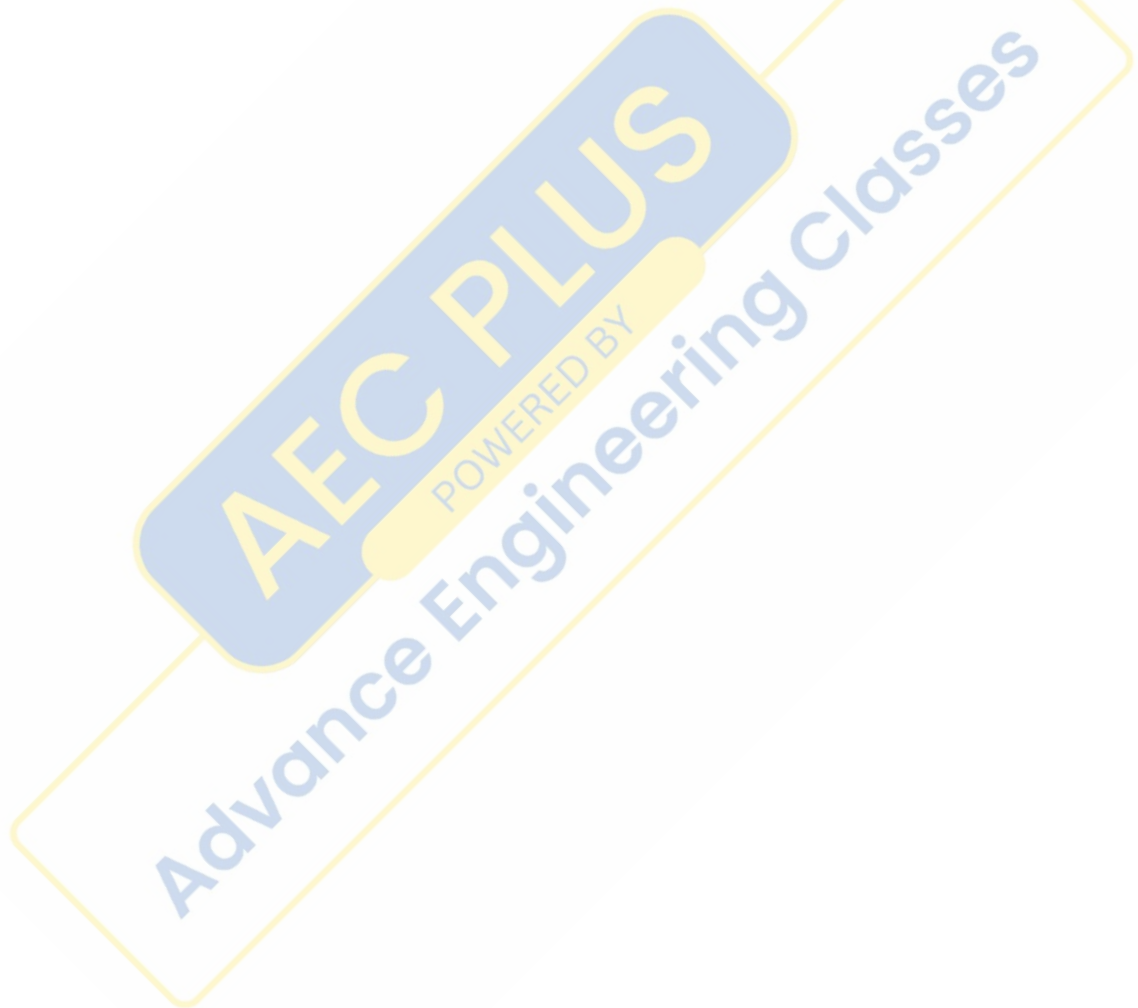


**LMRC
JE EE 2015**

**Previous Year Paper
(28 June 2015)**



Lucknow Metro Rail Corporation

Participant ID:

Participant Name:

Test Center Name:

Test Date:

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

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

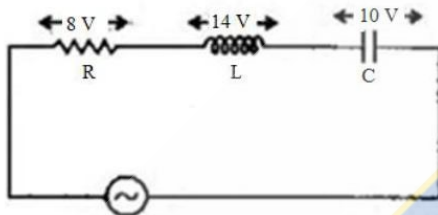
Q.24 The rotor of which motor does not have winding on it?

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?

Options

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?

Options

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

Options

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?

Options

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?

Options

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:

Options

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

Options

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

Chosen Option : 3

Q.39 DC motors are used for driving

Options

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

Chosen Option : 4

Q.40 Buchholz relay is used on

Options

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:

Options

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.

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

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 : --

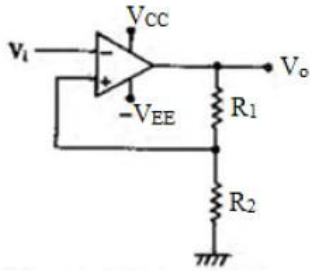
Options

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. NFMCSQP
 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

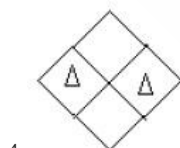
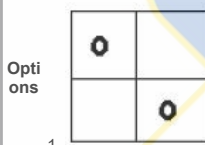
Q.9 Which number will replace the question mark in the number series below?
 3, 4, 13, 38, ?, 168

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> <ol style="list-style-type: none"> 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
<p>Q.3 Which of the following is both an input and an output device?</p> <p>Options</p> <ol style="list-style-type: none"> 1. Touch screen 2. LCD projector panel 3. Audio cards 4. Modem 	Chosen Option : 2
<p>Q.4 Criterion used for judging appropriateness of tool software is:</p> <p>Options</p> <ol style="list-style-type: none"> 1. Scalability 2. Compatibility 3. Security 4. Functionality 	Chosen Answer : --
<p>Q.5 The operating system for mobile phones developed by Google is:</p> <p>Options</p> <ol style="list-style-type: none"> 1. Magellan 2. Android 3. Ubuntu 4. Amoeba 	Chosen Answer : --
<p>Q.6 Which one of the following decimal number is equivalent to $(1000010)_2$?</p> <p>Options</p> <ol style="list-style-type: none"> 1. 200_{10} 2. 130_{10} 3. 1010_{10} 4. 304_{10} 	Chosen Option : 2
<p>Q.7 In a spreadsheet, one function inside another is called:</p> <p>Options</p> <ol style="list-style-type: none"> 1. Sum 2. Text 3. Round 4. Nested 	Chosen Answer : --
<p>Q.8 Which of the following is not a part of the Office Suite?</p> <p>Options</p> <ol style="list-style-type: none"> 1. Image editor 2. Database 3. Word processor 4. File manager 	Chosen Answer : --
<p>Q.9 A program in execution is called:</p> <p>Options</p> <ol style="list-style-type: none"> 1. Function 2. Process 3. Procedure 4. Instruction 	Chosen Answer : --
<p>Q.10 A shared network within an organisation to provide connectivity to the staff is called:</p> <p>Options</p> <ol style="list-style-type: none"> 1. Intranet 2. Extranet 3. Delnet 4. Internet 	Chosen Option : 4
Section : GK / Awareness	
<p>Q.1 Which of the following payment instruments is known as plastic money?</p> <p>Options</p> <ol style="list-style-type: none"> 1. Bearer Cheques 2. Gift Cheques 3. Credit Cards 4. Demand Drafts 	Chosen Option : 3
<p>Q.2 Who advises the centre on legal matters?</p> <p>Options</p> <ol style="list-style-type: none"> 1. Chief Justice of India 2. Attorney General of India 3. President of India 4. Advocate General of india 	Chosen Option : 2
<p>Q.3 Prime Minister Narendra Modi has recently launched the "Give It U</p>	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

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