पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

Participant ID	
Participant Name	
Tests Center Name	
Test Date	20/06/2023
Test Time	11:30 AM - 12:30 PM
Subject	Field Engineer (Electrical)

Section : **General English**

Q.1 **Sentences of a paragraph are given below in jumbled order. Select the option that arranges the sentences in the correct order to form a meaningful and coherent paragraph.**

A. Deadlines are missed and the work flow is inefficient and of poor quality.
B. As a result, your stress level shoots up.
C. Failing to manage your time effectively can have very undesirable consequences.
D. It dents your reputation as a professional and your career is in danger of being stalled.

Ans
✗ 1. ACBD
✓ 2. CADB
✗ 3. CBDA
✗ 4. ABDC

Question ID : **630680244177**
Option 1 ID : **630680947050**
Option 2 ID : **630680947049**
Option 3 ID : **630680947048**
Option 4 ID : **630680947047**
Status : **Answered**
Chosen Option : **2**

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Q.2 **Sentences of a paragraph are given below in jumbled order. Select the option that arranges the sentences in the correct order to form a meaningful and coherent paragraph.**

A. But since we all get the same 24 hours, why is it that some people achieve so much more in their time than others?
B. That means how much time you plan to spend on specific activities.
C. The answer lies in time management.
D. It seems that there is never enough time in the day.

Ans
✔ 1. DACB
✘ 2. ACDB
✘ 3. ABDC
✘ 4. DBCA

Question ID : **630680244176**
Option 1 ID : **630680947043**
Option 2 ID : **630680947045**
Option 3 ID : **630680947046**
Option 4 ID : **630680947044**
Status : **Answered**
Chosen Option : **2**

Q.3 **Select the most appropriate ANTONYM of the bracketed word in the following sentence to fill in the blank.**

The Parliament complex is lined with _____ trees, herbs, and flowers. (Foreign)

Ans
✘ 1. extraneous
✘ 2. extrinsic
✔ 3. indigenous
✘ 4. incongruous

Question ID : **630680244175**
Option 1 ID : **630680947039**
Option 2 ID : **630680947041**
Option 3 ID : **630680947040**
Option 4 ID : **630680947042**
Status : **Answered**
Chosen Option : **4**

Q.4 **Select the most appropriate option to fill in the blank.**

She is fully conversant _____ the new technology in place.

Ans
1. in
2. for
3. with
4. of

Question ID : **630680244173**
Option 1 ID : **630680947031**
Option 2 ID : **630680947034**
Option 3 ID : **630680947033**
Option 4 ID : **630680947032**
Status : **Answered**
Chosen Option : **2**

Q.5 **Select the most appropriate synonym of the bracketed word in the following sentence to fill in the blank.**

There is a growing body of research that indicates that _____ social media use can have a negative impact on mental health. (Undue)

Ans
1. frequent
2. eternal
3. regular
4. excessive

Question ID : **630680244174**
Option 1 ID : **630680947037**
Option 2 ID : **630680947038**
Option 3 ID : **630680947036**
Option 4 ID : **630680947035**
Status : **Answered**
Chosen Option : **4**

Section : **Reasoning**

Q.1 Mahima correctly remembers that her mother's birthday is after 19th May but before 23rd May. Her brother correctly remembers that their mother's birthday is before 24th May but after 21st May. On which date in May was definitely their mother's birthday?

Ans

✗ 1. 24th May

✗ 2. 21st May

✗ 3. 23rd May

✓ 4. 22nd May

Question ID : **630680244178**
Option 1 ID : **630680947054**
Option 2 ID : **630680947052**
Option 3 ID : **630680947053**
Option 4 ID : **630680947051**
Status : **Answered**
Chosen Option : **4**

Q.2 Study the given pie chart carefully and answer the question that follows.

(Data is in degrees)

If the total sales of shop B in March is ₹2,40,000, what would be the sales of purses in March for Shop B?

Ans

✗ 1. ₹24,016

✗ 2. ₹28,000

✗ 3. ₹23,999

✓ 4. ₹24,000

Question ID : **630680244187**
Option 1 ID : **630680947087**
Option 2 ID : **630680947090**
Option 3 ID : **630680947088**
Option 4 ID : **630680947089**
Status : **Answered**
Chosen Option : **4**

Q.3 Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

DGT, HZZ, LTF, POL,?

Ans

✗ 1. TKS

✗ 2. UKR

✓ 3. TKR

✗ 4. TLR

Question ID : **630680244181**
Option 1 ID : **630680947063**
Option 2 ID : **630680947066**
Option 3 ID : **630680947064**
Option 4 ID : **630680947065**
Status : **Answered**
Chosen Option : **3**

Q.4 Read the following information carefully.

- Sachin is taller than Saurav and Rahul.
- Rahul is shorter than Raja and Govind.
- Bipin is taller than Raja and shorter than Sachin.
- Sachin is shorter than Govind.
- Rahul is taller than Saurav.

Who among the following is the shortest?

Ans
1. Saurav
2. Govind
3. Sachin
4. Raja

Question ID : **630680244179**
Option 1 ID : **630680947058**
Option 2 ID : **630680947055**
Option 3 ID : **630680947057**
Option 4 ID : **630680947056**
Status : **Answered**
Chosen Option : **1**

Q.5 In a certain code language 'MARVEL' is coded as BNWSMF. How will 'THEORY' be coded in the same language?

Ans

✗ 1. IUPFSZ

✗ 2. IUFPSZ

✓ 3. IUPFZS

✗ 4. IUFPZS

Question ID : **630680244183**
Option 1 ID : **630680947073**
Option 2 ID : **630680947074**
Option 3 ID : **630680947071**
Option 4 ID : **630680947072**
Status : **Answered**
Chosen Option : **3**

Q.6 Select the number from among the given options that can replace the question mark (?) in the following series.

23, 47, 95,191,?

Ans

✗ 1. 432

✗ 2. 338

✓ 3. 383

✗ 4. 234

Question ID : **630680244186**
Option 1 ID : **630680947084**
Option 2 ID : **630680947085**
Option 3 ID : **630680947086**
Option 4 ID : **630680947083**
Status : **Answered**
Chosen Option : **3**

Q.7 Select the number from among the given options that can replace the question mark (?) in the following series.

37, 53, 85, 133,?

Ans

1. 230 ✗
2. 197 ✓
3. 217 ✗
4. 269 ✗

Question ID : **630680244185**
Option 1 ID : **630680947080**
Option 2 ID : **630680947081**
Option 3 ID : **630680947079**
Option 4 ID : **630680947082**
Status : **Answered**
Chosen Option : **2**

Q.8 A question is given, followed by two statements labelled I and II. Identify which of the statements is/are sufficient/necessary to answer the question.

Question:

How is Ram related to Monika?

Statements:

I. Monika is the mother of Shreya and the wife of Gagan.

II. Ram is the brother of Hema and the father of Dev.

Ans ✔ 1.

Both statements I and II together are not sufficient to answer the question

✗ 2.

Statement II alone is sufficient to answer the question, while statement I alone is not sufficient to answer the question

✗ 3.

Statement I alone is sufficient to answer the question, while statement II alone is not sufficient to answer the question

✗ 4.

Either statement I alone or statement II alone is sufficient to answer the question

Question ID : **630680244184**
Option 1 ID : **630680947078**
Option 2 ID : **630680947076**
Option 3 ID : **630680947075**
Option 4 ID : **630680947077**
Status : **Answered**
Chosen Option : **1**

Q.9 Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

CXG, EUL, GRQ, IOV,?

Ans

✗ 1. KLB

✗ 2. JLA

✗ 3. KMA

✓ 4. KLA

Question ID : **630680244180**
Option 1 ID : **630680947060**
Option 2 ID : **630680947062**
Option 3 ID : **630680947059**
Option 4 ID : **630680947061**
Status : **Answered**
Chosen Option : **4**

Q.10 In a certain code language 'EXAMINE' is coded as BYFNFOJ. How will 'IMAGINE' be coded in the same language?

Ans

✓ 1. BNJHFOJ

✗ 2. BNJFHOJ

✗ 3. BJNHFOJ

✗ 4. BNJHFJO

Question ID : **630680244182**
Option 1 ID : **630680947068**
Option 2 ID : **630680947067**
Option 3 ID : **630680947069**
Option 4 ID : **630680947070**
Status : **Answered**
Chosen Option : **1**

Section : **Quantitative Aptitude**

Q.1 A man travels from A to B at a speed of 40 km/h and then from B to C at 60 km/h, where B is between A and C. The ratio of distances AB and BC is 2 : 3. He travels back from C to A at x km/h. If his average speed for the whole journey is $61\frac{7}{13}$ km/h, then what is the value of x ?

Ans

✗ 1. 75

✗ 2. 65

✓ 3. 80

✗ 4. 70

Question ID : **630680244188**
Option 1 ID : **630680947093**
Option 2 ID : **630680947091**
Option 3 ID : **630680947094**
Option 4 ID : **630680947092**
Status : **Answered**
Chosen Option : **2**

Q.2 In a certain race, A beats B by 35 seconds and B beats C by 45 seconds. The speed of B is the average of the speeds of A and C. What time (in minutes) does C take to run the race?

Ans

✗ 1. 5

✗ 2. $5\frac{1}{3}$

✓ 3. 6

✗ 4. $6\frac{1}{2}$

Question ID : **630680244195**
Option 1 ID : **630680947119**
Option 2 ID : **630680947120**
Option 3 ID : **630680947122**
Option 4 ID : **630680947121**
Status : **Answered**
Chosen Option : **2**

Q.3 A, B and C can do a certain work in 40 days, 60 days, and 100 days, respectively. In how many days will the work be completed, if A is assisted by B and C together on every third day?

Ans

✔ 1. $29\frac{21}{61}$

✘ 2. $28\frac{7}{30}$

✘ 3. $29\frac{31}{61}$

✘ 4. $28\frac{7}{17}$

Question ID : **630680244197**
Option 1 ID : **630680947130**
Option 2 ID : **630680947129**
Option 3 ID : **630680947127**
Option 4 ID : **630680947128**
Status : **Answered**
Chosen Option : **3**

Q.4 The speed of a boat in still water is 15 km/h and it takes $1\frac{3}{4}$ hours to travel 10 km upstream and 15 km downstream. How much time (in hours) will the boat take to travel 15 km upstream and 30 km downstream?

Ans

✔ 1. 3

✘ 2. 6

✘ 3. 4

✘ 4. 5

Question ID : **630680244193**
Option 1 ID : **630680947111**
Option 2 ID : **630680947114**
Option 3 ID : **630680947112**
Option 4 ID : **630680947113**
Status : **Answered**
Chosen Option : **2**

Q.5 P and Q run a race of x metres. P gives Q a head start of 250 m. P is $2\frac{2}{3}$ times as fast as Q and both finished the race simultaneously. What is the value of x ?

Ans

✔ 1. 400

✘ 2. 420

✘ 3. 440

✘ 4. 480

Question ID : **630680244194**
Option 1 ID : **630680947116**
Option 2 ID : **630680947117**
Option 3 ID : **630680947118**
Option 4 ID : **630680947115**
Status : **Answered**
Chosen Option : **3**

Q.6 The price of an item is successively increased by 20% and 30%, and then decreased successively by 15% and 25%. If the difference between the final price and the original price of the item is ₹17.60, then the original price of the item is:

Ans

✘ 1. ₹4,200

✘ 2. ₹3,000

✔ 3. ₹3,200

✘ 4. ₹3,500

Question ID : **630680244189**
Option 1 ID : **630680947098**
Option 2 ID : **630680947095**
Option 3 ID : **630680947096**
Option 4 ID : **630680947097**
Status : **Answered**
Chosen Option : **3**

Q.7 When an article is sold at $\frac{33}{40}$ of its actual selling price, there is a loss of 25%. If it is sold at 32% above its actual selling price, then the profit percentage is:

Ans

✗ 1. 18%

✗ 2. 30%

✗ 3. 25%

✓ 4. 20%

Question ID : **630680244190**
Option 1 ID : **630680947099**
Option 2 ID : **630680947102**
Option 3 ID : **630680947101**
Option 4 ID : **630680947100**
Status : **Answered**
Chosen Option : **3**

Q.8 Pipes A and B can fill a tank in 12 hours and 20 hours, respectively. Pipe C is an emptying pipe. If A, B and C are opened together for 8 hours, then 80% of tank is filled. Initially, pipe B is opened for 4 hours and then closed. Pipes A and C together will fill the remaining part of the tank in (in hours):

Ans

✗ 1. 15

✓ 2. 16

✗ 3. 12

✗ 4. 18

Question ID : **630680244196**
Option 1 ID : **630680947124**
Option 2 ID : **630680947125**
Option 3 ID : **630680947123**
Option 4 ID : **630680947126**
Status : **Answered**
Chosen Option : **3**

Q.9 The total income of X, Y, and Z is ₹75,000. The ratio of X's income to the combined income of Y and Z is 3 : 7 and the ratio of Y's income to the combined income of X and Z is 4 : 11. What is the income (in ₹) of Z?

Ans

✗ 1. 22,500

✗ 2. 30,000

✓ 3. 32,500

✗ 4. 25,000

Question ID : **630680244192**
Option 1 ID : **630680947107**
Option 2 ID : **630680947109**
Option 3 ID : **630680947110**
Option 4 ID : **630680947108**
Status : **Answered**
Chosen Option : **3**

Q.10 An article is sold for ₹1,955, after giving two successive discounts of 15% and 20% on its marked price. If no discount is given on the marked price, then there is a gain of 25%. The cost price (in ₹) of the article is:

Ans

✓ 1. 2,300

✗ 2. 2,100

✗ 3. 2,500

✗ 4. 2,000

Question ID : **630680244191**
Option 1 ID : **630680947105**
Option 2 ID : **630680947104**
Option 3 ID : **630680947106**
Option 4 ID : **630680947103**
Status : **Answered**
Chosen Option : **1**

Section : **Electrical Engineering**

Q.1 The voltage applied and current flowing in a circuit is $V = 100\sin(\omega t + 30^0)$ and $i = 20\sin(\omega t + 60^0)$. Determine the power and power factor in the circuit.

Ans

✗ 1. 173200 W, 0.866 leading

✓ 2. 866 W, 0.866 leading

✗ 3. 173200 W, 0.5 leading

✗ 4. 866 W, 0.5 leading

Question ID : **630680244213**
Option 1 ID : **630680947191**
Option 2 ID : **630680947193**
Option 3 ID : **630680947192**
Option 4 ID : **630680947194**
Status : **Answered**
Chosen Option : **4**

Q.2 Which is NOT a type of "Dead end clamp"?

Ans

✓ 1. Stirrup binding type dead end clamp

✗ 2. Single bolt strain clamp

✗ 3. Compression type dead end clamp

✗ 4. Two bolt strain clamp

Question ID : **630680244246**
Option 1 ID : **630680947326**
Option 2 ID : **630680947323**
Option 3 ID : **630680947325**
Option 4 ID : **630680947324**
Status : **Answered**
Chosen Option : **2**

Q.3 For the economic operation, the generator at a power plant operate at _____, Also specify that the penalty factor is the measure of _____.

Ans

✗ 1. Equal loads; line loss

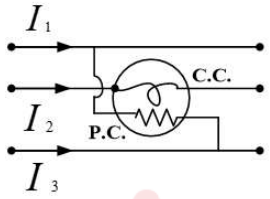
✗ 2. Equal power rating; generation cost

✗ 3. Equal loads; fuel cost

✓ 4. Equal incremental cost; line loss

Question ID : **630680244229**
Option 1 ID : **630680947258**
Option 2 ID : **630680947255**
Option 3 ID : **630680947256**
Option 4 ID : **630680947257**
Status : **Answered**
Chosen Option : **1**

Q.4 What should be the reading of electrodynameter type wattmeter if it is connected as shown in figure in a 3-phase supply and having 3-phase balanced load. If V_{Ph} and I_{Ph} are the phase voltage and current respectively. ϕ is the phase angle between them.



Ans

✗ 1. Proportional to the $V_{Ph}I_{Ph}$

✗ 2. Proportional to the $V_{Ph}I_{Ph}\ \sin\phi$

✓ 3. Proportional to the $V_{Ph}I_{Ph}\ \cos\phi$

✗ 4. Proportional to the $V_{Ph}I_{Ph}\ \tan\phi$

Question ID : **630680244233**
Option 1 ID : **630680947274**
Option 2 ID : **630680947271**
Option 3 ID : **630680947272**
Option 4 ID : **630680947273**
Status : **Answered**
Chosen Option : **3**

Q.5 Which of the following is a key step in the installation, commissioning, and maintenance of transmission lines?

Ans

✗ 1. Conducting soil resistivity tests at the site.

✗ 2. Testing the insulation resistance of transmission towers.

✗ 3. Performing routine maintenance on substation transformers.

✓ 4. Ensuring proper grounding of transmission line conductors.

Question ID : **630680244206**
Option 1 ID : **630680947165**
Option 2 ID : **630680947164**
Option 3 ID : **630680947163**
Option 4 ID : **630680947166**
Status : **Answered**
Chosen Option : **1**

Q.6 Which option is wrong regarding the drawback of "solid system of laying underground cable"?

Ans

✓ 1. No protection against mechanical injuries and from impurities present in the soil.

✗ 2. Much higher cost.

✗ 3. Reduce current carrying capacity of the cable.

✗ 4. Taking more time in laying and repair.

Question ID : **630680244243**
Option 1 ID : **630680947314**
Option 2 ID : **630680947312**
Option 3 ID : **630680947311**
Option 4 ID : **630680947313**
Status : **Answered**
Chosen Option : **3**

Q.7 What will happen if the transformer operated in parallel are NOT connected with regard to polarity?

Ans

✗ 1. The transformer of higher rating will be out of operation.

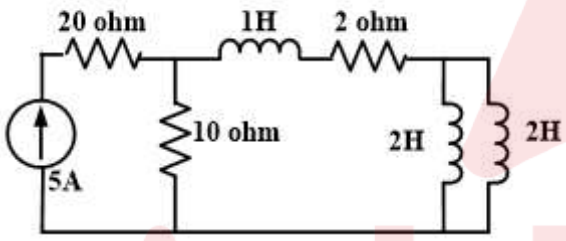
✗ 2. The transformer will not share the load in proportion to their KVA ratings.

✗ 3. The transformer of lower rating will be out of operation.

✓ 4. Dead short circuit will take place.

Question ID : **630680244219**
Option 1 ID : **630680947216**
Option 2 ID : **630680947217**
Option 3 ID : **630680947215**
Option 4 ID : **630680947218**
Status : **Answered**
Chosen Option : **4**

Q.8 Determine the time constant of the circuit shown in below.



Ans

✗ 1. 10/9 s

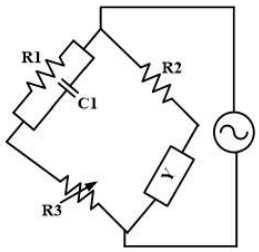
✗ 2. 6 s

✗ 3. 9/10 s

✓ 4. 1/6 s

Question ID : **630680244215**
Option 1 ID : **630680947202**
Option 2 ID : **630680947199**
Option 3 ID : **630680947201**
Option 4 ID : **630680947200**
Status : **Answered**
Chosen Option : **3**

Q.9 What should be the unknown impedance Y if balance condition is obtained by varying R1 and R3 in the figure shown?



Ans

✗ 1. Purely capacitive.

✓ 2. Inductive coil with finite resistance.

✗ 3. Purely inductive.

✗ 4. Purely resistive.

Question ID : **630680244232**
Option 1 ID : **630680947269**
Option 2 ID : **630680947270**
Option 3 ID : **630680947268**
Option 4 ID : **630680947267**
Status : **Answered**
Chosen Option : **2**

Q.10 Evaluate the real power supplied by the source when a 240V single phase AC source is connected to a load with an impedance of $10\angle 60^0$ ohm. A capacitor is connected in parallel with the load and the capacitor supplies 1250 VAR.

Ans

✗ 1. 3600 W

✗ 2. 1200 W

✓ 3. 2880 W

✗ 4. 2400 W

Question ID : **630680244217**
Option 1 ID : **630680947210**
Option 2 ID : **630680947208**
Option 3 ID : **630680947207**
Option 4 ID : **630680947209**
Status : **Answered**
Chosen Option : **3**

Q.11 Which of the following is a characteristic of electric traction systems?

Ans

✗ 1. Electric traction is primarily used in residential buildings for energy utilization.

✗ 2. Electric traction relies on steam engines for locomotion.

✗ 3. Electric traction systems are not suitable for urban transportation.

✓ 4. Electric traction systems are commonly used for powering industrial machinery.

Question ID : **630680244242**
Option 1 ID : **630680947307**
Option 2 ID : **630680947309**
Option 3 ID : **630680947310**
Option 4 ID : **630680947308**
Status : **Answered**
Chosen Option : **4**

Q.12 Estimate the current carrying capability of a conducting wire from the main distribution board to the meter. The main distribution board has three light/fan circuit of 800W each and two 15A power circuits of 1.5kW each. The safety factor and the power factor is given as 1.5 and 0.8 respectively.

Ans

✗ 1. 50A

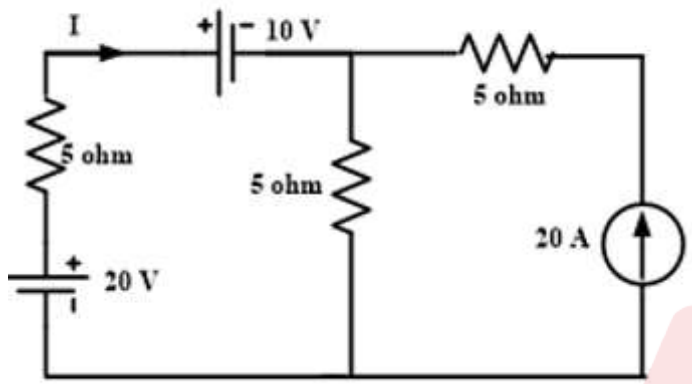
✗ 2. 30A

✗ 3. 65A

✓ 4. 45A

Question ID : **630680244244**
Option 1 ID : **630680947317**
Option 2 ID : **630680947315**
Option 3 ID : **630680947318**
Option 4 ID : **630680947316**
Status : **Answered**
Chosen Option : **4**

Q.13 Determine the value of current 'I'.



Ans
1. 9 A
2. 2 A
3. -2 A
4. -9 A

Question ID : **630680244199**
Option 1 ID : **630680947137**
Option 2 ID : **630680947135**
Option 3 ID : **630680947136**
Option 4 ID : **630680947138**
Status : **Answered**
Chosen Option : **4**

Q.14 How many light points can be safely connected to the circuit without exceeding the maximum allowable load and adhering to safety regulations? The circuit includes 100W lamps and is protected by a 5A fuse.

Ans

✗ 1. 16

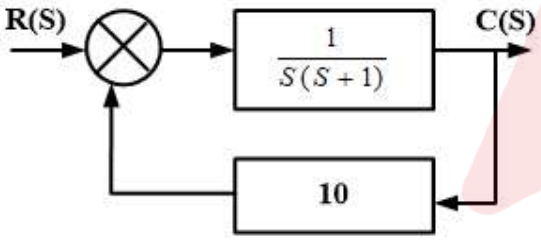
✓ 2. 9

✗ 3. 8

✗ 4. 14

Question ID : **630680244245**
Option 1 ID : **630680947320**
Option 2 ID : **630680947321**
Option 3 ID : **630680947319**
Option 4 ID : **630680947322**
Status : **Answered**
Chosen Option : **3**

Q.15 Calculate the steady state error to unit step input for the given system.



Ans

✗ 1. Infinity

✓ 2. 0.9

✗ 3. 0.1

✗ 4. 0

Question ID : **630680244209**
Option 1 ID : **630680947176**
Option 2 ID : **630680947177**
Option 3 ID : **630680947178**
Option 4 ID : **630680947175**
Status : **Answered**
Chosen Option : **3**

Q.16 The load angle and operating frequency of a synchronous motor having negligible resistance is 30° and 60Hz respectively. By keeping other parameter constant if the frequency is increased by 20%, then the new load angle will be _____ to keep the associated power constant.

Ans

✗ 1. $Sin^{-1}0.8$ (or) 53.13°

✗ 2. $Sin^{-1}0.5$ (or) 30°

✗ 3. $Sin^{-1}07$ (or) 44.42°

✓ 4. $Sin^{-1}0.6$ (or) 36.86°

Question ID : **630680244222**
Option 1 ID : **630680947228**
Option 2 ID : **630680947229**
Option 3 ID : **630680947230**
Option 4 ID : **630680947227**
Status : **Answered**
Chosen Option : **3**

Q.17 Determine the oscillation frequency of emf of the rotor if it is operating at speed 1710 rpm. The supply voltage and frequency of the three phase four poles induction motor are 440V and 60 Hz respectively.

Ans

✗ 1. 6 Hz

✓ 2. 3 Hz

✗ 3. 50 Hz

✗ 4. 60 Hz

Question ID : **630680244220**
Option 1 ID : **630680947222**
Option 2 ID : **630680947221**
Option 3 ID : **630680947220**
Option 4 ID : **630680947219**
Status : **Answered**
Chosen Option : **3**

Q.18 Which statement is false regarding the controller and compensator?

Ans

✗ 1.
PI controller decreases the steady state error and the lead compensator possess faster speed of response with reduced overshoot.

✗ 2.
PID controller decreases the steady state error while improving the stability and lead compensator improve transient stability.

✗ 3.
PID controller decreases the steady state error while improving the stability and the lead compensator increases the system bandwidth.

✓ 4.
PI controller decreases the steady state error and the lead compensator possess slower speed of response with reduced overshoot

Question ID : **630680244211**
Option 1 ID : **630680947183**
Option 2 ID : **630680947185**
Option 3 ID : **630680947186**
Option 4 ID : **630680947184**
Status : **Answered**
Chosen Option : **2**

Q.19 Three statements are given in below regarding the suitable choice of HVDC converter configuration:

a. Transformer utilization factor should be nearly unity.
b. Ratio of peak inverse voltage to no load DC output voltage should be as high as possible.
c. Pulse number should be high.

Identify the correct statement and choose the correct option.

Ans

✗ 1. a, b and c

✗ 2. c and b

✗ 3. b and a

✓ 4. c and a

Question ID : **630680244237**
Option 1 ID : **630680947287**
Option 2 ID : **630680947288**
Option 3 ID : **630680947290**
Option 4 ID : **630680947289**
Status : **Answered**
Chosen Option : **3**

Q.20 Three statements are given regarding the HVDC power transmission

a. Most of the present day DC schemes are two terminals links.

b. The modern HVDC system use 12-pulse converter.

c. DC system never use ground or sea return.

Identify which of the statements are correct and choose the appropriate option.

Ans

✗ 1. b and c

✓ 2. a and b

✗ 3. a, b and c

✗ 4. a and c

Question ID : **630680244236**
Option 1 ID : **630680947286**
Option 2 ID : **630680947284**
Option 3 ID : **630680947283**
Option 4 ID : **630680947285**
Status : **Answered**
Chosen Option : **3**

Q.21 Which is NOT true about the quality factor of the AC circuit at resonance?

Ans

✗ 1. It is the ratio of the inductive reactance to the resistance.

✗ 2.
It is defined as the ratio of maximum energy stored to the energy dissipated per cycle.

✗ 3. It is the ratio of the capacitive reactance to the resistance.

✓ 4.
It represents power magnification that the circuit produced during the resonance.

Question ID : **630680244202**
Option 1 ID : **630680947147**
Option 2 ID : **630680947150**
Option 3 ID : **630680947148**
Option 4 ID : **630680947149**
Status : **Answered**
Chosen Option : **3**

Q.22 Identify the wrong statement.

Ans

✗ 1.
With the reduction of DC excitation, synchronous motor draws more current from the supply mains at lower lagging power factor.

✗ 2.
A synchronous motor is supplying load at unity pf. If the load on the motor is increased keeping its excitation and terminal voltage constant, the power factor will be lagging.

✗ 3.
The synchronous motor operates at leading power factors when it is in overexcited condition.

✓ 4.
The current drawn from the supply main is maximum for a certain value of excitation at where the phase angle between 'V" and 'I' is zero.

Question ID : **630680244223**
Option 1 ID : **630680947231**
Option 2 ID : **630680947234**
Option 3 ID : **630680947233**
Option 4 ID : **630680947232**
Status : **Answered**
Chosen Option : **1**

Q.23 The A, B, C, D constant of 220 kV line are:
$A=D=0.94\angle 1^0$, $B=130\angle 73^0$ $C=0.001\angle 90^0$. If the sending end voltage of the line for a given load delivered at a nominal voltage is 240 kV , the percentage of voltage regulation of the line is _____.

Ans

✓ 1. 16

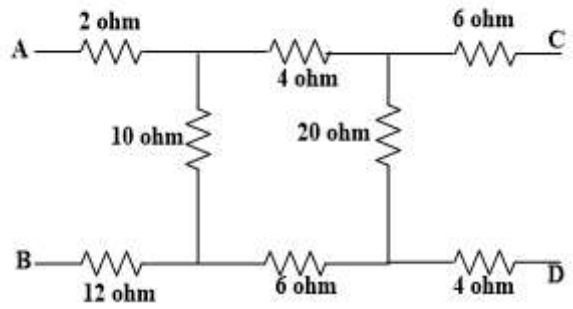
✗ 2. 5

✗ 3. 21

✗ 4. 9

Question ID : **630680244227**
Option 1 ID : **630680947250**
Option 2 ID : **630680947249**
Option 3 ID : **630680947248**
Option 4 ID : **630680947247**
Status : **Answered**
Chosen Option : **3**

Q.24 Estimate the equivalent resistance across C and D terminals?



Ans
1. 20.00 ohm
2. 16.85 ohm
3. 20.50 ohm
4. 24.00 ohm

Question ID : **630680244200**
Option 1 ID : **630680947141**
Option 2 ID : **630680947139**
Option 3 ID : **630680947140**
Option 4 ID : **630680947142**
Status : **Answered**
Chosen Option : **1**

Q.25 Mono polar HVDC link indicates _____ Also in HVDC system, due to _____ more numbers of thyristor are connected in series.

Ans

✗ 1.
Two conductor of usually one negative polarity and other positive; Low voltage rating of the thristors

✗ 2.
Both of two conductors negative polarity; Low current rating of the thristors

✓ 3.
One conductor of usually negative polarity; Low voltage rating of the thristors

✗ 4.
One conductor of usually positive polarity; Low current rating of the thristors

Question ID : **630680244239**
Option 1 ID : **630680947297**
Option 2 ID : **630680947298**
Option 3 ID : **630680947296**
Option 4 ID : **630680947295**
Status : **Answered**
Chosen Option : **4**

Q.26 Which statement is wrong regarding the 'jumper'?

Ans

✗ 1.
Jumpers are fixed to the line conductors with a suitable clamp.

✓ 2.
A jumper is made up of the different material as that of the line conductor to withstand the maximum voltage gradient.

✗ 3.
Jumper has same current carrying capability as that of the line conductor.

✗ 4.
For high voltage lines , the jumpers are arranged in such a way that under maximum deflection condition there is minimum clearance of 0.1 m between the line jumpers and other metallic parts.

Question ID : **630680244247**
Option 1 ID : **630680947329**
Option 2 ID : **630680947327**
Option 3 ID : **630680947328**
Option 4 ID : **630680947330**
Status : **Answered**
Chosen Option : **2**

Q.27 Which statement is true regarding the RLC circuit supplied from an AC source?

Ans

✗ 1.
The reactive power is proportional to the average energy stored in the magnetic field.

✗ 2.
The reactive power is proportional to the average energy stored in the electric field.

✓ 3.
The reactive power is proportional to the difference between the average energy stored in the electric field and that stored in the magnetic field.

✗ 4.
The reactive power is proportional to the sum of the average energy stored in the electric field and that stored in the magnetic field.

Question ID : **630680244214**
Option 1 ID : **630680947196**
Option 2 ID : **630680947195**
Option 3 ID : **630680947198**
Option 4 ID : **630680947197**
Status : **Answered**
Chosen Option : **3**

Q.28 Which statement is wrong regarding the "guarding of overhead line"?

Ans

✗ 1.
Cage guarding is provided in long transmission line with vertical formation.

✗ 2.
Cradle guarding is provided when the conductors are in horizontal or delta formation.

✗ 3. The cradle guard is directly connected to earth wire.

✓ 4.
The cage guard wire should be made with the different material as compared to the earth wire material.

Question ID : **630680244207**
Option 1 ID : **630680947169**
Option 2 ID : **630680947167**
Option 3 ID : **630680947168**
Option 4 ID : **630680947170**
Status : **Answered**
Chosen Option : **2**

Q.29 To improve _____, the shunt compensation in EHV is implemented.

Ans

✗ 1. Stability, fault level and power factor

✗ 2. Stability, fault level and voltage profile

✓ 3. Stability, power factor and voltage profile

✗ 4. Stability and voltage profile only

Question ID : **630680244234**
Option 1 ID : **630680947275**
Option 2 ID : **630680947276**
Option 3 ID : **630680947277**
Option 4 ID : **630680947278**
Status : **Answered**
Chosen Option : **3**

Q.30 A $3\frac{1}{2}$ digit digital multimeter can read maximum upto _____ ohmic range.

Ans

✓ 1. 1999 ohm

✗ 2. 999 ohm

✗ 3. 1000 ohm

✗ 4. 9999 ohm

Question ID : **630680244231**
Option 1 ID : **630680947264**
Option 2 ID : **630680947266**
Option 3 ID : **630680947265**
Option 4 ID : **630680947263**
Status : **Answered**
Chosen Option : **2**

Q.31 The power developed by the synchronous generator is given by.

$$P = \frac{3E_0V}{X_d}\sin\delta + \frac{3V^2}{2}\left\{\frac{1}{X_q} - \frac{1}{X_d}\right\}\sin 2\delta$$

The first and second terms represents _____ and _____, respectively. If no field excitation is there then _____ become zero.

Ans

✗ 1. Field excitation power; Reluctance power; second term

✓ 2. Field excitation power; Reluctance power; first term

✗ 3. Reluctance power; field excitation power; first term

✗ 4. Reluctance power; field excitation power; second term

Question ID : **630680244225**
Option 1 ID : **630680947242**
Option 2 ID : **630680947241**
Option 3 ID : **630680947239**
Option 4 ID : **630680947240**
Status : **Answered**
Chosen Option : **3**

Q.32 Which statement is wrong regarding the EHV transmission line noise?

Ans

✓ 1.
The audible noise produced by EHV transmission line and substation is not a function of environmental condition.

✗ 2.
The audible noise produced by EHV transmission line and substation is a function of number of sub-conductors in a bundle.

✗ 3.
The audible noise produced by EHV transmission line and substation is a function of the lateral distance between the lines and point of measurement of noise.

✗ 4.
The audible noise produced by EHV transmission line and substation is a function of voltage gradient on the surface of a conductor.

Question ID : **630680244235**
Option 1 ID : **630680947281**
Option 2 ID : **630680947282**
Option 3 ID : **630680947280**
Option 4 ID : **630680947279**
Status : **Answered**
Chosen Option : **3**

Q.33 The Nyquist plot can be used to adjudge:

Ans

✗ 1. Absolute and relative stability.

✗ 2. Stability and transient response.

✗ 3. Steady state error.

✓ 4.
Absolute as well as relative stability and number of closed loop poles in the right half of s-plane

Question ID : **630680244210**
Option 1 ID : **630680947181**
Option 2 ID : **630680947180**
Option 3 ID : **630680947182**
Option 4 ID : **630680947179**
Status : **Answered**
Chosen Option : **2**

Q.34 If load draw a current of 20 A at 0.85 pf lagging when connected to 220 V supply, then Calculate reactive power drawn by it.

Ans

✗ 1. 2107.13 VAR

✓ 2. 2317.48 VAR

✗ 3. 1338.036 VAR

✗ 4. 3740 VAR

Question ID : **630680244201**
Option 1 ID : **630680947146**
Option 2 ID : **630680947145**
Option 3 ID : **630680947143**
Option 4 ID : **630680947144**
Status : **Answered**
Chosen Option : **3**

Q.35 How a line current and the back emf vary with the increase in speed of DC motor?

Ans

✔ 1. A line current decreases and the back emf increases.

✗ 2. Both line current and back emf decreases.

✗ 3. Both the line current and back emf increases.

✗ 4. A line current increases and the back emf decreases

Question ID : **630680244218**
Option 1 ID : **630680947211**
Option 2 ID : **630680947214**
Option 3 ID : **630680947213**
Option 4 ID : **630680947212**
Status : **Answered**
Chosen Option : **1**

Q.36 When there is interference in an overhead communication line running parallel and in close proximity to an overhead power line, the voltage induced in the communication line in the longitudinal and lateral directions by the power lines are due to:

Ans

✗ 1. Magnetic inductions only.

✔ 2. Magnetic induction and electric induction respectively.

✗ 3. Electric induction only.

✗ 4. Electric induction and magnetic induction respectively.

Question ID : **630680244238**
Option 1 ID : **630680947293**
Option 2 ID : **630680947291**
Option 3 ID : **630680947294**
Option 4 ID : **630680947292**
Status : **Answered**
Chosen Option : **2**

Q.37 Which of the given statement is false regarding the IGBT?

Ans

✗ 1. It is a unipolar switch.

✓ 2. Drain, source and gate are the three terminals of the IGBT

✗ 3. It is a uni-directional switch.

✗ 4. It is a fully controlled switch.

Question ID : **630680244205**
Option 1 ID : **630680947162**
Option 2 ID : **630680947161**
Option 3 ID : **630680947159**
Option 4 ID : **630680947160**
Status : **Answered**
Chosen Option : **3**

Q.38 Which statement is true regarding the inverter?

Ans

✗ 1.
The voltage waveform generated in a single phase system is unsymmetrical around the time axis and the odd harmonics are present in the resulting pulse width modulated waveform.

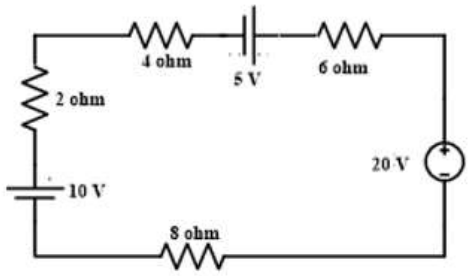
✗ 2.
The voltage waveform generated in a single phase system is unsymmetrical around the time axis and the odd harmonics are absent in the resulting pulse width modulated waveform.

✓ 3.
The voltage waveform generated in a single phase system is symmetrical around the time axis and the odd harmonics are absent in the resulting pulse width modulated waveform.

✗ 4.
The voltage waveform generated in a single phase system is symmetrical around the time axis and the odd harmonics are present in the resulting pulse width modulated waveform.

Question ID : **630680244212**
Option 1 ID : **630680947189**
Option 2 ID : **630680947190**
Option 3 ID : **630680947188**
Option 4 ID : **630680947187**
Status : **Answered**
Chosen Option : **3**

Q.39 Evaluate the magnitude and nature of current flow through the circuit shown in below.



Ans

1. 0.25 A, anti-clockwise
2. 0.25 A, clockwise
3. 0.75 A, clockwise
4. 0.75 A, anti-clockwise

Question ID : **630680244198**
Option 1 ID : **630680947132**
Option 2 ID : **630680947131**
Option 3 ID : **630680947133**
Option 4 ID : **630680947134**
Status : **Answered**
Chosen Option : **4**

Q.40 Which of the following factors significantly affects the illumination level in a space?

Ans

✗ 1. The type of electrical wiring used.

✓ 2. The distance between the light source and the illuminated area.

✗ 3. The ambient temperature of the room.

✗ 4. The color of the walls.

Question ID : **630680244241**
Option 1 ID : **630680947305**
Option 2 ID : **630680947306**
Option 3 ID : **630680947303**
Option 4 ID : **630680947304**
Status : **Answered**
Chosen Option : **2**

Q.41 Which option is false regarding the single phase induction motor?

Ans

✗ 1. The starting torque of resistance start single phase induction motor is 1.5 to 2 times to the full load starting torque.

✗ 2. The starting torque of capacitor start induction motor is twice than that of resistance start induction motor.

✓ 3. The line current of resistance start induction motor is found to be two-third lower than the line current of a corresponding capacitor start induction motor.

✗ 4. The capacitor start induction motor differs from the resistance start induction motor during the starting period only.

Question ID : **630680244221**
Option 1 ID : **630680947226**
Option 2 ID : **630680947224**
Option 3 ID : **630680947223**
Option 4 ID : **630680947225**
Status : **Answered**
Chosen Option : **3**

Q.42 Which is NOT a voltage control technique in AC supply system?

Ans

✔ 1. Use of synchronous motor at the sending end of long EHV transmission line.

✗ 2. Switching shunt reactor during light load or while energizing the long EHV lines.

✗ 3. By using booster transformer and induction regulator.

✗ 4. Use of series capacitor in long EHV transmission line.

Question ID : **630680244228**
Option 1 ID : **630680947253**
Option 2 ID : **630680947252**
Option 3 ID : **630680947254**
Option 4 ID : **630680947251**
Status : **Answered**
Chosen Option : **2**

Q.43 _____ and _____ vapour gas will give yellow and green colours respectively in a filament lamp.

Ans

✔ 1. Sodium; mercury

✗ 2. Helium; magnesium

✗ 3. Helium; mercury

✗ 4. Sodium; magnesium

Question ID : **630680244240**
Option 1 ID : **630680947300**
Option 2 ID : **630680947299**
Option 3 ID : **630680947302**
Option 4 ID : **630680947301**
Status : **Answered**
Chosen Option : **1**

Q.44 A three phase overhead line is designed with an equilateral spacing of 7.788m with a conductor diameter of 2cm. Calculate the inductance per phase.

Ans

✔ 1. 9.2×10^{-7} H/m

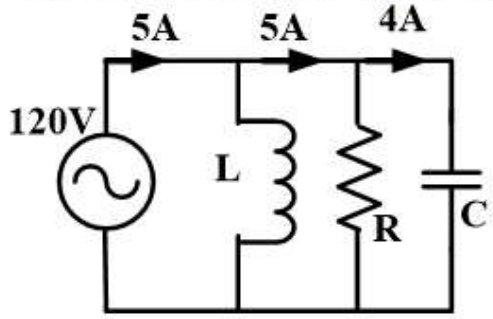
✘ 2. 4.6×10^{-7} H/m

✘ 3. 2×10^{-7} H/m

✘ 4. 0

Question ID : **630680244226**
Option 1 ID : **630680947244**
Option 2 ID : **630680947245**
Option 3 ID : **630680947243**
Option 4 ID : **630680947246**
Status : **Answered**
Chosen Option : **3**

Q.45 Calculate the current through the inductor in the circuit shown below.



Ans
1. 0 A
2. 3 A
3. 4 A
4. 8 A

Question ID : **630680244216**
Option 1 ID : **630680947205**
Option 2 ID : **630680947206**
Option 3 ID : **630680947204**
Option 4 ID : **630680947203**
Status : **Answered**
Chosen Option : **1**

Q.46 Which option is true related to short-pitched winding?

The advantage and disadvantage of short-pitched type winding is _____ and _____, Also the value of pitch factor is _____.

Ans

✗ 1. Decreases the harmonic contents on armature winding; decreases the voltages; always greater than unity.

✗ 2. Increases the voltage on armature winding; increases the harmonics; always less than unity.

✗ 3. Increases the voltage on armature winding; increases the harmonics; always greater than unity.

✓ 4. Decreases the harmonic contents on armature winding; decreases the voltages; always less than unity.

Question ID : **630680244224**
Option 1 ID : **630680947238**
Option 2 ID : **630680947235**
Option 3 ID : **630680947236**
Option 4 ID : **630680947237**
Status : **Answered**
Chosen Option : **2**

Q.47 What is the primary purpose of the time-base control in a Cathode Ray Oscilloscope (CRO)?

Ans

✗ 1. To adjust the intensity of the electron beam

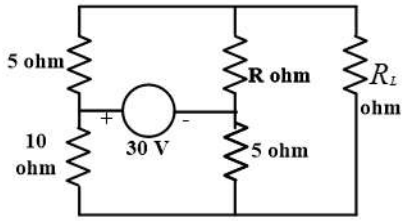
✗ 2. To adjust the brightness of the display.

✓ 3. To control the horizontal sweep speed.

✗ 4. To control the triggering of the vertical deflection

Question ID : **630680244230**
Option 1 ID : **630680947259**
Option 2 ID : **630680947261**
Option 3 ID : **630680947262**
Option 4 ID : **630680947260**
Status : **Answered**
Chosen Option : **4**

Q.48 The current through the resistance ' R_L ' is zero in the given circuit. Determine the value of the resistor.



Ans

✗ 1. $2/5\ \Omega$

✗ 2. $4/5\ \Omega$

✗ 3. $5/4\ \Omega$

✓ 4. $5/2\ \Omega$

Question ID : **630680244203**
Option 1 ID : **630680947154**
Option 2 ID : **630680947152**
Option 3 ID : **630680947151**
Option 4 ID : **630680947153**
Status : **Answered**
Chosen Option : **3**

Q.49 The input voltage with resistive load of a single phase half wave controlled rectifier is 400 sin 314t. For the firing angle of 60°, the average output voltage is _____.

Ans

✔ 1. $\frac{300}{\pi}$

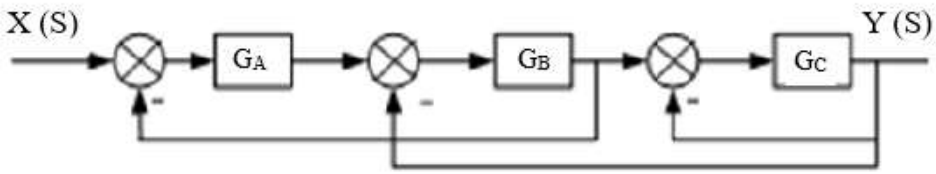
✘ 2. $\frac{200}{\pi}$

✘ 3. $\frac{100}{\pi}$

✘ 4. $\frac{400}{\pi}$

Question ID : **630680244204**
Option 1 ID : **630680947158**
Option 2 ID : **630680947156**
Option 3 ID : **630680947155**
Option 4 ID : **630680947157**
Status : **Answered**
Chosen Option : **2**

Q.50 Determine the transfer function $\frac{Y(S)}{X(S)}$ of the given block diagram.



Ans

✔ 1. $\frac{G_A G_B G_C}{1+G_A G_B+G_B G_C+G_C G_A G_B+G_C}$

✘ 2. $\frac{G_A G_B G_C}{1-G_A G_B-G_B G_C+G_C G_A G_B+G_C}$

✘ 3. $\frac{G_A G_B G_C}{1+G_A G_B+G_B G_C+G_C G_A+G_C}$

✘ 4. $\frac{G_A G_B G_C}{1-G_A G_B-G_B G_C-G_C G_A+G_C}$

Question ID : **630680244208**
Option 1 ID : **630680947172**
Option 2 ID : **630680947174**
Option 3 ID : **630680947171**
Option 4 ID : **630680947173**
Status : **Not Answered**
Chosen Option : **--**