

MGVCL JE

**Previous Year Paper
(Electrical)**

30 Jul, 2021 Shift 2

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GENERAL KNOWLEDGE - GENERAL KNOWLEDGE

Question No.1	Marks: 1.00
Bookmark ☐	
Recently, which country has withdrawn the 'Generalized System of Preferences' with India?	
(A) ☐ Pakistan	
(B) ☒ United States of America (Correct Answer)	
(C) ☐ Russia	
(D) ☐ Peru	
Question No.2	Marks: 1.00
Bookmark ☐	
Nangal Wildlife Sanctuary is located in which state?	
(A) ☐ Tamil Nadu	
(B) ☒ Punjab (Correct Answer)	
(C) ☐ Mizoram	
(D) ☐ Sikkim	
Question No.3	Marks: 1.00
Bookmark ☐	
Who started the daily newspaper 'National Herald' in 1938?	
(A) ☐ Ram Mohan Roy	
(B) ☐ Dadabhai Naoroji	
(C) ☒ Jawaharlal Nehru (Correct Answer)	
(D) ☐ Subhas Chandra Bose	
Question No.4	Marks: 1.00
Bookmark ☐	
Which of the following is a national organisation monitoring the doping control programme in sports in India?	
(A) ☐ International Anti-Doping Protocol	
(B) ☐ Primary Anti-Doping Agency	
(C) ☒ National Anti-Doping Agency (Correct Answer)	
(D) ☐ Indian Anti-Doping Agency	

Question No.5

Marks: 1.00

Bookmark ☐

- Vikram Seth is associated with which of the following fields?
- (A) ☒ Literature (Correct Answer)
 - (B) ☐ Sports
 - (C) ☐ Politician
 - (D) ☐ Music

Question No.6

Marks: 1.00

Bookmark ☐

- Recently, India and Benin signed MoUs on education, health and _____
- (A) ☐ Trading
 - (B) ☐ Defence
 - (C) ☐ Against Corruption
 - (D) ☒ e-visa facilities (Correct Answer)

Question No.7

Marks: 1.00

Bookmark ☐

- What is the full form of the acronym 'AIDS' in diseases?
- (A) ☒ Acquired Immune Deficiency Syndrome (Correct Answer)
 - (B) ☐ Assert in Dander Syndrome
 - (C) ☐ Acquire in Deficiency Syndrome
 - (D) ☐ Amino Intersect Deficiency Syndrome

Question No.8

Marks: 1.00

Bookmark ☐

- Which one of the following is the committee on poverty estimation?
- (A) ☐ S.S.Tarapore committee
 - (B) ☐ Ad hoc committee
 - (C) ☒ Tendulkar committee (Correct Answer)
 - (D) ☐ Karve committee

Question No.9

Marks: 1.00

Bookmark ☐

- What is the full form of UN in 'UN Human Rights Prize'?
- (A) ☐ Uniformed Nations
 - (B) ☒ United Nations (Correct Answer)
 - (C) ☐ Unity Nation
 - (D) ☐ Uniform Nacional

Question No.10

Marks: 1.00

Bookmark ☐

- The Great Barrier Reef is located in which country?
- (A) ☐ Germany
 - ☐

- (B) Canada
(C) ☐ India
(D) ☐ **Australia (Correct Answer)**

ENGLISH KNOWLEDGE - ENGLISH KNOWLEDGE

Question No.1

Marks: 1.00

Bookmark ☐

Fill in the blanks with suitable Preposition from the given alternatives.

England skipper Joe Root is excited to bat _____ number three in the Ashes cricket series

- (A) ☐ **at (Correct Answer)**
(B) ☐ over
(C) ☐ on
(D) ☐ in

Question No.2

Marks: 1.00

Bookmark ☐

Choose the word which best expresses the similar **meaning** of the given word " LUCID "

- (A) ☐ **Clear (Correct Answer)**
(B) ☐ Puzzled
(C) ☐ Cloudy
(D) ☐ Sensible

Question No.3

Marks: 1.00

Bookmark ☐

Rearrange the following to form a meaningful sentence and find the most logical order from the given options.

P: dancers make the company
Q: and they do not have
R: a big team of professional
S: a 'guru shishya' hierarchy

- (A) ☐ PQSR
(B) ☐ **RPQS (Correct Answer)**
(C) ☐ PQRS
(D) ☐ RPSQ

Question No.4

Marks: 1.00

Bookmark ☐

Fill in the blanks with suitable Article from the given alternatives.

I heard _____ interesting story yesterday

- (A) ☐ a
(B) ☐ **an (Correct Answer)**

- (C) ☐ the
(D) ☐ No article

Question No.5

Marks: 1.00

Bookmark ☐

Find the word which is correctly spelt from the given options.

- (A) ☐ Wrinkel
(B) ☐ Sentimant
(C) ☐ **Maximum (Correct Answer)**
(D) ☐ Absurrd

Question No.6

Marks: 1.00

Bookmark ☐

In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and select the option corresponding to it. If the sentence contains no error, Select "No error" option. (Avoid punctuation errors)

- (A) The Manager, with / (B) all his employee, was / (C) fired from the company /
(D) NO ERROR
(A) ☐ C
(B) ☐ A
(C) ☐ **B (Correct Answer)**
(D) ☐ D

Question No.7

Marks: 1.00

Bookmark ☐

Choose the word which expresses nearly the **opposite** meaning of the given word " WHIMSICAL "

- (A) ☐ **Regular (Correct Answer)**
(B) ☐ Fantastic
(C) ☐ Curious
(D) ☐ Funny

Question No.8

Marks: 1.00

Bookmark ☐

Choose the best option from the given alternatives which can be substituted for the given word/sentence.

A person who kills somebody especially for political reasons

- (A) ☐ **Assassin (Correct Answer)**
(B) ☐ Alien
(C) ☐ Stoic
(D) ☐ Pauper

Question No.9

Marks: 1.00

Bookmark ☐

Find the word which is correctly spelt from the given options.

- (A) ☐ serious
(B) ☒ Oscillate (Correct Answer)
(C) ☐ Abolishid
(D) ☐ Socialy

Question No.10

Marks: 1.00

Bookmark ☐

Replace the underlined phrase grammatically and conceptually with the help of the given options. If the given sentence is correct then select the option 'The given sentence is correct'.

The HR will give an topic to test the ability of our employees for the new project

- (A) ☐ will give a topic to testing the ability of
(B) ☐ will gives a topic to test the ability of
(C) ☒ will give a topic to test the ability of (Correct Answer)
(D) ☐ The given sentence is correct

ELECTRICAL ENGINEERING - ELECTRICAL ENGINEERING

Question No.1

Marks: 1.00

Bookmark ☐

A delta-connected balanced three-phase load is supplied from a three-phase, 400V supply. The line current is 20A and the power taken by the load is 10 kW. Find the power factor.

- (A) ☐ 0.62
(B) ☐ 0.52
(C) ☒ 0.72 (Correct Answer)
(D) ☐ 0.82

Question No.2

Marks: 1.00

Bookmark ☐

Consider the following statements associated with Buchholz's relays.

Statement 1: Buchholz's relay is a current operated device.

Statement 2 : Buchholz's relay is placed between the transformer tank and the conservator.

- (A) ☐ Both Statement 1 and Statement 2 are FALSE
(B) ☒ Statement 1 is FALSE and Statement 2 is TRUE (Correct Answer)
(C) ☐ Statement 1 is TRUE and Statement 2 is FALSE
(D) ☐ Both Statement 1 and Statement 2 are TRUE

Question No.3

Marks: 1.00

Bookmark ☐

A circuit breaker is rated 2500 A, 2000 MVA, 33 kV, 3 sec, 3-phase oil circuit breaker. Determine the breaking current.

- (A) ☐ 350 kA
(B) ☒ 35 kA (Correct Answer)
(C) ☐ 2500 A
(D) ☐ 25 kA

Question No.4

Marks: 1.00

Bookmark ☐

Interposing current-transformer (CT) is used in differential protection of a transformer to

- (A) ☐ increase the sensitivity of the relay
(B) ☐ limit the main CT secondary current
(C) ☒ match the standard ratio of CTs used on both sides of the transformer winding (Correct Answer)
(D) ☐ minimize the effect of saturation of the main CTs

Question No.5

Marks: 1.00

Bookmark ☐

In a typical DC micro grid, hybrid storage system is a combination of

- (A) ☐ Lead acid battery and Lithium ion battery
(B) ☐ Lead acid battery and Capacitor
(C) ☒ Lead acid battery and ultra capacitor / super capacitor (Correct Answer)
(D) ☐ None of the above

Question No.6

Marks: 1.00

Bookmark ☐

In a power network, 400 kV is recorded at a 415 kV bus. A 50 MVAR, 415 kV shunt reactor is connected to the bus. What is the reactive power absorbed by the shunt reactor?

- (A) ☐ 66.45 MVAR
(B) ☒ 46.45 MVAR (Correct Answer)
(C) ☐ 76.45 MVAR
(D) ☐ 56.45 MVAR

Question No.7

Marks: 1.00

Bookmark ☐

A circular loop has its radius increasing at a rate of 2 m/s. The loop is placed perpendicular to a constant magnetic field of 0.1 Wb/m^2 . When the radius of the loop is 2m, the emf induced in the loop will be

- (A) ☐ $0.4\pi \text{ V}$
(B) ☐ $0.2\pi \text{ V}$
(C) ☒ $0.8\pi \text{ V}$ (Correct Answer)
(D) ☐ zero

Question No.8

Marks: 1.00

Bookmark ☐

A single phase 240 V, 1 kW heater is connected across single phase 240 V, 50 Hz supply through an SCR. For firing angle delay of 90°, calculate the power absorbed in the heater element.

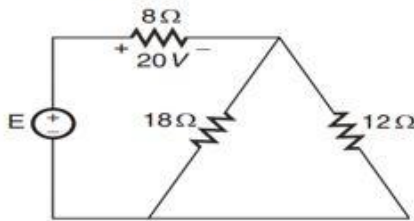
- (A) ☐ 275 W
(B) ☐ 225 W
(C) ☐ 300 W
(D) ☒ 250 W (Correct Answer)

Question No.9

Marks: 1.00

Bookmark ☐

In the circuit shown in Fig., the voltage across 8 Ω resistor is 20 V. Calculate the supply voltage.



- (A) ☐ 18 V
(B) ☐ 47 V
(C) ☒ 38 V (Correct Answer)
(D) ☐ 27 V

Question No.10

Marks: 1.00

Bookmark ☐

The expression for voltage regulation of a short transmission line for leading power factor is given by:, where, 'I' is the line current, 'V_R' is the receiving end voltage, 'R' is the line resistance and 'X' is the line reactance.

- (A) ☐ $\frac{IX \cos \Phi_R - IR \sin \Phi_R}{V_R}$
(B) ☐ $\frac{IR \cos \Phi_R + IX \sin \Phi_R}{V_R}$
(C) ☒ $\frac{IR \cos \Phi_R - IX \sin \Phi_R}{V_R}$ (Correct Answer)
(D) ☐ $\frac{IX \cos \Phi_R + IR \sin \Phi_R}{V_R}$

Question No.11

Marks: 1.00

Bookmark ☐

A 1000 kVA ONAN cooled transformer has a load of 500 kVA throughout the day except for a period of 4 hours. What is the permissible overload for a duration of four hours. Assume the permissible load kVA as a fraction of rated kVA is 1.24.

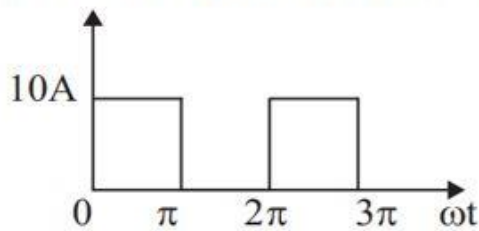
- (A) ☐ 1240 kVA (Correct Answer)
 (B) ☐ 930 kVA
 (C) ☐ 620 kVA
 (D) ☐ 2480 kVA

Question No.12

Marks: 1.00

Bookmark ☐

A MOSFET rated for 15 A, carries a periodic current as shown in Fig. The ON state resistance of the MOSFET is 0.15Ω . The average ON state loss in the MOSFET is



- (A) ☐ 15 W
 (B) ☐ 33.8 W
 (C) ☐ 7.5 W (Correct Answer)
 (D) ☐ 3.8 W

Question No.13

Marks: 1.00

Bookmark ☐

A coil having an inductance of 100 mH is magnetically coupled to another coil having an inductance of 900 mH. The coefficient of coupling between the coils is 0.45. Calculate the equivalent inductance if the two coils are connected in series opposing.

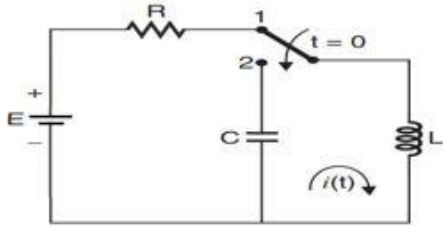
- (A) ☐ 1270 mH
 (B) ☐ 932 mH
 (C) ☐ 730 mH (Correct Answer)
 (D) ☐ 1135 mH

Question No.14

Marks: 1.00

Bookmark ☐

In the circuit of Fig., the switch is closed to position-1 for a long time. At $t = 0$, the switch position is changed from position-1 to position-2. Find an expression for the current $i(t)$.



- (A) ☐ $i(t) = \frac{E}{R} \sin(\sqrt{LC} t) A$
- (B) ☐ $i(t) = \frac{E}{R} \cos(\sqrt{LC} t) A$
- (C) ☒ $i(t) = \frac{E}{R} \cos\left(\frac{1}{\sqrt{LC}} t\right) A$ (Correct Answer)
- (D) ☐ $i(t) = \frac{E}{R} \sin\left(\frac{1}{\sqrt{LC}} t\right) A$

Question No.15

Marks: 1.00

Bookmark ☐

In a test by Murray loop for ground fault on 600 m of cable having a resistance of $1.5 \Omega/\text{km}$, the faulty cable is looped with a sound cable of the same length and area of cross section. If the ratio of the other two arms of the testing network at balance is $3 : 1$, find the distance of the fault from the testing end of cables.

- (A) ☐ 400 m
- (B) ☐ 200 m
- (C) ☐ 100 m
- (D) ☒ 300 m (Correct Answer)

Question No.16

Marks: 1.00

Bookmark ☐

In a single phase energy meter, the shunt electromagnet is energized by a of

- (A) ☐ pressure coil, thick wire of few turns
- (B) ☐ current coil, thick wire of few turns
- (C) ☒ pressure coil, thin wire of more turns (Correct Answer)
- (D) ☐ current coil, thin wire of more turns

Question No.17

Marks: 1.00

Bookmark ☐

When different types of consumers are charged at different uniform per unit

rates, it is called as

- (A) ☐ two-part tariff
(B) ☒ **flat rate tariff (Correct Answer)**
(C) ☐ block rate tariff
(D) ☐ maximum demand tariff

Question No.18

Marks: 1.00

Bookmark ☐

The voltage applied to a transformer primary is increased keeping V/f constant. With this, the core loss and the magnetizing current (I_m)

- (A) ☐ remains constant, decreases
(B) ☒ **increases, remains constant (Correct Answer)**
(C) ☐ increases, increases
(D) ☐ decreases, increases

Question No.19

Marks: 1.00

Bookmark ☐

In a short circuit test on circuit breaker, time to reach the peak re-striking voltage is $50 \mu s$ with the peak restriking voltage of 100 kV. Determine average RRRV (Rate of rise re-striking voltage)?

- (A) ☐ 1×10^6 kV/sec
(B) ☐ 4×10^6 kV/sec
(C) ☐ 3×10^6 kV/sec
(D) ☒ **2×10^6 kV/sec (Correct Answer)**

Question No.20

Marks: 1.00

Bookmark ☐

In transformer, a Sweep Frequency Response Analysis (SFRA) test will help detect

- (A) ☐ Aging by-products
(B) ☐ Moisture in the windings
(C) ☒ **Movement / damage to internal components (Correct Answer)**
(D) ☐ Age of the insulation

Question No.21

Marks: 1.00

Bookmark ☐

The line currents in amperes in phases a, b and c respectively are $500 + j150$, $100 - j600$ and $-300 + j600$ referred to the same reference vector with phase sequence of abc. Find the symmetrical component of currents.

- (A) ☒

$$I_{a0} = (100 + j50) \text{ A}$$

$$I_{a1} = (546.41 + j165.47) \text{ A}$$

$$I_{a2} = (-146.41 - j65.47) \text{ A}$$

(Correct Answer)

- (B) ☐

$$I_{a0} = (100 + j50) \text{ A}$$

$$I_{a1} = (146.41 + j65.47) \text{ A}$$

$$I_{a2} = (546.41 - j165.47) \text{ A}$$

(C) ☐ $I_{a0} = (100 + j50) \text{ A}$

$$I_{a1} = (200 + j107.75) \text{ A}$$

$$I_{a2} = (200 - j107.75) \text{ A}$$

(D) ☐ $I_{a0} = (100 + j50) \text{ A}$

$$I_{a1} = (546.41 + j165.47) \text{ A}$$

$$I_{a2} = (546.41 - j165.47) \text{ A}$$

Question No.22

Marks: 1.00

Bookmark ☐

In a 3-phase, 4-wire, 400/230 V system, a lamp (L_1) of 100 W is connected to one phase and neutral and a lamp (L_2) of 150 W is connected to the second phase and neutral. If the neutral wire is disconnected accidentally, then

(A) ☒ **100 W lamp (L_1) becomes brighter and 150 W lamp (L_2) becomes dim (Correct Answer)**

(B) ☐ 100 W lamp (L_1) becomes dim and 150 W lamp (L_2) becomes brighter

(C) ☐ both 100 W lamp (L_1) and 150 W lamp (L_2) becomes dim

(D) ☐ both 100 W lamp (L_1) and 150 W lamp (L_2) becomes brighter

Question No.23

Marks: 1.00

Bookmark ☐

A wire pilot is generally economical for distances up to

(A) ☐ 30 km to 60 km

(B) ☐ 20 to 25 km

(C) ☐ 75 km to 100 km

(D) ☒ **10 km to 15 km (Correct Answer)**

Question No.24

Marks: 1.00

Bookmark ☐

In the context of smart meters, the term ' SMETS ' stand for

(A) ☒ **Smart Metering Equipment Technical Specifications (Correct Answer)**

(B) ☐ Smart Monitoring Equipment Technical Specifications

(C) ☐ Standard Monitoring Equipment Technical Specifications

(D) ☐ Standard Metering Equipment Technical Specifications

Question No.25

Marks: 1.00

Bookmark ☐

A short-shunt dc compound generator supplies 50 A at 300 V. If the shunt field

resistance, series field resistance and armature resistance are $30\ \Omega$, $0.03\ \Omega$, and $0.05\ \Omega$ respectively, determine the e.m.f. generated.

- (A) ☐ **304.5 V (Correct Answer)**
 (B) ☐ 306.5 V
 (C) ☐ 302.5 V
 (D) ☐ 308.5 V

Question No.26

Marks: 1.00

Bookmark ☐

A 50 Hz synchronous generator is connected to an infinite bus through a line. The p.u. reactances of generator and the line are $j0.3\text{ p.u.}$ and $j0.2\text{ p.u.}$ respectively. The generator no load voltage is 1.1 p.u. and that of infinite bus is 1.0 p.u. The inertia constant of the generator is 4 MW-sec/MVA. Determine the frequency of natural oscillations if the generator is loaded to 60% of its maximum power transfer capacity and small perturbation in power is given.

- (A) ☐ 1.42 Hz
 (B) ☐ 1.62 Hz
 (C) ☐ **1.32 Hz (Correct Answer)**
 (D) ☐ 1.52 Hz

Question No.27

Marks: 1.00

Bookmark ☐

Which of the following does the term 'feeder automation' include?

- (A) ☐ automatic reclosing
 (B) ☐ substation reactive power control
 (C) ☐ feeder remote point voltage control
 (D) ☐ **All of the above (Correct Answer)**

Question No.28

Marks: 1.00

Bookmark ☐

..... are long-term (hours-long) voltage sags caused by system overload.

- (A) ☐ Black outs
 (B) ☐ Voltage surges
 (C) ☐ **Brownouts (Correct Answer)**
 (D) ☐ Voltage dips

Question No.29

Marks: 1.00

Bookmark ☐

The wind speed increases with height because of

- (A) ☐ **reduction of drag effect of the earth surface (Correct Answer)**
 (B) ☐ reduction in lift effect of the air
 (C) ☐ enhancement of drag effect on the earth surface
 (D) ☐ reduction in the gravitational force

Question No.30

Marks: 1.00

Bookmark ☐

A power factor less than unity results in which of the following disadvantages?

- (i) Large kVA rating of equipment
 - (ii) Poor voltage regulation
 - (iii) Greater conductor size
- (A) ☐ (i), (ii) and (iii) (Correct Answer)
- (B) ☐ (ii) and (iii) only
- (C) ☐ (i) and (iii) only
- (D) ☐ (i) and (ii) only

Question No.31

Marks: 1.00

Bookmark ☐

A THHN conductor will have a 60°C termination on one end and a 75°C termination on the other, which ampacity column will be used?

- (A) ☐ 60°C column (Correct Answer)
- (B) ☐ 75°C column
- (C) ☐ 90°C column
- (D) ☐ none of the above

Question No.32

Marks: 1.00

Bookmark ☐

A three-phase, 4-pole, 50 Hz induction motor runs at 1425 rpm. Find out the percentage slip of the induction motor.

- (A) ☐ 5% (Correct Answer)
- (B) ☐ 6%
- (C) ☐ 3%
- (D) ☐ 4%

Question No.33

Marks: 1.00

Bookmark ☐

According to Global Wind Energy Council in 2016, India ranked in the Global Wind Power Installed Capacity Index with cumulative installed wind power generation.

- (A) ☐ Third
- (B) ☐ Second
- (C) ☐ First
- (D) ☐ Fourth (Correct Answer)

Question No.34

Marks: 1.00

Bookmark ☐

In a synchronous motor with field under excited, the power factor will be

- (A) ☐ unity
- (B) ☐ zero
- (C) ☐ lagging (Correct Answer)
- (D) ☐ leading

Question No.35

Marks: 1.00

Bookmark ☐

A sudden, non power frequency change in the steady state condition of voltage or current that is bidirectional in polarity is called as

- (A) ☐ Distortion
- (B) ☐ Harmonic
- (C) ☐ **Oscillatory transients (Correct Answer)**
- (D) ☐ Impulsive transient

Question No.36

Marks: 1.00

Bookmark ☐

A three-phase 400 V, 6-pole, 50 Hz squirrel-cage induction motor is running at a slip of 5%. The speed of rotor with respect to stator magnetic field and speed of the stator magnetic field with respect to rotor magnetic field are

- (A) ☐ 950 rpm, 1000 rpm
- (B) ☐ 950 rpm, zero
- (C) ☐ -50 rpm, 1000 rpm
- (D) ☐ **-50 rpm, zero (Correct Answer)**

Question No.37

Marks: 1.00

Bookmark ☐

A three-phase, 12 kV, 50 Hz and 300 kW load is operating at 0.8 pf lag. If the pf is to be improved to unity, using star connected capacitor, the per phase value of the reactive VAR required is:

- (A) ☐ 100 kVAR
- (B) ☐ 50 kVAR
- (C) ☐ 25 kVAR
- (D) ☐ **75 kVAR (Correct Answer)**

Question No.38

Marks: 1.00

Bookmark ☐

Which one of these is not a monitoring and diagnostic test for transformer oil?

- (A) ☐ Dissolved Metals Analysis
- (B) ☐ Furanic Compound Analysis
- (C) ☐ **Volatility Level Analysis (Correct Answer)**
- (D) ☐ Dissolved Gas Analysis

Question No.39

Marks: 1.00

Bookmark ☐

In circuit breaker, the term MCCB stands for

- (A) ☐ miniature compact circuit breaker
- (B) ☐ **moulded case circuit breaker (Correct Answer)**
- (C) ☐ modern closed circuit breaker
- (D) ☐ miniature case circuit breaker

Question No.40

Marks: 1.00

Bookmark ☐

Which one of the following statement with respect to Aerial Bunched Cables (ABC) system is TRUE?

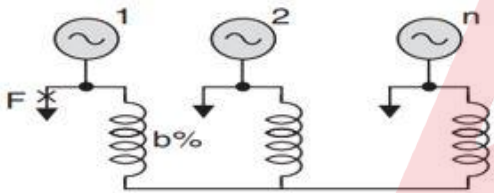
- (A) ☐ ABC system is not suitable for rural electrification which are situated in difficult terrain, hills, forests and coastal areas.
- (B) ☐ The overall cost of the ABC system is very high as compared to the bare conductor system.
- (C) ☒ **ABC system totally eliminates the fault on lines and thereby improving the quality of supply. (Correct Answer)**
- (D) ☐ ABC system requires more clearance, insulators and high maintenance.

Question No.41

Marks: 1.00

Bookmark ☐

A generating station having 'n' section busbars each rated at Q kVA with x% reactance is connected on the tie-bars system through busbar reactances of b%. Determine the short-circuit kVA if a 3-phase fault takes place on one section.



- (A) ☐ $Q \left[\frac{1}{x} + \frac{n+1}{bn-x} \right]$
- (B) ☐ $Q \left[\frac{1}{x} - \frac{n+1}{bn-x} \right]$
- (C) ☐ $Q \left[\frac{1}{x} + \frac{n+1}{bn+x} \right]$
- (D) ☒ $Q \left[\frac{1}{x} + \frac{n-1}{bn+x} \right]$ (Correct Answer)

Question No.42

Marks: 1.00

Bookmark ☐

If the velocity of electromagnetic wave in free space is 3×10^8 m/s, then the velocity in a medium with ϵ_r of 4.5 and μ_r of 2 would be

- (A) ☒ **1×10^8 m/s (Correct Answer)**
- (B) ☐ 3×10^8 m/s
- (C) ☐

- (C) $9 \times 10^8 \text{ m/s}$
- (D) $27 \times 10^8 \text{ m/s}$

Question No.43

Marks: 1.00

Bookmark

A 3-phase motor load has a p.f. of 0.397 lagging. The two wattmeter method used to measure power show the input as 30 kW. Find the reading on each wattmeter.

- (A) $W_1 = -10 \text{ kW}$ and $W_2 = 40 \text{ kW}$
- (B) $W_1 = -5 \text{ kW}$ and $W_2 = 35 \text{ kW}$ (Correct Answer)
- (C) $W_1 = 5 \text{ kW}$ and $W_2 = 25 \text{ kW}$
- (D) $W_1 = 10 \text{ kW}$ and $W_2 = 20 \text{ kW}$

Question No.44

Marks: 1.00

Bookmark

Match the following:

Buses	Known Values	Unknown Values
A. Slack bus	(i) P, V	(1) V, δ
B. Generator bus	(ii) P, Q	(2) P, Q
C. Load bus	(iii) V, δ	(3) Q, δ

- (A) A = (iii) & (2); B = (ii) & (1); C = (i) & (3)
- (B) A = (i) & (3); B = (iii) & (2); C = (ii) & (1)
- (C) A = (ii) & (1); B = (iii) & (2); C = (i) & (3)
- (D) A = (iii) & (2); B = (i) & (3); C = (ii) & (1) (Correct Answer)

Question No.45

Marks: 1.00

Bookmark

Thermocouples can be connected in series/parallel to obtain greater sensitivity called as

- (A) Thermopile (Correct Answer)
- (B) Thermistor
- (C) Thermometer
- (D) None of the above

Question No.46

Marks: 1.00

Bookmark

The miniature circuit breaker (MCB) with Class D trip characteristics trips instantaneously when the current flowing through it reaches the rated current.

- (A) between 5 to 10 times
- (B) between 2 to 3 times
- (C)

- (C) between 3 to 5 times
(D) ☐ between 10 to 20 times (Correct Answer)

Question No.47

Marks: 1.00

Bookmark ☐

The necessary equation to be solved during the load flow analysis using Fast-Decoupled method is given below:

where B' and B'' are formed using the imaginary part of the bus admittance matrix, Y_{bus} . If the system consists of 6 buses of which one of the bus is slack bus and 2 buses are voltage regulated buses, then the matrix B' is of order and the matrix B'' is of order, respectively.

$$\frac{\Delta P}{|V_i|} = -B' \Delta \delta$$

$$\frac{\Delta Q}{|V_i|} = -B'' \Delta |V|$$

- (A) ☐ 5 and 3 (Correct Answer)
(B) ☐ 3 and 6
(C) ☐ 6 and 3
(D) ☐ 3 and 5

Question No.48

Marks: 1.00

Bookmark ☐

Which one of the following statement is TRUE?

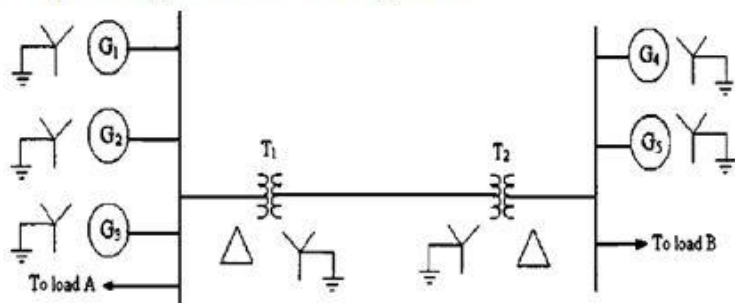
- (A) ☐ In the cables, sheaths are used to provide enough strength.
(B) ☐ The current carrying capacity of cables in DC is less than that in AC.
(C) ☐ In the cables, the location of fault is usually found out by comparing the capacitances of insulated conductors. (Correct Answer)
(D) ☐ Underground cables are laid at sufficient depth to avoid being unearthed easily due to removal of soil.

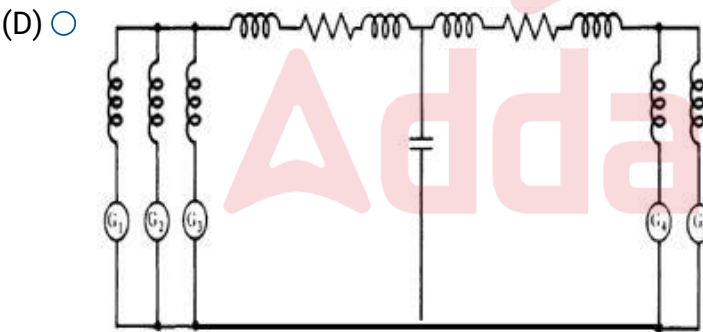
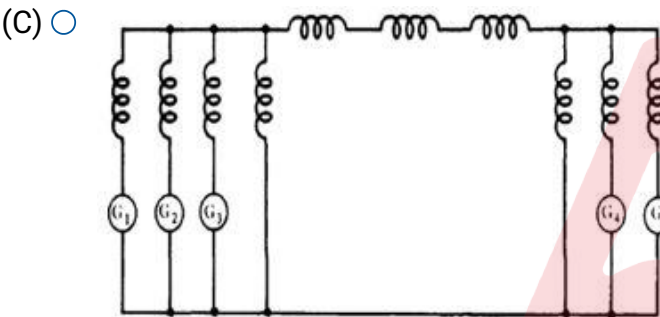
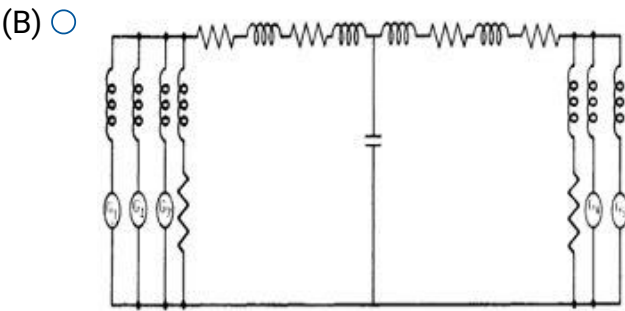
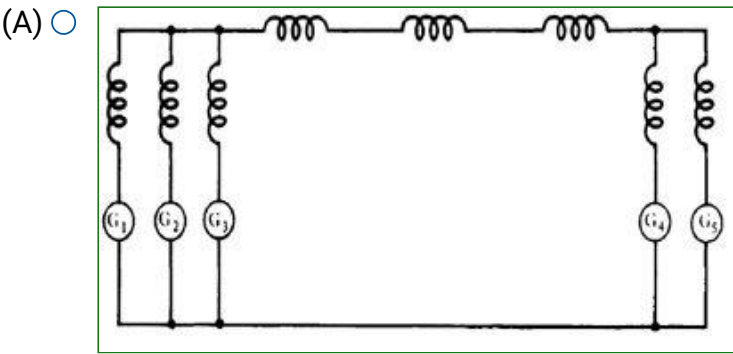
Question No.49

Marks: 1.00

Bookmark ☐

The single line diagram of the simple power system is shown in Fig. The corresponding reactance diagram is





Question No.50

Marks: 1.00

Bookmark ☐

Which one of the following is the largest windfarm located in India?

- (A) ☐ Talcher
- (B) ☐ Mundra
- (C) ☐ Vindhayachal
- (D) ☐ Muppandal (Correct Answer)

Question No.51

Marks: 1.00

Bookmark ☐

In transformer, bushing failure occurs due to

- (i) transformer vibrations
- (ii) dielectric losses
- (iii) partial discharge

- (A) ☐ (i) and (iii) only
- (B) ☐ (i) and (ii) only
- (C) ☒ (i), (ii) and (iii) (Correct Answer)
- (D) ☐ (ii) and (iii) only

Question No.52

Marks: 1.00

Bookmark ☐

If no load is connected to solar PV system,

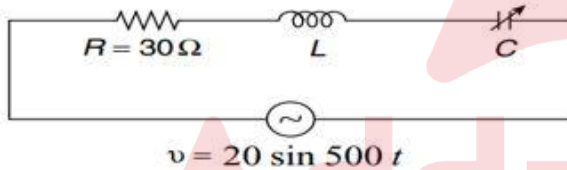
- (A) ☐ its voltage will go on increasing till its breakdown
- (B) ☐ it will stop absorbing light
- (C) ☐ it will start reflecting the light
- (D) ☒ it will dissipate energy in the panel and increase its temperature (Correct Answer)

Question No.53

Marks: 1.00

Bookmark ☐

In the RLC series circuit shown in Fig., resonance occurs when the value of C is 20 μ F. The supply voltage is $v(t) = 20 \sin(500t)$ V. Find the value of L.



- (A) ☐ 5 mH
- (B) ☐ 0.2 mH
- (C) ☐ 5 H
- (D) ☒ 0.2 H (Correct Answer)

Question No.54

Marks: 1.00

Bookmark ☐

Calculate the inductance per meter of a 50 Ω load cable that has an capacitance of 20 pF /m.

- (A) ☐ 25 mH
- (B) ☐ 25 nH
- (C) ☒ 50 nH (Correct Answer)
- (D) ☐ 50 mH

Question No.55

Marks: 1.00

Bookmark ☐

The operating time of an inverse definite minimum time (IDMT) overcurrent relay is proportional to the plug-setting multiplier (PSM) and

proportional to the time-multiplier setting (TMS).

- (A) ☐ inversely, inversely
(B) ☐ directly, directly
(C) ☐ directly, inversely
(D) ☐ **inversely, directly (Correct Answer)**

Question No.56

Marks: 1.00

Bookmark ☐

A single phase motor connected to 415 V, 50 Hz supply takes 30 A at a power factor of 0.7 lagging. Calculate the capacitance required in parallel with the motor to raise the power factor to 0.9 lagging.

- (A) ☐ 96.32 μF
(B) ☐ 76.32 μF
(C) ☐ **86.32 μF (Correct Answer)**
(D) ☐ 66.32 μF

Question No.57

Marks: 1.00

Bookmark ☐

The magnitude of the generator earth-fault current is limited by

- (A) ☐ controlling field exciter
(B) ☐ using higher rating CTs
(C) ☐ **inserting suitable resistance in neutral grounding circuit (Correct Answer)**
(D) ☐ inserting the stabilizing resistance in series with the relay

Question No.58

Marks: 1.00

Bookmark ☐

Consider a solar PV plant with the following specific conditions:

Analysis period: 1 year

Measured average solar irradiation intensity in 1 year: 120 kWh/m²

Generator area of the PV plant: 10 m²

Efficiency factor of the PV modules: 15 %

Electrical energy actually exported by plant to grid: 110 kWh

Calculate the performance ratio.

- (A) ☐ 81.11%
(B) ☐ **61.11% (Correct Answer)**
(C) ☐ 71.11%
(D) ☐ 51.11%

Question No.59

Marks: 1.00

Bookmark ☐

A given solar cell has the following specifications:

Open-circuit voltage, V_{oc} : 0.7 V

Short-circuit current, I_{sc} : 3 A

Voltage at maximum power, V_{mp} : 0.5 V

Current at maximum power, I_{mp} : 2.65 A
Calculate the fill factor.

- (A) ☒ **0.63 (Correct Answer)**
(B) ☐ 1.58
(C) ☐ 1.23
(D) ☐ 0.81

Question No.60

Marks: 1.00

Bookmark ☐

The relation between electric intensity E , voltage applied V and the distance d between the plates of a parallel plate condenser is

- (A) ☒ $E = \frac{V}{d}$ (Correct Answer)
(B) ☐ $E = V \times (d)^2$
(C) ☐ $E = V \times d$
(D) ☐ $E = \frac{V}{(d)^2}$

COMPUTER KNOWLEDGE - COMPUTER KNOWLEDGE

Question No.1

Marks: 1.00

Bookmark ☐

Transistors were used in _____ of Computers.

- (A) ☒ **Second Generation (Correct Answer)**
(B) ☐ Fourth Generation
(C) ☐ First Generation
(D) ☐ Third Generation

Question No.2

Marks: 1.00

Bookmark ☐

Encrypted security payload extension header is new in

- (A) ☒ **IPv6 (Correct Answer)**
(B) ☐ IPv4
(C) ☐ IPv5
(D) ☐ IP

Question No.3

Marks: 1.00

Bookmark ☐

Which of the following is linux operating system?

- (A) ☐ IBM-AIX
(B) ☐ HP-UX
(C) ☐

- (C) MacOS
(D) ☐ **Fedora (Correct Answer)**

Question No.4

Marks: 1.00

Bookmark ☐

If all the devices are connected to a central hub, then the topology is called

- (A) ☐ **Star Topology (Correct Answer)**
(B) ☐ Bus Topology
(C) ☐ Tree Topology
(D) ☐ Ring Topology

Question No.5

Marks: 1.00

Bookmark ☐

Landscape is a

- (A) ☐ Paper size
(B) ☐ Web layout
(C) ☐ Font style
(D) ☐ **Page Orientation (Correct Answer)**

Question No.6

Marks: 1.00

Bookmark ☐

Which of the following is an application layer service?

- (A) ☐ Network virtual terminal
(B) ☐ File transfer, access and management
(C) ☐ Mail service
(D) ☐ **All the above (Correct Answer)**

Question No.7

Marks: 1.00

Bookmark ☐

Operating system is

- (A) ☐ a program that runs for short duration
(B) ☐ **a layer between the user and the hardware (Correct Answer)**
(C) ☐ a program that runs during log off
(D) ☐ a program that runs at the start of the computer system

Question No.8

Marks: 1.00

Bookmark ☐

Which of the following is not a Font style in Microsoft Word?

- (A) ☐ Regular
(B) ☐ Bold
(C) ☐ Italic
(D) ☐ **Superscript (Correct Answer)**

Question No.9

Marks: 1.00

Bookmark ☐

Magnetic tape is not practical for applications where data must be quickly recalled because tape is a/an_____.

- (A) ☐ Random access medium
 (B) ☒ **Sequential access medium (Correct Answer)**
 (C) ☐ expensive storage medium
 (D) ☐ None of these

Question No.10

Marks: 1.00

Bookmark ☐

Which of the following is true regarding access lists applied to an interface?

- (A) ☐ You can place as many access lists as you want on any interface until you run out of memory.
 (B) ☒ **One access list may be configured, per direction, for each layer 3 protocol configured on an interface (Correct Answer)**
 (C) ☐ You can apply only one access list on any interface
 (D) ☐ You can apply two access lists to any interface

GUJARATI LANGUAGE AND GRAMMAR - GUJARATI LANGUAGE AND GRAMMAR

Question No.1

Marks: 1.00

Bookmark ☐

શિક્ષકે વિદ્યાર્થીને વાર્તા કહી'

1. વાક્ય અકર્મક છે.
 2. વાક્ય દ્વિકર્મક છે.
 3. વાક્યમાં વિદ્યાર્થીને 'પ્રધાન કર્મ' છે અને વાર્તા 'ગૌણ કર્મ' છે.
 4. વાક્યમાં વાર્તા 'પ્રધાન કર્મ' છે અને વિદ્યાર્થીને 'ગૌણ કર્મ' છે.
 આપવામાં આવેલ વિકલ્પોમાંથી કયા કયા વિકલ્પ સાચા છે.

- (A) ☒ **2, 4 (Correct Answer)**
 (B) ☐ 1, 3
 (C) ☐ 2,3
 (D) ☐ 1,3

Question No.2

Marks: 1.00

Bookmark ☐

1. આપને મુખ્યમંત્રીએ ખાસ કામ માટે નિયુક્ત કર્યા છે.
 2. તેનાથી આંખો ઝીણી કરાઈ.
 3. પ્રધાનમંત્રીએ સ્કુલનું ઉદ્ઘાટન કર્યું.
 4. આરોપીએ બધાં ગુના કબુલ કરી લીધાં.
 ઉક્ત વાક્યોમાં કેટલા કર્મણિ વાક્ય પ્રયોગના છે?

- (A) ☐ કુલ 2
 (B) ☐ બધા જ કર્તરી વાક્ય પ્રયોગના છે.
 (C) ☒ **કુલ 1 (Correct Answer)**
 (D) ☐ બધા જ વાક્યો કર્મણિ વાક્ય પ્રયોગના છે.

Question No.3

Marks: 1.00

Bookmark ☐

નીચે માંથી કયા રૂઢિપ્રયોગનો અર્થ 'છેતરવું' એવો થાય

- (A) ☐ બે પાંદડે થવું
 (B) ☐ દમ મારવો
 (C) ☒ હથેળીમાં ચાંદ દેખાડવો (Correct Answer)
 (D) ☐ આડા ઉતરવું

Question No.4

Marks: 1.00

Bookmark ☐

સોહેલ ખાન : મલાયકા અરોરા :: સૈફ અલી ખાન :

- (A) ☒ અમૃતા સિંહ (Correct Answer)
 (B) ☐ કિરણ ખેર
 (C) ☐ માધુરી દીક્ષિત
 (D) ☐ પરવીન બાબી

Question No.5

Marks: 1.00

Bookmark ☐

પાણિ: પાણિગ્રહણ :: હસ્ત :

- (A) ☒ હસ્તમેળાપ (Correct Answer)
 (B) ☐ વિવાહ
 (C) ☐ છુટાછેડા
 (D) ☐ પ્રેમાલાપ

Question No.6

Marks: 1.00

Bookmark ☐

આપણે કાંઈ મશીન નથી કે અમુક ગોઠવણો પ્રમાણે કાર્ય કર્યા જ કરીએ. - ઉપરોક્ત વાક્ય ને જુદાં પાડવા કયા સંયોજકો કાઢવા પડે.

- (A) ☐ કાંઈ
 (B) ☐ અમુક
 (C) ☐ જ
 (D) ☒ કે (Correct Answer)

Question No.7

Marks: 1.00

Bookmark ☐

'હું ગીત ગાઈશ' ને કર્મણિમાં ફેરવો.

- (A) ☐ ગીતને હું ગાઈશ.
 (B) ☒ મારાથી ગીત ગવાશે. (Correct Answer)
 (C) ☐ હું ગીતને ગાઈશ.
 (D) ☐ ગીત તો હું જ ગાઈશ.

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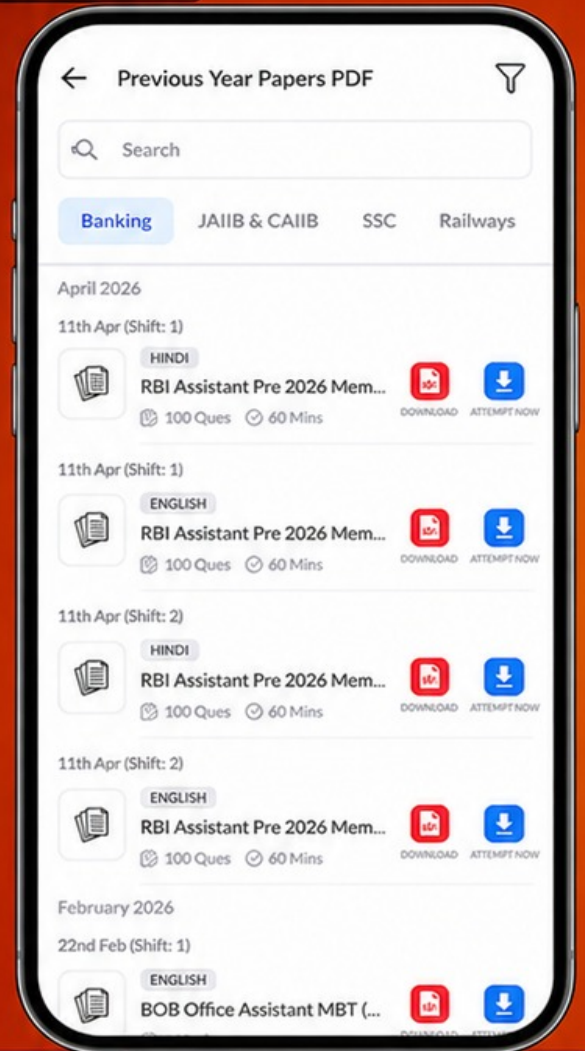
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Question No.8

Marks: 1.00

Bookmark ☐

સ્વાધીન' નો વિરોધાભાસી શબ્દ કયો છે?

- (A) ☒ પરાધીન (Correct Answer)
- (B) ☐ નિસ્વાધીન
- (C) ☐ અસ્વાધીન
- (D) ☐ કુવાધીન

Question No.9

Marks: 1.00

Bookmark ☐

જે ક્રિયા દર્શાવે પણ વાક્યનો અર્થ પૂર્ણ કરે એ એનેકહેવાય.- આપેલ વિકલ્પોમાંથી યોગ્યનું ચયન કરી વાક્ય પૂર્ણ કરો.

- (A) ☒ ફૂદંત (Correct Answer)
- (B) ☐ ક્રિયા-વિશેષણ
- (C) ☐ વિભક્તિ
- (D) ☐ નિપાત

Question No.10

Marks: 1.00

Bookmark ☐

નીચે પૈકી કયો 'દાદુર' નો સમાનાર્થી નથી

- (A) ☐ મેડક
- (B) ☐ દેડકો
- (C) ☒ સુમાર (Correct Answer)
- (D) ☐ દર્દુર

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