

Question ID : **630680777262**
Status : **Answered**
Chosen Option : **A**

Q.8 How are the primary and secondary windings of a two-winding transformer linked?

Ans
✘ A. Both conductively and inductively
✘ B. Conductively
✘ C. Thermally
✔ D. Inductively

Question ID : **630680777222**
Status : **Answered**
Chosen Option : **D**

Q.9 If a discount of 10% is given on the marked price of a book, the bookseller gains 20%. If the discount is increased to 12.5%, then what is the gain percentage of the bookseller?

Ans
✔ A. $16\frac{2}{3}\%$
✘ B. $17\frac{2}{3}\%$
✘ C. $18\frac{2}{3}\%$
✘ D. $15\frac{2}{3}\%$

Question ID : **630680239475**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.10 What is the slip of the three-phase induction motor at standstill?

Ans
✘ A. 5%
✘ B. 50%
✔ C. 100%
✘ D. 10%

Question ID : **630680775229**
Status : **Answered**
Chosen Option : **C**

Q.11 The Partition of Bengal in 1905 was made effective during whose viceroy?

Ans
✗ A. Lord Minto II
✗ B. Lord Lansdowne
✓ C. Lord Curzon
✗ D. Lord Elgin II

Question ID : **630680275819**
Status : **Answered**
Chosen Option : **C**

Q.12 In a series resonant circuit, the power delivered to the load at resonance is 50 W. What will be the power delivered when the resultant reactance of the circuit is equal to the resistance?

Ans
✗ A. 12.5 W
✓ B. 25 W
✗ C. 50 W
✗ D. 100 W

Question ID : **630680775298**
Status : **Answered**
Chosen Option : **B**

Q.13 K, L, M, N, U, V और X एक वृत्ताकार मेज के चारों ओर केंद्र की ओर अभिमुख होकर बैठे हैं। U और L के बीच केवल K बैठा है। L, V के बाएँ से तीसरे स्थान पर बैठा है। X, V के ठीक बाएँ बैठा है। N, L का निकटतम पड़ोसी नहीं है। M के बाएं से चौथे स्थान पर कौन बैठा है?

Ans
✗ A. U
✗ B. L
✓ C. N
✗ D. X

Question ID : **630680544686**
Status : **Answered**
Chosen Option : **C**

Q.14 Which of the following options represents transistor configurations with very high input and output impedances, respectively?

Ans
✗ A. Common collector and common emitter
✗ B. Common emitter and common collector
✓ C. Common collector and common base
✗ D. Common base and common emitter

Question ID : **630680777257**
Status : **Answered**
Chosen Option : **A**

Q.15 The length of a room is 12 m and its height is 8 m. What is the breadth of the room if the length of its longest diagonal is 17 m?

Ans
✓ A. 9 m
✗ B. 11 m
✗ C. 10 m
✗ D. 7 m

Question ID : **630680179135**
Status : **Not Answered**
Chosen Option : **--**

Q.16 A 210 V shunt motor takes an armature current of 100 A and runs at a speed of 1000 rpm at a certain load. The armature resistance is 0.1 Ω. What is the armature torque (in N-m)?

Ans
✗ A. $\frac{300}{\pi}$
✗ B. $\frac{1200}{\pi}$
✗ C. $\frac{900}{\pi}$
✓ D. $\frac{600}{\pi}$

Question ID : **630680777221**
Status : **Answered**
Chosen Option : **D**

Q.17 Which AC bridge can be used for measurement of the relative permeability?

Ans
✗ A. Owen's bridge
✓ B. Schering bridge
✗ C. Anderson's bridge
✗ D. Maxwell's bridge

Question ID : **630680777298**
Status : **Answered**
Chosen Option : **D**

Q.18 A power transformer is operating with a maximum flux density of 1.25 Wb/m^2. The hysteresis loss in the magnetic material is proportional to _____.

Ans
✓ A. $1.25^{1.6}$
✗ B. $1.25^{2.5}$
✗ C. 1.25^{2}
✗ D. $1.25^{1.2}$

Question ID : **630680777268**
Status : **Answered**
Chosen Option : **A**

Q.19 Select the most appropriate option to fill in the blank.

The chair _____ me is occupied by a senior employee.

Ans
✓ A. beside
✗ B. beside of
✗ C. besides
✗ D. besides of

Question ID : **63068066109**
Status : **Answered**
Chosen Option : **D**

Q.20 In a common base connection, the emitter current is 1mA. If the emitter circuit is open, the collector current is 100 μA and current amplification factor is 0.9. What will be the total collector current?

Ans
✗ A. 0.1 mA
✓ B. 1 mA
✗ C. 100 mA
✗ D. 10 mA

Question ID : **630680777251**
Status : **Not Answered**
Chosen Option : **--**

Q.21 What is the average power delivered to an impedance $Z_L = 8 - j11\ \Omega$, by a current $i = 5 \sin (314t - 20°)$?

Ans
- ✔ A. 100 W
- ✘ B. 50 W
- ✘ C. 400 W
- ✘ D. 200 W

Question ID : **630680777204**
Status : **Answered**
Chosen Option : **A**

Q.22 **Which of the following statements with reference to electrodynamometer wattmeters is/are true?**
1. Electrodynamometer wattmeters have a low torque-to-weight ratio and hence, they have low sensitivity.
2. Low torque-to-weight ratio gives increased frictional losses.

Ans
- ✔ A. Both 1 and 2
- ✘ B. Only 1
- ✘ C. Neither 1 nor 2
- ✘ D. Only 2

Question ID : **630680777293**
Status : **Answered**
Chosen Option : **A**

Q.23 **How many wattmeters are enough to measure power in a three-phase, four-wire balanced, star-connected load?**

Ans
- ✘ A. 4
- ✔ B. 1
- ✘ C. 2
- ✘ D. 3

Question ID : **630680775222**
Status : **Answered**
Chosen Option : **D**

Q.24 **In which century was Sikhism founded?**

Ans
- ✔ A. 15^{th} century
- ✘ B. 13^{th} century
- ✘ C. 14^{th} century
- ✘ D. 16^{th} century

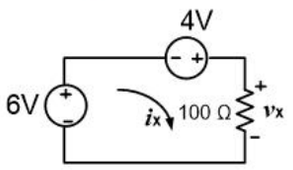
Question ID : **63068087331**
Status : **Answered**
Chosen Option : **C**

Q.25 **In a voltmeter a current of 1 μA gives a full scale deflection. What is the sensitivity of the meter?**

Ans
- ✘ A. 2 Ω/V
- ✔ B. 1 M Ω/V
- ✘ C. 1 k Ω/V
- ✘ D. 2 MΩ/V

Question ID : **630680777290**
Status : **Answered**
Chosen Option : **B**

Q.26 What are the values of i_x and v_x in the circuit shown below?



Ans
- ✔ A. 100 mA and 10 V, respectively
- ✘ B. 20 mA and 2 V, respectively
- ✘ C. 200 mA and 2 V, respectively
- ✘ D. 10 mA and 10 V, respectively

Question ID : **630680777201**
Status : **Answered**
Chosen Option : **A**

Q.27 **A 4-bit up or down counter is also known as a _____ counter.**

Ans
- ✔ A. MOD-16
- ✘ B. MOD-32
- ✘ C. MOD-8
- ✘ D. MOD-4

Question ID : **630680777286**
Status : **Not Answered**
Chosen Option : **--**

Q.28 **In May 2022, for which of the following missions did the ISRO successfully test large human-rated solid rocket booster HS 200?**

Ans
- ✔ A. Gaganyaan Mission
- ✘ B. Shukrayaan Mission
- ✘ C. Aditya Mission
- ✘ D. Chandrayaan Mission

Question ID : **630680262468**
Status : **Answered**
Chosen Option : **A**