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LMRC
JE EE 2015
Previous Year Paper
(28 June 2015)



Lucknow Metro Rail Corporation

Participant ID:

Participant Name:

Test Center Name:

Shambhunath Institute of Management

Test Date:

28/06/2015

Test Time:

1:00 PM - 2:30 PM

Subject Name:

Junior Engineer Electrical Engineering

Section : Technical

Q.1 A very high head hydro electric plant use

Opti
ons

- 1. Kaplan turbine
- 2. Francis turbine
- 3. Pelton wheel
- 4. Propeller turbine

Chosen Option : 3

Q.2 Which of the following is not a bus bar arrangement?

Opti
ons

- 1. Ring bus bar
- 2. Duplicate bus bar
- 3. Double bus bar
- 4. Single bus bar

Chosen Option : 2

Q.3 At resonance, inductive reactance is equal to

Opti
ons

- 1. Inductance
- 2. Capacitance
- 3. Resistance
- 4. Capacitive Reactance

Chosen Option : 4

Q.4 The starting winding of a single phase motor is placed in

Opti
ons

- 1. field
- 2. rotor
- 3. armature
- 4. stator

Chosen Option : 1

Q.5 If residual magnetism is present in a DC generator, the induced e.m.f. at zero speed will be

Opti
ons

- 1. the same as rated voltage
- 2. small
- 3. zero
- 4. high

Chosen Option : 3

Q.6 What are Oil switches used for?

Opti
ons

- 1. high voltage and large current circuits
- 2. low current supply
- 3. low current circuits
- 4. low voltage circuits

Chosen Option : 1

Q.7 In a DC motor, speed control by varying the armature circuit resistance provides a:

Opti
ons

- 1. variable torque drive
- 2. constant torque drive
- 3. constant power drive
- 4. variable power drive

Chosen Option : 2

Q.8 An exciter for a turbo generator is a:

Opti
ons

- 1. series generator
- 2. compound generator
- 3. separately excited generator
- 4. shunt generator

Chosen Option : 4

Q.9 The single phase induction motor which does not have centrifugal switch is

Opti
ons

- 1. resistance split single phase IM
- 2. capacitor start single phase IM
- 3. capacitor start capacitor run single phase IM
- 4. permanent capacitor run single phase IM

Chosen Option : 3

Q.10 The field coils of DC generator are generally made up of:

Opti
ons

- 1. Mica
- 2. Copper
- 3. Cast Iron

Chosen Option : 2

4. Carbon	
Q.11 A motor starter is	Chosen Option : 3
Opti ons	
1. variable capacitor	
2. fixed resistance	
3. variable resistance	
4. variable inductance	
Q.12 In an A.C. circuit, power is consumed only in	Chosen Option : 4
Opti ons	
1. capacitor	
2. choke	
3. inductor	
4. resistance	
Q.13 Compounding of steam is done for	Chosen Option : 2
Opti ons	
1. reducing the work done	
2. increasing the rotor speed	
3. balancing the turbine	
4. reducing the rotor speed	
Q.14 Three point starter can be used for:	Chosen Option : 1
Opti ons	
1. both shunt and compound motor	
2. shunt motor	
3. series motor	
4. compound motor	
Q.15 A dynamo is sometimes said to generate electricity. It actually acts as a source of	Chosen Option : 4
Opti ons	
1. charge	
2. magnetism	
3. energy	
4. emf	
Q.16 The primary to secondary turns ratio of a transformer is 1 : 2. If primary is connected to 50 Hz supply, then the frequency of secondary supply in Hz is:	Chosen Option : 4
Opti ons	
1. 2×50	
2. 3×50	
3. $\frac{50}{2}$	
4. 50	
Q.17 The gas filled in vacuum filament lamps is:	Chosen Option : 4
Opti ons	
1. Chlorine	
2. Air	
3. Nitrogen	
4. Argon	
Q.18 An inductor may store charges in its:	Chosen Option : 4
Opti ons	
1. coils	
2. magnetic field	
3. electric field	
4. electric and magnetic fields both	
Q.19 For the same power output, operating charges are minimum in a:	Chosen Option : 4
Opti ons	
1. gas turbine plant	
2. thermal plant	
3. nuclear plant	
4. hydel plant	
Q.20 The core of a transformer is laminated to prevent:	Chosen Option : 4
Opti ons	
1. resistance to current	
2. rusting of core	
3. increase in weight of transformer	
4. energy losses due to eddy currents	
Q.21 The range of efficiency for shaded pole motors is	Chosen Option : 1
Opti ons	
1. 5% to 35%	
2. 50% to 75%	
3. 80% to 90%	
4. 95% to 99%	
Q.22 Hot wire ammeters are used for measuring	

Opti 1. neither a.c. nor d.c.
ons

- 2. only d.c.
- 3. only a.c.
- 4. both a.c. and d.c.

Chosen Option : 3

Q.23 The mechanical power developed by a DC motor is:

Chosen Option : 2

Opti
ons 1. power output \times losses

- 2. back emf \times armature current
- 3. power output \times efficiency
- 4. power input + losses

Q.24 The rotor of which motor does not have winding on it?

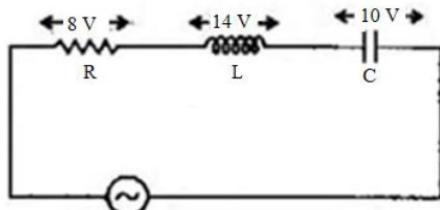
Chosen Option : 2

Opti
ons 1. Repulsion motor

- 2. Hysteresis motor
- 3. Universal motor
- 4. Reluctance motor

Q.25 If the voltage source is sinusoidal, then the input voltage (r.m.s.) is:

Chosen Option : 2



Opti
ons 1. 15 V
2. 10 V
3. 5 V
4. 2.5 V

Q.26 The speed of universal motor is generally reduced by

Chosen Option : 4

Opti
ons 1. V belts
2. brakes
3. chains
4. gear trains

Q.27 Power output in a motor is 140 W. Input to the motor is 176.84 W including losses. Then, the efficiency is:

Chosen Option : 4

Opti
ons 1. 74%
2. 81%
3. 76%
4. 79%

Q.28 The overall efficiency of a thermal power plant is equal to:

Chosen Option : 1

Opti
ons 1. Boiler efficiency \times Turbine efficiency \times Generator efficiency
2. Carnot cycle efficiency
3. Rankine cycle efficiency
4. Regenerative cycle efficiency

Q.29 Air used in air blast circuit breaker must:

Chosen Option : 4

Opti
ons 1. be ionized
2. have least CO₂
3. have oil mist
4. be free from moisture

Q.30 Unit of resistivity is:

Chosen Option : 2

Opti
ons 1. mho
2. ohm metre
3. mho metre
4. ohm

Q.31 The ratio of energy produced in a given time to the maximum possible energy that can be produced is:

Chosen Option : 4

Opti 1. Load factor

ons

- 2. Plant use factor
- 3. Demand factor
- 4. Utilization factor

Q.32 What is the main function of a fuse?

**Opti
ons**

- 1. To protect the line
- 2. To save energy
- 3. To open the circuit
- 4. To prevent excessive currents

Chosen Option : 4

Q.33 Which of the following is not self starting?

**Opti
ons**

- 1. Squirrel cage induction motor
- 2. DC series motor
- 3. Synchronous motor
- 4. Wound round induction motor

Chosen Option : 1

Q.34 Iron losses in DC machines are independent of variations in

**Opti
ons**

- 1. speed
- 2. speed and voltage
- 3. voltage
- 4. load

Chosen Option : 4

Q.35 Which of the following coals has the highest calorific value?

**Opti
ons**

- 1. Anthracite
- 2. Bituminous
- 3. Peat
- 4. Lignite

Chosen Option : 1

Q.36 Which of the following devices does not work on the principle of mutual induction?

**Opti
ons**

- 1. Tesla Coil
- 2. Motor
- 3. Induction Coil
- 4. Transformer

Chosen Option : 2

Q.37 Kirchoff's first and second laws are respectively based on conservation of:

**Opti
ons**

- 1. energy and charge
- 2. mass and energy
- 3. charge and energy
- 4. mass and charge

Chosen Option : 3

Q.38 High tension cables are generally used up to

**Opti
ons**

- 1. 11 kV
- 2. 66 kV
- 3. 33 kV
- 4. 132 kV

Chosen Option : 3

Q.39 DC motors are used for driving

**Opti
ons**

- 1. hoists
- 2. machine tools
- 3. cranes
- 4. trains

Chosen Option : 4

Q.40 Buchholz relay is used on

**Opti
ons**

- 1. air cooled transformers
- 2. oil cooled transformers
- 3. furnace transformers
- 4. welding transformers

Chosen Option : 2

Q.41 The critical resistance of the DC generator is the resistance of:

**Opti
ons**

- 1. field
- 2. armature
- 3. load
- 4. brushes

Chosen Option : 1

Q.42 Match List I with List II and choose the correct answer from the options given below.

Opti

List I (Machines)

- i. DC motor
- ii. DC generator
- iii. Alternator
- iv. Induction motor

List II (Graphs)

- a. circle diagram
- b. V-curve
- c. open circuit characteristics
- d. speed torque curve

Chosen Option : 3



ons

1. iii – a, iv – b, i – c, ii – d
2. iv – a, iii – b, i – c, ii – d
3. iv – a, iii – b, ii – c, i – d
4. iii – a, iv – b, ii – c, i – d

Q.43 Which type of winding is generally preferred for generating large currents on DC generators?

Chosen Option : 1

Opti
ons

1. Lap winding
2. Retrogressive wave winding
3. Current depends on design
4. Progressive wave winding

Q.44 In a DC motor, constant torque is produced due to

Chosen Option : 4

Opti
ons

1. end plates
2. rotor laminations
3. pole shoes
4. commutator

Q.45 As the motion of armature increases, back e.m.f.

Chosen Option : 3

Opti
ons

1. remains constant
2. may increase or decrease
3. increases
4. decreases

Q.46 Buchholz's relay is

Chosen Option : 1

Opti
ons

1. connected in pipe connecting transformer and conservator
2. located on top of conservator pump
3. part of circuit breaker installed near transformer
4. installed inside the breaker

Q.47 Permeance is the reciprocal of:

Chosen Option : 3

Opti
ons

1. ampere turns
2. flux density
3. reluctance
4. resistance

Q.48 Wattless current is possible only in

Chosen Option : 1

Opti
ons

1. an LR circuit
2. a non resistive circuit
3. a resistive circuit
4. an LCR circuit

Q.49 Direct conversion of heat into electrical energy is done by

Chosen Option : 3

Opti
ons

1. stem cells
2. fuel cells
3. MHD generators
4. solar cells

Q.50 In a conductor, current density is the:

Chosen Option : 1

Opti
ons

1. current flowing per unit area
2. current flowing per unit volume
3. current flowing per unit length
4. current flowing per unit mass

Q.51 Which of the following devices is used as lightning arrester?

Chosen Answer : --

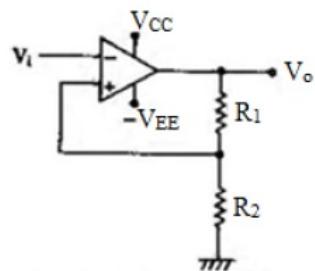
Opti
ons

1. Thyatron
2. Thyristor
3. Triode
4. Thyrite

Q.52

Chosen Answer : --

What does the following diagram represent?



Options

1. Bistable multivibrator
2. Astable vibrator
3. Monostable vibrator
4. Schmitt trigger

Q.53 Demand factor is

Options

1. Maximum demand/ Average load
2. Connected load/Maximum demand
3. Average load/Maximum demand
4. Maximum demand/Connected load

Chosen Option : 4

Q.54 No load test on a transformer is carried out to determine

Options

1. copper loss
2. magnetising current
3. efficiency
4. magnetising current and loss

Chosen Option : 4

Q.55 An LC circuit cannot produce oscillations, when

Options

1. resistance is low
2. resistance is large
3. inductance is large
4. capacitance is large

Chosen Answer : --

Q.56 What does the area under the load curve give?

Options

1. Load
2. Maximum demand
3. Energy consumed
4. Average demand

Chosen Option : 3

Q.57 The average power of an A.C. circuit is:

Options

1. $E_v I_v \sin \Phi$
2. 0
3. $E_v I_v \cos \Phi$
4. $E_v I_v$

Chosen Option : 2

Q.58 If the speed of rotation of a dynamo is doubled, then the induced e.m.f will:

Chosen Option : 3

Options

1. become four times
2. remain unchanged
3. become double
4. become half

Q.59 Which of the following is used as moderator in nuclear power plant s?

Chosen Option : 4

Options

1. Graphite
2. Sodium
3. Hydrogen
4. Heavy water

Q.60 The angle between rotating stator flux and rotor poles is called:

Chosen Option : 3

Options

1. synchronizing angle
2. power factor angle
3. torque angle
4. obtuse angle

Q.61 Candela is a unit of:
Options

Chosen Option : 1

ons	2. Power 3. Lamp efficiency 4. Frequency	
Q.62 Hunting in a synchronous motor takes place when	Chosen Option : 3	
Opti ons	1. power factor is unity 2. motor is under loaded 3. supply voltage fluctuates 4. load varies	
Q.63 Which DC motors are preferred for elevators?	Chosen Option : 2	
Opti ons	1. Shunt motors 2. Cumulative compound motors 3. Series motors 4. Differential compound motors	
Q.64 When power is drawn from secondary coil of a transformer, the dynamic resistance:	Chosen Answer : --	
Opti ons	1. decreases 2. increases 3. changes erratically 4. remains constant	
Q.65 In DC machines, fractional pitch winding is used to:	Chosen Option : 1	
Opti ons	1. reduce the sparking 2. increase the generated emf 3. improve cooling 4. reduce copper losses	
Q.66 The ratio of starting torque to running torque in a synchronous motor is:	Chosen Option : 1	
Opti ons	1. 1 2. 0 3. ∞ 4. 2	
Q.67 A DC motor converts	Chosen Option : 1	
Opti ons	1. electrical energy into mechanical energy 2. mechanical energy into electrical energy 3. magnetic energy into electrical energy 4. electric energy into magnetic energy	
Q.68 A 4 pole DC machine is running at 1500 rpm. What is the frequency of current in armature winding?	Chosen Option : 4	
Opti ons	1. 25 Hz 2. 100 Hz 3. 50 Hz 4. 0 Hz	
Q.69 Francis and Kaplan turbines fall under the category of:	Chosen Option : 4	
Opti ons	1. axial flow 2. impulse and reaction combined 3. impulse turbine 4. reaction turbine	
Q.70 A three phase synchronous motor will have:	Chosen Option : 3	
Opti ons	1. three slip rings 2. one slip ring 3. two slip rings 4. no slip rings	
Q.71 The power transformer is a constant	Chosen Option : 3	
Opti ons	1. current device 2. power device 3. main flux device 4. voltage device	
Q.72 Statement 1- Switching of a lamp in a house produces noise in radio Statement 2- Switching operation produces arc contact across separating contacts	Chosen Option : 3	
Which of the following is correct?		
Opti ons	1. Both 1 and 2 are correct but 2 is not the correct explanation of 1 2. 1 is false but 2 is true	

3. Both 1 and 2 are correct and 2 is the correct explanation of 1
 4. 1 is true but 2 is false

Q.73 The speed of DC motor is proportional to the:

**Opti
ons**

- square of armature current
- inverse of armature current
- armature current
- field current

Chosen Option : 2

Q.74 Which of the following is not a type of tariff?

**Opti
ons**

- Hopkinson demand rate
- Income rate
- Flat demand rate
- Block meter rate

Chosen Option : 2

Q.75 A transformer steps up or down

**Opti
ons**

- a.c. only
- a.c. mixed with d.c.
- d.c. only
- either a.c. or d.c.

Chosen Option : 1

Section : Numerical and logical Reasoning questions

Q.1 If 'DAUGHTER' is coded as 'SFUIHVBE' in a certain language, then how would 'PROBLEM' be coded as in the same language?

Chosen Option : 4

**Opti
ons**

- QSPCMFN
- NFMCSQP
- LDKANQO
- NFMCPSQ

Q.2 Four figures are given below out of which three are similar in a certain way and one is different. Which of the given figures is different from the other three?

Chosen Option : 4

**Opti
ons**

- 
- 
- 
- 

Q.3 P is the brother of Q and son of R. V is the sister of T, who is the daughter of Q. If R is the husband of S, then which of the following is true?

Chosen Option : 3

**Opti
ons**

- V is the granddaughter of S
- S is the mother of T
- V is the nephew of P
- R is the grandfather of Q

Q.4 Each of the following two rows contains 3 numbers. Some rules are given below to be used for getting the resultant for each row separately. Apply the rules for each row from left to right and answer the question.

Chosen Answer : --

Rules:

- If an even number is followed by an odd but not prime number, both are to be multiplied.
- If an even number is followed by a prime number, both are to be added.
- If an odd number is followed by a composite odd number, the first number is to be subtracted from the square of the second number.
- If an odd number is followed by an even number, the odd one is to be subtracted from the even number.

Row I: 16, 9, 23

Row II: 13, 38, 25

What is the difference between the resultants of the first row and the second row?

**Opti
ons**

- 26
- 767
- 433
- 193

Q.5 If '+' means '÷', '÷' means '−', '−' means '×' and '×' means '+', then

$$(12 + 4 \times 2) \times 6 - 4 \div 2 = ?$$

Chosen Option : 4

Options
1. 24
2. 17
3. 14
4. 27

Q.6 If 12% of 40% of X = 84, then what is the value of X?

Options
1. 1750
2. 1680
3. 1600
4. 1860

Chosen Option : 1

Q.7 Four months are given below out of which three are alike in some manner and one is different. Which of the given months is different from the other three?

Chosen Option : 3

Options
1. January
2. December
3. June
4. October

Q.8 Find out the word-pair in which the two words hold the same relationship as the two words in the word-pair given below.

Chosen Option : 4

Orange : Apple

Options
1. Pen : Ink
2. Tree : Flower
3. House : Family
4. Table : Chair

Q.9 Which number will replace the question mark in the number series below?

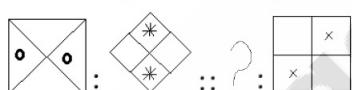
3, 4, 13, 38, ?, 168

Chosen Option : 3

Options
1. 63
2. 77
3. 87
4. 102

Q.10 The first two figures on the left side of the sign '::' are related in a certain way. The same relationship holds for the second pair of figures on the right side of the sign '::', of which one is missing. Which of the following is the missing one?

Chosen Option : 2



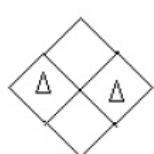
Options
1.



2.



3.



4.

Section : Computer Applications

Q.1 Which of the following is not a Search Engine?

Chosen Option : 3

Options
1. Google
2. Yahoo
3. Facebook
4. Alta Vista

Q.2 The CPU of a computer consists of:

Options

- 1. ALU, control unit and monitor
- 2. ALU, control unit and hard disk
- 3. ALU and control unit
- 4. ALU, control unit and registers

Chosen Option : 3

Q.3 Which of the following is both an input and an output device?

Options

- 1. Touch screen
- 2. LCD projector panel
- 3. Audio cards
- 4. Modem

Chosen Option : 2

Q.4 Criterion used for judging appropriateness of tool software is:

Options

- 1. Scalability
- 2. Compatibility
- 3. Security
- 4. Functionality

Chosen Answer : --

Q.5 The operating system for mobile phones developed by Google is:

Options

- 1. Magellan
- 2. Android
- 3. Ubuntu
- 4. Amoeba

Chosen Answer : --

Q.6 Which one of the following decimal number is equivalent to $(10000010)_2$?

Options

- 1. 200_{10}
- 2. 130_{10}
- 3. 1010_{10}
- 4. 304_{10}

Chosen Option : 2

Q.7 In a spreadsheet, one function inside another is called:

Options

- 1. Sum
- 2. Text
- 3. Round
- 4. Nested

Chosen Answer : --

Q.8 Which of the following is not a part of the Office Suite?

Options

- 1. Image editor
- 2. Database
- 3. Word processor
- 4. File manager

Chosen Answer : --

Q.9 A program in execution is called:

Options

- 1. Function
- 2. Process
- 3. Procedure
- 4. Instruction

Chosen Answer : --

Q.10 A shared network within an organisation to provide connectivity to the staff is called:

Options

- 1. Intranet
- 2. Extranet
- 3. Delnet
- 4. Internet

Chosen Option : 4

Section : GK / Awareness

Q.1 Which of the following payment instruments is known as plastic money?

Options

- 1. Bearer Cheques
- 2. Gift Cheques
- 3. Credit Cards
- 4. Demand Drafts

Chosen Option : 3

Q.2 Who advises the centre on legal matters?

Options

- 1. Chief Justice of India
- 2. Attorney General of India
- 3. President of India
- 4. Advocate General of India

Chosen Option : 2

Q.3 Prime Minister Narendra Modi has recently launched the "Give It U

Chosen Option : 1

p" Campaign for voluntarily giving up which of the following?

Options

- 1. LPG Subsidy
- 2. Drugs
- 3. Plastics
- 4. Ration

Q.4 Which Mughal ruler was on the throne of India when East India company was permitted to establish a factory at Surat?

Chosen Option : 4

Options

- 1. Shahjahan
- 2. Jehangir
- 3. Humayun
- 4. Aurangzeb

Q.5 EEG is taken out for diagnosing ailments of which of the following?

Chosen Option : 2

Options

- 1. Lungs
- 2. Brain
- 3. Heart
- 4. Stomach

