

Maharashtra Public Service Commission

Assessment

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

Question Paper Name :	Deputy Engineer Electrical Exam 10th October 2024 Shift 2
Subject Name :	Deputy Engineer Electrical Exam
Creation Date :	2024-10-10 13:18:23
Duration :	60
Total Marks :	200
Display Marks:	Yes
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Deputy Engineer Electrical Exam

Group Number :	1
Group Id :	641770122
Group Maximum Duration :	0
Group Minimum Duration :	60
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200

Deputy Engineer Electrical Exam

Section Id :	641770122
Section Number :	1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	200
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	641770123
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 641770221 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

खालील समानार्थी शब्दांच्या अचूक जोड्या लावा.

‘अ’ गट

‘ब’ गट

- | | |
|-----------|-------------|
| a. गरूड | i. एकाक्ष |
| b. कावळा | ii. सारंग |
| c. कोल्हा | iii. वैनतेय |
| d. हरीण | iv. जंबूक |

Options :

1. ✓ a – iii b – i c – iv d – ii

2. ✘ a – iv b – iii c – ii d – i

3. ✘ a – ii b – iv c – i d – iii

4. ✘ a – iii b – iv c – i d – ii

Question Number : 2 Question Id : 641770222 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

मराठी उपसर्ग असलेला गट कोणता ?

- अव, नि, पड, फट
- अति, अधि, अनु, अप
- अ-अन, आड, अद, भर
- अद, अव, अभि, निर

Options :

1. ✘ फक्त b बरोबर
2. ✔ फक्त a आणि c बरोबर
3. ✘ फक्त d बरोबर
4. ✘ फक्त b आणि d बरोबर

Question Number : 3 Question Id : 641770223 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

‘आईच्या आठवणीने त्याचे डोळे पाणावले’ या वाक्यातील क्रियापदाचा प्रकार सांगा.

- अ. सहायक क्रियापद
- ब. संयुक्त क्रियापद
- क. प्रयोजक क्रियापद
- ड. साधित क्रियापद

Options :

1. ✘ ‘ब’ हा पर्याय बरोबर
2. ✘ ‘क’ हा पर्याय बरोबर
3. ✘ ‘अ’ हा पर्याय बरोबर
4. ✔ ‘ड’ हा पर्याय बरोबर

Question Number : 4 Question Id : 641770224 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

प्रचलित लेखन नियमानुसार अचूक शब्द गट कोणता ?

- a. अलीकडे, इयत्ता, विनंती
- b. अधीन, ईस्त्री, ऊग्र
- c. विनंति, वाङ्मय, जेऊन
- d. सहायक, सुज्ञ, माहात्म्य

Options :

1. ✘ फक्त a बरोबर
2. ✘ फक्त a व b बरोबर
3. ✔ फक्त a व d बरोबर
4. ✘ फक्त b व c बरोबर

Question Number : 5 Question Id : 641770225 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 2 Wrong Marks : 0.5

‘हापूसचा आंबा म्हणजे नुसते अमृत’ या वाक्यातील शब्दशक्ती ओळखा.

Options :

1. ✘ अभिधा
2. ✔ लक्षणा
3. ✘ व्यंजना
4. ✘ योगरूढ

Question Number : 6 Question Id : 641770226 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 2 Wrong Marks : 0.5

समानार्थी म्हणींच्या अचूक जोड्या लावा.

‘अ’ गट

‘ब’ गट

- | | |
|----------------------------|---------------------------------|
| a. आवळा देऊन कोहळा काढणे | i. उंबर फोडून केंबर काढणे |
| b. डोंगर फोडून उंदीर काढणे | ii. उखळ चाटून दुष्काळ फिरत नाही |
| c. एकादशीच्या घरी शिवरात्र | iii. देणे कुसळाचे घेणे मुसळाचे |
| d. दात कोरून पोट भरत नाही | iv. दुष्काळात तेरावा महिना |

Options :

1. ✘ a – iii b – iv c – ii d – i
2. ✘ a – ii b – iii c – iv d – i

3. ✘ a – iv b – i c – ii d – iii

4. ✔ a – iii b – i c – iv d – ii

Question Number : 7 Question Id : 641770227 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

‘मोठ्या माणसाच्या ठिकाणी दोष हे असतात’ या अर्थाची योग्य म्हण ओळखा.

Options :

1. ✔ दिव्याखाली अंधार

2. ✘ गर्वाचे घर खाली

3. ✘ उथळ पाण्याला खळखळाट फार

4. ✘ आपल्या डोळ्यातील मुसळ दिसत नाही दुसऱ्याच्या डोळ्यातील कुसळ दिसते

Sub-Section Number :

2

Sub-Section Id :

641770124

Question Shuffling Allowed :

Yes

Question Number : 8 Question Id : 641770228 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Water Conservation Programmes implemented by States in India. Match the State and name of its initiative and choose the right answer from the options given below :

State	Name of Initiative
i. Andhra Pradesh	A. Jalyukt Shivar Yojana
ii. Bihar	B. Neeru Chettu
iii. Maharashtra	C. Mission Kaktiya
iv. Telangana	D. Jal Jeevan Hariyali

Options :

1. ✘ i – A ii – B iii – D iv – C

2. ✔ i – B ii – D iii – A iv – C

3. ✘ i – B ii – C iii – A iv – D

4. ✘ i – C ii – D iii – B iv – A

Question Number : 9 Question Id : 641770229 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Study the following statements and choose the right answer from the options given below :

- a. The Law Commission of India is a statutory body.
- b. Indian Government has constituted 22nd Law Commission of India in Feb. 2020.
- c. The Commission works on projects based on references received from the Central Government and/or from Supreme Court and High Courts.

Options :

1. ✘ Only a is correct

2. ✘ Only b is correct

3. ✔ Only b and c are correct

4. ✘ Only a and c are correct

Question Number : 10 Question Id : 641770230 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The first underwater metro was launched in which city of India in March 2024 ?

Options :

1. ✘ Mumbai

2. ✔ Kolkata

3. ✘ Kochi

4. ✘ Chennai

Question Number : 11 Question Id : 641770231 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Who is going to be the first Indian to venture into space as a tourist on NS – 25 Mission ?

Options :

1. ✓ Gopi Thotakura
2. ✗ K. Radhakrishnan
3. ✗ Kamlesh Lulla
4. ✗ Gopi Thakkar

Question Number : 12 Question Id : 641770232 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which country is the largest producer of milk out of the following four countries as of 2023 ?

Options :

1. ✓ India
2. ✗ Israel
3. ✗ China
4. ✗ U.S.A.

Question Number : 13 Question Id : 641770233 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

What were the themes of the 75th Republic Day Parade at Kartavya Path on January 26, 2024 ?

- a. Vikasit Bharat
- b. Anant Sutra
- c. Bharat-Lok Tantra Ki Matraka
- d. Vasudhaiva Kutumbakam
- e. We the people

Options :

- 1. ✘ All a, b, c, d, e
- 2. ✘ Only a, b, c, e
- 3. ✔ Only a, c
- 4. ✘ Only b, d, e

Question Number : 14 Question Id : 641770234 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Who has been appointed as the Chairperson of Lokpal of India in February 2024 ?

Options :

- 1. ✘ N.V. Ramana
- 2. ✘ Ranjan Gogoi
- 3. ✘ Sharad Arvind Bobde
- 4. ✔ A.M. Khanwilkar

Question Number : 15 Question Id : 641770235 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Who of the following Major Dhyanchand Khel Ratna Puraskar awardee is/are not from wrestling ?

- a. Sushil Kumar
- b. Bajarang Punia
- c. Ravi Kumar
- d. Sunil Chhetri
- e. Sakshi Malik

Options :

- 1. ✘ Only a, d
- 2. ✘ Only b, d, e
- 3. ✘ Only b, c, d
- 4. ✔ Only d

Question Number : 16 Question Id : 641770236 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Where is India's first All-girls Sainik School established in January 2024 ?

Options :

- 1. ✘ Pune
- 2. ✘ Bhopal
- 3. ✘ Jabalpur
- 4. ✔ Vrindavan

Question Number : 17 Question Id : 641770237 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

_____ are nanoscale man-made crystals that have the ability to convert a spectrum of light into different colours, when exposed to UV light.

Options :

- 1. ✘ Colour cods

2. ✓ Quantum dots

3. ✗ Dendrimers

4. ✗ Liposomes

Question Number : 18 Question Id : 641770238 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following is correctly matched ?

- a. In 1911, Delhi became capital of British India.
- b. It was made a Union Territory in 1956.
- c. National Capital Territory Act was passed by 69th Constitutional Amendment.

Options :

1. ✓ All a, b, c

2. ✗ Only a, b

3. ✗ Only b, c

4. ✗ Only a, c

Question Number : 19 Question Id : 641770239 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The Bhutanese name for Bhutan is _____ meaning 'Land of the Thunder Dragon'.

Options :

1. ✗ Druk Gyalpo

2. ✗ Gangkhar Puensum

3. ✗ Bumpa Sem

4. ✓ Druk Yul

Question Number : 20 Question Id : 641770240 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

What is the Constitution 128th Amendment Bill related to ?

Options :

1. ✘ The LGBTQIA (Protection of Rights) Bill
2. ✘ Goods and Services Tax Bill
3. ✔ Nari Shakti Vandan Adhiniyam
4. ✘ Reservation of seats for the Anglo-Indians

Question Number : 21 Question Id : 641770241 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following are correct statements about Maldives ?

- a. The head of State and Government is the President.
- b. The President is directly elected by Universal Suffrage.
- c. The Vice-President is appointed by the President.
- d. It has unicameral legislature.
- e. Maldives legislature is called the People's Majlis.

Options :

1. ✘ All a, b, c, d, e
2. ✘ Only a, b, e
3. ✔ Only a, b, d, e
4. ✘ Only b, c, d, e

Question Number : 22 Question Id : 641770242 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

What was India's rank in the Global Hunger Index in the Global Hunger Report 2023 ?

Options :

1. ✘ 122
2. ✘ 127
3. ✔ 111
4. ✘ 95

Question Number : 23 Question Id : 641770243 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Observe the following statements :

Statement – I : Section 16 of Right to Information Act deals with terms of office and conditions of service of State Chief Information Commissioner.

Statement – II : No State Chief Information Commissioner shall hold the office as such after he has attained the age of seventy years.

Options :

1. ✔ Statement I correct; II incorrect
2. ✘ Statement I incorrect; II correct
3. ✘ Both statements are correct
4. ✘ Both statements are incorrect

Question Number : 24 Question Id : 641770244 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Under the Maharashtra Right to Public Services Act, 2015 which of the following Section deals with the procedure for recovery of Penalty ?

Options :

1. ✘ Section – 12
2. ✘

Section – 13

3. ✘ Section – 13(A)

4. ✔ Section – 11

Question Number : 25 Question Id : 641770245 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Right to information includes :

- a. inspection of public records
- b. taking certified samples of materials
- c. obtaining information in the form of diskettes.

Choose the correct option.

Options :

1. ✘ Only a and c

2. ✘ Only a and b

3. ✘ Only b and c

4. ✔ All a, b, c

Question Number : 26 Question Id : 641770246 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Which of the following statements are true ?

- a. National Electricity Policy was first declared in 2005.
- b. National Electricity Policy is declared every year.
- c. National Electricity Plan is declared every 5 years.

Options :

1. ✘ a, b

2. ✔ a, c

3. ✘ b, c

4. ✘ a, b, c

Question Number : 27 Question Id : 641770247 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following statement(s) are correct about Carbon Credit Trading Scheme ?

- a. This scheme is proposed according to Energy Conservation Act, 2001.
- b. Carbon Credit Certificate will be issued to entities exceeding the target of reducing GHG emission intensity.
- c. Entities cannot purchase Carbon Credit Certificate from Indian Carbon Market.
- d. Carbon Credit is equivalent to one ton of CO₂ equivalent.

Options :

1. ✘ a, c, d

2. ✘ a, b, c

3. ✔ a, b, d

4. ✘ a, b, c, d

Question Number : 28 Question Id : 641770248 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A metal supports used for overhead lines, shall have the minimum factor of safety as

Options :

1. ✘ 3

2. ✔ 1.5

3. ✘ 2

4. ✘ 2.5

Question Number : 29 Question Id : 641770249 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

As per Indian Electricity Act, 2003, a power plant set up by any person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for use of members of such co-operative society or association is called as

Options :

1. ✓ Captive generating plant
2. ✗ Private generating plant
3. ✗ Public generating plant
4. ✗ None of the above

Question Number : 30 Question Id : 641770250 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In CEA regulation 2022 (Technical standard for construction of electrical plants and lines) while designing air insulated substation or gas insulated substation, one and a half breaker switching scheme is recommended at which voltage levels ?

Options :

1. ✗ 66 KV
2. ✗ 110 KV to 230 KV
3. ✓ 400 KV and above
4. ✗ All of these

Question Number : 31 Question Id : 641770251 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The Energy Conservation Building Code (ECBC) is a set of minimum energy standards for new commercial buildings having a connected load of _____ or a contract demand of _____.

Options :

1. ✓ Minimum 100 KW, minimum 120 KVA

2. ✘ Minimum 200 KW, minimum 240 KVA
3. ✘ Maximum 100 KW, maximum 120 KVA
4. ✘ Maximum 200 KW, maximum 240 KVA

Question Number : 32 Question Id : 641770252 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

What was the energy scenario in India, at the end of March 2024 ?

- a. Private sector's installed power generation capacity is more than that by Central Government or State Government.
- b. Fuel-wise share of installed generation capacity is Thermal 56%, RES 31.5%, Nuclear 1.7%, Others 10.8%.
- c. India's total installed generation capacity is 434195 MW.
- d. The electricity generation target (including RE) for 2023 – 24 is 1550 Billion Units.

Options :

1. ✘ b, c are correct
2. ✘ b, c, d are correct
3. ✔ a, b, c are correct
4. ✘ a, b, c, d are correct

Question Number : 33 Question Id : 641770253 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

_____ is an integration scheme supported by Ministry of Power, India, which covers all aspects of rural distribution infrastructure enhancement.

Options :

1. ✔ DDUGJY
2. ✘ RDSS
3. ✘ APDRP

4. ✖ SAUBHAGYA

Question Number : 34 Question Id : 641770254 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Fire officer or fire supervisor shall be appointed for every building with height more than

Options :

1. ✔ 30 meters
2. ✖ 50 meters
3. ✖ 15 meters
4. ✖ 70 meters

Question Number : 35 Question Id : 641770255 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

A power substation with 22 KV nominal system voltage should have lightning impulse withstand voltage _____ KV_{peak}.

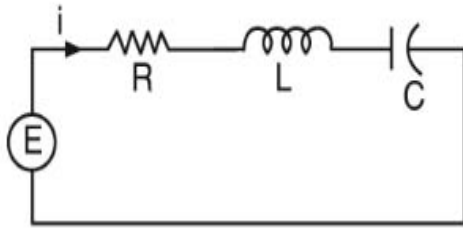
Options :

1. ✖ 22
2. ✖ 75
3. ✔ 125
4. ✖ 175

Question Number : 36 Question Id : 641770256 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

For following circuit, if source voltage E is a time-varying quantity, then E is equal to



Options :

1. ✘ $iR + C \frac{di}{dt} + \frac{1}{L} \int idt$

2. ✔ $iR + L \frac{di}{dt} + \frac{1}{C} \int idt$

3. ✘ $iL + R \frac{di}{dt} + \frac{1}{C} \int idt$

4. ✘ $iC + R \frac{di}{dt} + \frac{1}{L} \int idt$

Question Number : 37 Question Id : 641770257 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

The per unit impedance Z(pu) is given by

Options :

1. ✘ $\frac{Z(\text{ohms}) \times (\text{KVA})_B}{(\text{KV})_B^2}$

2. ✘ $\frac{Z(\text{ohms}) \times (\text{MVA})_B}{100 \times (\text{KV})_B^2}$

3. ✘ $\frac{Z(\text{ohms}) \times (\text{MVA})_B \times 100}{(\text{KV})_B^2}$

4. ✔

$$\frac{Z(\text{ohms}) \times (\text{MVA})_B}{(\text{KV})_B^2}$$

Question Number : 38 Question Id : 641770258 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A dc source of 10 volts and internal resistance of 2.5 ohms is connected across a load resistance R_L which is variable. What will be the value of maximum power drawn by the load resistance R_L ?

Options :

1. ✘ 2.5 Watts
2. ✘ 4 Watts
3. ✔ 10 Watts
4. ✘ 15 Watts

Question Number : 39 Question Id : 641770259 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In unsymmetrical fault analysis

- a. The positive and negative sequence impedances can be taken as equal in case of transformer.
- b. The positive and negative sequence impedances can be taken as equal in case of synchronous machines.

Which of the statements given above is/are correct ?

Options :

1. ✔ a only
2. ✘ b only
3. ✘ both a and b are correct
4. ✘ both a and b are incorrect

Question Number : 40 Question Id : 641770260 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The three phase short circuit MVA (SC MVA) to be interrupted by a circuit breaker in a power system is given by

Options :

1. ✘ $\sqrt{3}$ × Post fault line voltage in KV × SC current in KA
2. ✘ 3 × Pre fault line voltage in KV × SC current in KA
3. ✔ $\sqrt{3}$ × Pre fault line voltage in KV × SC current in KA
4. ✘ $\frac{1}{\sqrt{3}}$ × Pre fault line voltage in KV × SC current in KA

Question Number : 41 Question Id : 641770261 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The voltage level of outdoor substation, typically starts from

Options :

1. ✘ 11 KV
2. ✘ 22 KV
3. ✘ 33 KV
4. ✔ 66 KV

Question Number : 42 Question Id : 641770262 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The tendency of alternating current to concentrate near the surface of conductor is known as

Options :

1. ✘ Proximity effect
2. ✔ Skin effect

3. ✘ Ferranti effect

4. ✘ Corona

Question Number : 43 Question Id : 641770263 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A dc circuit comprises of two resistors, A of value 25 ohms and B of unknown value, connected in parallel; and a third resistor C of value 5 ohms connected in series with the parallel group. The potential difference across C is found to be 90 volts. If the total power in the circuit is 4320 watts, what is the value of resistance B ?

Options :

1. ✔ 12.5 ohms

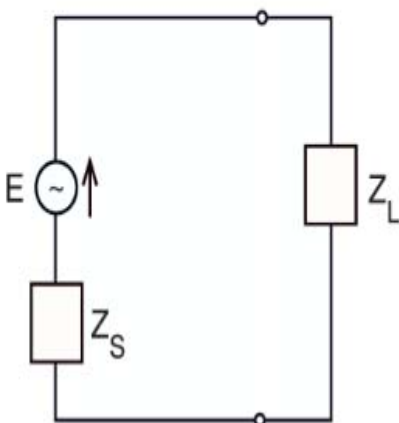
2. ✘ 15.5 ohms

3. ✘ 25 ohms

4. ✘ 5 ohms

Question Number : 44 Question Id : 641770264 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In an AC circuit consisting of source with source impedance Z_S and load impedance Z_L (variable resistance and variable reactance) as shown below, the maximum power will be delivered to load when



Options :

1. ✔

$Z_L = \text{complex conjugate of } Z_S$

2. ✘ $Z_L = \text{source impedance } Z_S$

3. ✘ $Z_L = 1/Z_S$

4. ✘ $Z_L = 2Z_S$

Question Number : 45 Question Id : 641770265 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

What is the percentage saving in feeder copper, if the line voltage in a z-wire dc distribution system is raised from 200 volts to 400 volts, for the same power transmitted over the same distance and having the same power loss ?

Options :

1. ✘ 25%

2. ✘ 50%

3. ✔ 75%

4. ✘ 100%

Question Number : 46 Question Id : 641770266 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Trivector meter measures

Options :

1. ✘ Power

2. ✘ Energy

3. ✔ Both power and energy

4. ✘ None of the above

Question Number : 47 Question Id : 641770267 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which bridge is used for measuring an unknown inductance in terms of a known capacitance and resistance ?

Options :

1. ✘ Maxwell's L/C bridge
2. ✘ Hay's bridge
3. ✘ Owen's bridge
4. ✔ Anderson's bridge

Question Number : 48 Question Id : 641770268 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In case of two wattmeter method of measurement of power, if one of the wattmeter reads zero and the other reads total power, then what is the value of power factor ?

Options :

1. ✔ 0.5
2. ✘ 0.8
3. ✘ 1
4. ✘ 0

Question Number : 49 Question Id : 641770269 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Current and potential transformers have been standardized at _____ on secondary side.

Options :

1. ✘ 10 Amp, 230 volt

2. ✓ 5 Amp, 110 volt
3. ✗ 5 Amp, 230 volt
4. ✗ 10 Amp, 110 volt

Question Number : 50 Question Id : 641770270 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A meggar is used for the measurement of

Options :

1. ✗ Low valued resistance
2. ✗ Medium valued resistance
3. ✓ High valued, particularly insulation resistance
4. ✗ All of the above

Question Number : 51 Question Id : 641770271 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The speed of DC shunt motor can be increased by

Options :

1. ✗ Decreasing the field current
2. ✓ Increasing the field current
3. ✗ Decreasing the load current
4. ✗ Increasing the armature current

Question Number : 52 Question Id : 641770272 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

If the pole flux of DC motor approaches to zero, its speed will

Options :

1. ✘ Approach zero
2. ✔ Approach infinity
3. ✘ No change due to corresponding change in back emf
4. ✘ Approach a suitable value somewhere between zero and infinity

Question Number : 53 Question Id : 641770273 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Arrange the following devices of the refrigeration cycle in the correct sequence of their operation.

- a. Evaporator
- b. Expander
- c. Compressor
- d. Condenser

Options :

1. ✘ c – d – a – b
2. ✘ c – a – d – b
3. ✘ a – d – c – b
4. ✔ a – c – d – b

Question Number : 54 Question Id : 641770274 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The retardation test on DC shunt motor is used for finding

Options :

1. ✘ Friction losses
2. ✘ Copper losses
3. ✔ Friction and windage losses

4. ✘ Iron losses

Question Number : 55 Question Id : 641770275 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

1 ton of refrigeration is equal to

Options :

1. ✘ 21000 kJ/Hr

2. ✔ 12660 kJ/Hr

3. ✘ 18990 kJ/Hr

4. ✘ 15192 kJ/Hr

Question Number : 56 Question Id : 641770276 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

Battery manufacturers usually specify battery with

Options :

1. ✘ amp-hours and current while charging

2. ✘ amp-hours and output voltage

3. ✔ amp-hours at discharge rate

4. ✘ amp-hours and power capacity

Question Number : 57 Question Id : 641770277 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

If P = Number of passengers with average weight of 75 kg.

S = Top rated speed in m/s

CF = Counter weight factor

η = Total efficiency of installation

9.81 = Acceleration due to gravity,

then the formula for sizing the motor for lift is

Options :

1. ✘
$$M = \frac{P \times 75 \times S \times (1 - CF)}{9.81 \times \eta}$$

2. ✔
$$M = \frac{P \times 75 \times 9.81 \times S \times (1 - CF)}{\eta}$$

3. ✘
$$M = \frac{P \times 75 \times 9.81 \times S \times (1 + CF)}{\eta}$$

4. ✘
$$M = \frac{P \times 75 \times S \times (1 + CF)}{9.81 \times \eta}$$

Question Number : 58 Question Id : 641770278 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 2 Wrong Marks : 0.5

When induction machine is working in association with wind turbine as an induction generator its slip is

Options :

1. ✘ Positive

2. ✘ Zero

3. ✔ Negative

4. ✘ One

Question Number : 59 Question Id : 641770279 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

When the battery is fully charged, its depth of discharge (DoD) is

Options :

1. ✓ Zero
2. ✗ One
3. ✗ Minus one
4. ✗ Infinity

Question Number : 60 Question Id : 641770280 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

If the speed of the centrifugal pump is doubled, then its power consumption will increase by

Options :

1. ✗ Two times
2. ✗ Four times
3. ✗ Six times
4. ✓ Eight times

Question Number : 61 Question Id : 641770281 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Select the correct statement about resistance switching used in the circuit breaker.

Options :

1. ✗ Higher the value of resistance, smaller is the magnitude of restriking voltage.
2. ✗ Resistance is connected in series with the circuit breaker contacts.
3. ✓ Some of the arc current is bypassed through the resistance.

4. ✘ Resistance is used to improve the power factor at the time of arc interruption.

Question Number : 62 Question Id : 641770282 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Switching of capacitive current results in

Options :

1. ✘ the voltage across capacitance to reduce after every half cycle
2. ✘ the voltage across capacitance to remain same after every half cycle
3. ✔ the voltage across capacitance to increase after every half cycle
4. ✘ the frequency of circuit to reduce after every half amplitude of voltage

Question Number : 63 Question Id : 641770283 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The rated MVA of circuit breaker is defined as which of the following ?

Options :

1. ✘ Product of post-fault circuit breaker voltage and post-fault circuit breaker current
2. ✘ Product of pre-fault circuit breaker voltage and pre-fault circuit breaker current
3. ✔ Product of pre-fault circuit breaker voltage and post-fault circuit breaker current
4. ✘ Product of post-fault circuit breaker voltage and pre-fault circuit breaker current

Question Number : 64 Question Id : 641770284 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following is wrong as related to SF_6 ?

Options :

1. ✘ SF_6 is colourless, odourless and not soluble in water

2. ✓ SF_6 is lighter than air

3. ✗ SF_6 is non-toxic

4. ✗ SF_6 is inert

Question Number : 65 Question Id : 641770285 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Match the following :

- | | |
|----------------------|---|
| A. V CB | I. Costly compressed air system |
| B. AB CB | II. Low voltage application |
| C. Outdoor SF_6 CB | III. Plasma due to vapour of contact material |
| D. MC CB | IV. Less number of interruptions per pole |

Options :

1. ✗ A – IV B – I C – III D – II

2. ✗ A – II B – III C – I D – IV

3. ✓ A – III B – I C – IV D – II

4. ✗ A – II B – I C – III D – IV

Question Number : 66 Question Id : 641770286 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

As per energy balance theory of arc interruption, which of the following is correct ?

Options :

If the rate at which energy is released through the arc in the circuit breaker, is less than the rate at which energy is dissipated by the arc interruption arrangement,

1. ✓ then the interruption succeeds

2. ✗

If the rate at which energy is released through the arc in the circuit breaker, is more than the rate at which energy is dissipated by the arc interruption arrangement, then the interruption succeeds

The rate at which energy is released through the arc in the circuit breaker is not
3. ✘ related with arc interruption

The rate at which energy is dissipated by the arc interruption arrangement is not
4. ✘ related with arc interruption process

Question Number : 67 Question Id : 641770287 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Identify a wrong statement about 'arc interruption' in circuit breakers.

Options :

- 'Arc interruption by increasing the arc resistance' is used in low power ac and dc
1. ✘ circuit breakers
 2. ✘ Arc resistance can be increased by cooling, lengthening or splitting
 3. ✘ Current natural zero interruption technique is used in ac circuit breakers
 4. ✔ None of these

Question Number : 68 Question Id : 641770288 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Match the components of a static relay with their function :

- | | |
|-------------------|------------------------------------|
| A. Input Unit | I. Electronic switching |
| B. Measuring Unit | II. Transducer/CT/PT |
| C. Amplifier | III. Comparator/level detector |
| D. Output Unit | IV. Increases strength of a signal |

Options :

1. ✘ A – III B – II C – I D – IV
2. ✘ A – II B – III C – I D – IV

3. ✘ A – III B – II C – IV D – I

4. ✔ A – II B – III C – IV D – I

Question Number : 69 Question Id : 641770289 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Slepian's theory in an arc extinction process is the

- a. race between dielectric strength and restriking voltage.
- b. race between dielectric strength and energy dissipation.
- c. race between energy dissipation and restriking voltage.
- d. normal process not depend on any of the dielectric quantity.

Options :

1. ✘ All of the above

2. ✔ Only a

3. ✘ Only b

4. ✘ c and d

Question Number : 70 Question Id : 641770290 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The oil circuit breaker is advantageous due to

- a. the absorption of arc energy in decomposing the oil
- b. the good cooling properties of gas formed
- c. the action of oil as an insulator
- d. useful property of oil like viscosity

Options :

1. ✘ Only a

2. ✘ Only b

3. ✘ c and d

4. ✓ a, b and c

Question Number : 71 Question Id : 641770291 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In case of three stepped distance protection, the reach of second step of distance protection should be equal to which of the following ?

Options :

1. ✘ 100% of line under consideration plus 100% of shortest adjoining line
2. ✘ 100% of line under consideration plus 100% of longest adjoining line
3. ✘ 100% of line under consideration plus 50% of longest adjoining line
4. ✓ 100% of line under consideration plus 50% of shortest adjoining line

Question Number : 72 Question Id : 641770292 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The reach of over-current relay depends on which of the following ?

Options :

1. ✘ The type of fault only
2. ✘ The source impedance only
3. ✘ Neither on the type of fault nor on the source impedance
4. ✓ Both the type of fault as well as on the source impedance

Question Number : 73 Question Id : 641770293 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

If the neutral of the system is grounded then in case of single line to ground (LG) fault, which of the following is correct ?

Options :

1. ✘

The neutral current is zero

2. ✘ The neutral current is equal to the zero sequence current
3. ✘ The neutral current is equal to twice the zero sequence current
4. ✔ The neutral current is equal to three times the zero sequence current

Question Number : 74 Question Id : 641770294 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following is not an assumption made in short circuit analysis ?

Options :

Shunt elements in transformer model that account for magnetizing current and core

1. ✘ loss are neglected
2. ✘ Shunt capacitances of transmission line are neglected
3. ✘ System resistance is neglected
4. ✔ Inductive reactances of system are neglected

Question Number : 75 Question Id : 641770295 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Inverse definite minimum time overcurrent (IDMT) relay gives an inverse time current characteristic at _____ values of the fault current and definite time characteristic at _____ values of the fault current.

Options :

1. ✘ higher, higher
2. ✔ lower, higher
3. ✘ higher, lower

4. ✘ lower, lower

Question Number : 76 Question Id : 641770296 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In transient stability studies, a synchronous machine can be represented by a voltage source, in back of transient reactance, that is constant in magnitude but changes its angular position. Which of the following is correct for this representation ?

Options :

1. ✘ This representation only neglects the effect of saliency

This representation only assumes constant flux linkages and a small change in

2. ✘ speed

This representation neglects the effect of saliency and assumes constant flux

3. ✔ linkages and a small change in speed

4. ✘ None of the above

Question Number : 77 Question Id : 641770297 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Consider following statements related to zero sequence currents in transformer

1. Zero sequence currents can flow in the legs of a star connection only if the star point is grounded.
2. No zero sequence currents can flow in the lines connected to a delta connection.

Which of the following options is correct ?

Options :

1. ✘ Statement 1 is correct but statement 2 is wrong

2. ✘ Statement 1 is wrong but statement 2 is correct

3. ✔ Both statement 1 and statement 2 are correct

4. ✘ Both statement 1 and statement 2 are wrong

Question Number : 78 Question Id : 641770298 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

For transient stability analysis, which of the following model is used to represent loads ?

Options :

1. ✘ Constant current model
2. ✘ Constant power model
3. ✔ Constant admittance model
4. ✘ None of the above

Question Number : 79 Question Id : 641770299 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

An inverse time overcurrent relay operates when the current _____.

Options :

1. ✔ exceeds its pick up value
2. ✘ is equal to its pick up value
3. ✘ is steady
4. ✘ all of the above

Question Number : 80 Question Id : 641770300 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

A distance or impedance relay is essentially an ohmmeter and operates whenever the impedance of the protected zone _____ a predetermined value.

Options :

1. ✔ falls below

2. ✘ increases above
3. ✘ reduces near
4. ✘ is equal to

Question Number : 81 Question Id : 641770301 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Select a wrong statement about field control of dc motor.

Options :

1. ✘ It is used to obtain speeds above the rated value
2. ✘ The magnetic flux is varied by varying field current or field turns
3. ✔ The method can not be used for dc series motor
4. ✘ The speed control characteristics is non-linear

Question Number : 82 Question Id : 641770302 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

In armature control of DC motor effect of armature inductance is

Options :

1. ✔ Low pass filtering and blocking ripple
2. ✘ Discontinuous current operation
3. ✘ Maintaining di/dt of power devices
4. ✘ None of the above

Question Number : 83 Question Id : 641770303 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A DC series motor is fed from 600 V dc through 300 A for a chopper duty cycle of 60%, the input power from the source is

Options :

1. ✓ 108 KW
2. ✗ 180 KW
3. ✗ 140 KW
4. ✗ None of the above

Question Number : 84 Question Id : 641770304 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Volts/hertz control offer speed control from _____ upto _____ of induction motor.

Options :

1. ✓ standstill, rated speed
2. ✗ standstill, synchronous speed
3. ✗ synchronous speed, rated speed
4. ✗ rated speed, synchronous speed

Question Number : 85 Question Id : 641770305 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

For a 3 ϕ , squirrel cage induction motor drive, the rotor current is maximum when motor runs at a slip

Options :

1. ✗ $s = 1/2$
2. ✓ $s = 1/3$
3. ✗ $s = 1/4$

4. ✘ $s = 1/5$

Question Number : 86 Question Id : 641770306 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

If multiple motors are controlled by a single variable frequency drive, then all motors should have

Options :

1. ✔ equal voltage rating
2. ✘ equal power rating
3. ✘ equal speed
4. ✘ all of these

Question Number : 87 Question Id : 641770307 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

FACTS Technology is used for

Options :

Directly controlling AC transmission line flow by structurally changing the

1. ✔ parameters of fast switching
2. ✘ Filtering harmonics in the AC transmission line
3. ✘ Limiting the transmitted DC power
4. ✘ All of the above

Question Number : 88 Question Id : 641770308 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Which of the following statements is false about the FACTS controller ?

Options :

1. ✘ UPFC is a series-shunt controller

2. ✘ IPFC is a series-series controller
3. ✘ STATCOM is a shunt controller
4. ✔ SVC is a series controller

Question Number : 89 Question Id : 641770309 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

IoT devices are useful to enhance the power network safety. Select a wrong statement.

Options :

- IoT sensors and smart meters collect the data on power consumption for early
1. ✘ threat detection
 2. ✘ IoT enabled grid components are useful to minimize outages and cyber incidents
 3. ✘ IoT can be used for access and authentication

- With IoT, physical monitoring of long transmission lines is done to detect structural
4. ✔ faults

Question Number : 90 Question Id : 641770310 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Match the SCADA component with its function.

- | | |
|--------------------------|--|
| A. Remote Control Unit | I. Transfers data among central server and field data interface device and control units |
| B. Master Terminal Unit | II. Performs control, alarming, networking with other nodes |
| C. Communication Network | III. Direct connection with various sensors, meters and actuators |
| D. Operator Workstations | IV. Request and send the information to host client computer in order to monitor and control the remote field parameters |

Options :

1. ✘ A – II B – III C – IV D – I
2. ✔ A – III B – II C – I D – IV
3. ✘ A – IV B – I C – II D – III
4. ✘ A – I B – IV C – II D – III

Question Number : 91 Question Id : 641770311 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

The energy meters used on _____ are connected through CT and PT and are doubly earthed.

Options :

1. ✘ 220 V and above
2. ✘ 440 V and above
3. ✔ 11 KV and above
4. ✘ All of these

Question Number : 92 Question Id : 641770312 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

As per recommendation of Indian Standards the maximum number of points of lights, fans and 5 A socket outlets that can be connected in one circuit is _____ and the maximum load that can be connected in such a circuit is _____ watts.

Options :

1. ✔ 10, 800
2. ✘ 5, 250
3. ✘ 20, 2500
4. ✘ 5, 500

Question Number : 93 Question Id : 641770313 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

For overhead HT/LT systems, size of conductors depends on

Options :

1. ✘ Length of the $\frac{HT}{LT}$ line
2. ✘ Load on the line
3. ✘ Voltage of the line
4. ✔ All of the above

Question Number : 94 Question Id : 641770314 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A building has 2 lifts with round trip time of each lift being 150 sec. The lift capacity is 10 passengers each. Average load on the lift is 80% of the capacity. Calculate the waiting time and the number of passengers that can be served in 5 min. during peak hours.

Options :

1. ✔ 75 sec, 32 persons
2. ✘ 150 sec, 32 persons
3. ✘ 300 sec, 16 persons
4. ✘ 75 sec, 16 persons

Question Number : 95 Question Id : 641770315 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Match the following :

- | | |
|--|--|
| A. Direct laying of underground cables | I. Heat dissipation is less effective |
| B. Laying underground cables in troughs | II. Initial investment is high |
| C. Drawing underground cables into ducts | III. Used when electrical clearance is small and theft is likely |
| D. Aerial bunched cable | IV. Not suitable in densely populated area |

Options :

1. ✘ A – I B – II C – III D – IV
2. ✘ A – III B – I C – II D – IV
3. ✔ A – IV B – I C – II D – III
4. ✘ A – I B – III C – IV D – II

Question Number : 96 Question Id : 641770316 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

For selection of cable of correct size and type for a particular application, the factors to be considered are

Options :

1. ✘ System voltage
2. ✘ Permissible voltage drop
3. ✘ Short circuit rating
4. ✔ All of these

Question Number : 97 Question Id : 641770317 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

A premises is consuming 1000 kW of active power and certain reactive power, resulting in a lagging power factor and nominal system voltage. Then a solar PV system is installed that exports 500 kW at unity p.f. Now, which of the following statements is true ?

Options :

1. ✘ p.f. of the grid power improves and the load voltage decreases
2. ✘ p.f. of the grid power decreases and the load voltage remains same as before
3. ✔ p.f. of the grid power decreases and the load voltage dips
4. ✘ p.f. of the grid power improves and the load voltage dips

Question Number : 98 Question Id : 641770318 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Calculate the Plant Energy Performance (PEP) to determine whether the plant is now using more energy to manufacture its products than it did in the reference year.

Given : Current year's production = 120 units

Reference year's production = 100 units

Reference year's energy consumption = 30000 kWh

Current year's energy consumption = 35000 kWh

Then, Plant energy performance =

Options :

1. ✘ $\frac{100}{35}$ % improvement
2. ✔ $\frac{100}{36}$ % improvement
3. ✘ $\frac{500}{35}$ % deterioration
4. ✘ $\frac{500}{30}$ % deterioration

Question Number : 99 Question Id : 641770319 Question Type : MCQ Option Shuffling : Yes Correct Marks : 2 Wrong Marks : 0.5

Consider the statements and choose correct option.

1. Variable Refrigerant Flow (VRF) system is energy efficient than traditional HVAC system.
2. VRF systems are an excellent choice for buildings that require both heating and cooling to coexist simultaneously.

Options :

1. ✘ Both 1 and 2 are wrong
2. ✔ Both 1 and 2 are correct
3. ✘ 1 is correct and 2 is wrong
4. ✘ 1 is wrong and 2 is correct

Question Number : 100 Question Id : 641770320 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 2 Wrong Marks : 0.5

While designing a fixed automatic sprinkler for fire fighting in a building, if risk of hazard is higher, then distance between sprinkler heads on the range pipe _____ and the design density ($l/min/m^2$) _____.

Options :

1. ✘ decreases, decreases
2. ✘ increases, increases
3. ✘ increases, decreases
4. ✔ decreases, increases