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



Lucknow Metro Rail Corporation

Participant ID:
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Test Time:
Subject Name:

Shambhunath Institute of Management
28/06/2015
1:00 PM - 2:30 PM
Junior Engineer Electrical Engineering

Section : Technical

Q.1 A very high head hydro electric plant use

Options

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?

Options

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

Options

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

Options

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

Options

1. the same as rated voltage

2. small

3. zero

4. high

Chosen Option : 3

Q.6 What are Oil switches used for?

Options

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:

Options

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:

Options

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

Options

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:


Options

1. Mica

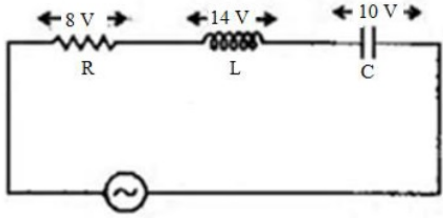
2. Copper

3. Cast Iron

Chosen Option : 2

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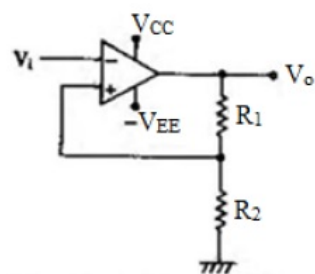
4. Carbon	
Q.11 A motor starter is Options 1. variable capacitor 2. fixed resistance 3. variable resistance 4. variable inductance	Chosen Option : 3
Q.12 In an A.C. circuit, power is consumed only in Options 1. capacitor 2. choke 3. inductor 4. resistance	Chosen Option : 4
Q.13 Compounding of steam is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

Options	1. neither a.c. nor d.c. 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
Options	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
Options	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
		
Options	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
Options	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
Options	1. 74% 2. 81% 3. 76% 4. 79%	
Q.28	The overall efficiency of a thermal power plant is equal to:	Chosen Option : 1
Options	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
Options	1. be ionized 2. have least CO ₂ 3. have oil mist 4. be free from moisture	
Q.30	Unit of resistivity is:	Chosen Option : 2
Options	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
Options	1. Load factor	

ons	
2. Plant use factor	
3. Demand factor	
4. Utilization factor	
Q.32 What is the main function of a fuse?	Chosen Option : 4
Options	
1. To protect the line	
2. To save energy	
3. To open the circuit	
4. To prevent excessive currents	
Q.33 Which of the following is not self starting?	Chosen Option : 1
Options	
1. Squirrel cage induction motor	
2. DC series motor	
3. Synchronous motor	
4. Wound round induction motor	
Q.34 Iron losses in DC machines are independent of variations in	Chosen Option : 4
Options	
1. speed	
2. speed and voltage	
3. voltage	
4. load	
Q.35 Which of the following coals has the highest calorific value?	Chosen Option : 1
Options	
1. Anthracite	
2. Bituminous	
3. Peat	
4. Lignite	
Q.36 Which of the following devices does not work on the principle of mutual induction?	Chosen Option : 2
Options	
1. Tesla Coil	
2. Motor	
3. Induction Coil	
4. Transformer	
Q.37 Kirchoff's first and second laws are respectively based on conservation of:	Chosen Option : 3
Options	
1. energy and charge	
2. mass and energy	
3. charge and energy	
4. mass and charge	
Q.38 High tension cables are generally used up to	Chosen Option : 3
Options	
1. 11 kV	
2. 66 kV	
3. 33 kV	
4. 132 kV	
Q.39 DC motors are used for driving	Chosen Option : 4
Options	
1. hoists	
2. machine tools	
3. cranes	
4. trains	
Q.40 Buchholz relay is used on	Chosen Option : 2
Options	
1. air cooled transformers	
2. oil cooled transformers	
3. furnace transformers	
4. welding transformers	
Q.41 The critical resistance of the DC generator is the resistance of:	Chosen Option : 1
Options	
1. field	
2. armature	
3. load	
4. brushes	
Q.42 Match List I with List II and choose the correct answer from the options given below.	Chosen Option : 3
List I (Machines)	
List II (Graphs)	
i. DC motor	
a. circle diagram	
ii. DC generator	
b. V-curve	
iii. Alternator	
c. open circuit characteristics	
iv. Induction motor	
d. speed torque curve	
Opti	

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
Options 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
Options 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
Options 1. remains constant 2. may increase or decrease 3. increases 4. decreases	
Q.46 Buchholz's relay is	Chosen Option : 1
Options 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
Options 1. ampere turns 2. flux density 3. reluctance 4. resistance	
Q.48 Wattless current is possible only in	Chosen Option : 1
Options 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
Options 1. stem cells 2. fuel cells 3. MHD generators 4. solar cells	
Q.50 In a conductor, current density is the:	Chosen Option : 1
Options 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 : --
Options 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 emf will:

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

Chosen Option : 3

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

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

Chosen Option : 4

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

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

Chosen Option : 3

Q.61 Candela is a unit of:

- Options
1. Luminous intensity

Chosen Option : 1

ons	
2. Power	
3. Lamp efficiency	
4. Frequency	
Q.62 Hunting in a synchronous motor takes place when	Chosen Option : 3
Options	
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
Options	
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 : --
Options	
1. decreases	
2. increases	
3. changes erratically	
4. remains constant	
Q.65 In DC machines, fractional pitch winding is used to:	Chosen Option : 1
Options	
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
Options	
1. 1	
2. 0	
3. ∞	
4. 2	
Q.67 A DC motor converts	Chosen Option : 1
Options	
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
Options	
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
Options	
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
Options	
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
Options	
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?	
Options	
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:

- Options**
- 1. square of armature current
 - 2. inverse of armature current
 - 3. armature current
 - 4. field current

Chosen Option : 2

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

- Options**
- 1. Hopkinson demand rate
 - 2. Income rate
 - 3. Flat demand rate
 - 4. Block meter rate

Chosen Option : 2

Q.75 A transformer steps up or down

- Options**
- 1. a.c. only
 - 2. a.c. mixed with d.c.
 - 3. d.c. only
 - 4. either a.c. or d.c.

Chosen Option : 1



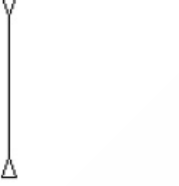

Section : Numerical and logical Reasoning questions

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

- Options**
- 1. QSPCMFN
 - 2. NFMCS PQ
 - 3. LDKANQO
 - 4. NFMCP SQ

Chosen Option : 4

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

- Options**
- 1. 
 - 2. 
 - 3. 
 - 4. 

Chosen Option : 4

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?

- Options**
- 1. V is the granddaughter of S
 - 2. S is the mother of T
 - 3. V is the nephew of P
 - 4. R is the grandfather of Q

Chosen Option : 3

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.

Rules:

- (i) If an even number is followed by an odd but not prime number, both are to be multiplied.
- (ii) If an even number is followed by a prime number, both are to be added.
- (iii) 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.
- (iv) 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?

- Options**
- 1. 26
 - 2. 767
 - 3. 433
 - 4. 193

Chosen Answer : --

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 ?

Chosen Option : 1

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

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

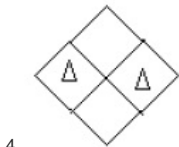
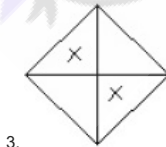
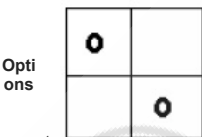
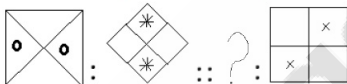
Q.9 Which number will replace the question mark in the number series below?
3, 4, 13, 38, ?, 168

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



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

<p>Q.2 The CPU of a computer consists of:</p> <p>Options</p> <ul style="list-style-type: none">1. ALU, control unit and monitor2. ALU, control unit and hard disk3. ALU and control unit4. ALU, control unit and registers	<div>Chosen Option : 3</div>
<p>Q.3 Which of the following is both an input and an output device?</p> <p>Options</p> <ul style="list-style-type: none">1. Touch screen2. LCD projector panel3. Audio cards4. Modem	<div>Chosen Option : 2</div>
<p>Q.4 Criterion used for judging appropriateness of tool software is:</p> <p>Options</p> <ul style="list-style-type: none">1. Scalability2. Compatibility3. Security4. Functionality	<div>Chosen Answer : --</div>
<p>Q.5 The operating system for mobile phones developed by Google is:</p> <p>Options</p> <ul style="list-style-type: none">1. Magellan2. Android3. Ubuntu4. Amoeba	<div>Chosen Answer : --</div>
<p>Q.6 Which one of the following decimal number is equivalent to $(1000010)_2$?</p> <p>Options</p> <ul style="list-style-type: none">1. 200_{10}2. 130_{10}3. 1010_{10}4. 304_{10}	<div>Chosen Option : 2</div>
<p>Q.7 In a spreadsheet, one function inside another is called:</p> <p>Options</p> <ul style="list-style-type: none">1. Sum2. Text3. Round4. Nested	<div>Chosen Answer : --</div>
<p>Q.8 Which of the following is not a part of the Office Suite?</p> <p>Options</p> <ul style="list-style-type: none">1. Image editor2. Database3. Word processor4. File manager	<div>Chosen Answer : --</div>
<p>Q.9 A program in execution is called:</p> <p>Options</p> <ul style="list-style-type: none">1. Function2. Process3. Procedure4. Instruction	<div>Chosen Answer : --</div>
<p>Q.10 A shared network within an organisation to provide connectivity to the staff is called:</p> <p>Options</p> <ul style="list-style-type: none">1. Intranet2. Extranet3. Delnet4. Internet	<div>Chosen Option : 4</div>
<p>Section : GK / Awareness</p>	
<p>Q.1 Which of the following payment instruments is known as plastic money?</p> <p>Options</p> <ul style="list-style-type: none">1. Bearer Cheques2. Gift Cheques3. Credit Cards4. Demand Drafts	<div>Chosen Option : 3</div>
<p>Q.2 Who advises the centre on legal matters?</p> <p>Options</p> <ul style="list-style-type: none">1. Chief Justice of India2. Attorney General of India3. President of India4. Advocate General of india	<div>Chosen Option : 2</div>
<p>Q.3 Prime Minister Narendra Modi has recently launched the "Give It U</p>	<div>Chosen Option : 1</div>

p" Campaign for voluntarily giving up which of the following?		
Options	<div><div>1. LPG Subsidy</div><div>2. Drugs</div><div>3. Plastics</div><div>4. Ration</div></div>	
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	<div><div>1. Shahjahan</div><div>2. Jehangir</div><div>3. Humayun</div><div>4. Aurangzeb</div></div>	
Q.5 EEG is taken out for diagnosing ailments of which of the following?		Chosen Option : 2
Options	<div><div>1. Lungs</div><div>2. Brain</div><div>3. Heart</div><div>4. Stomach</div></div>	

