ELECTRICAL

1.

Electric current is a

(A)
scalar quantity

(B)
vector quantity

(C)
sometimes scalar and sometimes vector

(D)
number only

Ans: “scalar quantity”

2.

An instrument which detects electric current is known as

(A)
voltmeter

(B)
rheostat

(C)
wattmeter

(D)
Galvanometer

Ans: “Galvanometer”

3.

If a wire conductor of 0.2 ohm resistance is doubled inlength, its resistance becomes

(A)
0.4 ohm

(B)
0.6 ohm

(C)
0.8 ohm

(D)
1.0 ohm

Ans: “0.8 ohm”

4.

Current velocity through a copper conductor is

(A)
the same as propagation velocity of electric energy

(B)

independent of current strength

(C)
of the order of a few micro m/s

(D)
nearly 3 x 108 m/s

Ans: “of the order of a few micro m/s”

5.

Ohm’s law is not applicable to

(A)
vacuum tubes

(B)
carbon resistors

(C)
high voltage circuits

(D)
circuits with low current densities

Ans: “vacuum tubes”

6.

R1 = 1Ω, R2 = 3Ω, R3 = 5Ω and R4 = 7Ω connected in series. Total voltage = 20V, Current I, V2 =?

a)

I = 1.23, V2 = 3.75

b)

I = 1.25, V2 = 3.75

c)

I = 1.15, V2= 3.73

d)

I = 1.16, V2 = 3.72

Ans: "I = 1.15, V2= 3.73"

7.

Power dissipation in ideal inductor is

(A)
Maximum

(B)
Minimum

(C)
Zero

(D)
A finite value

Ans: "Zero"

8.

In a DC machine fractional pitch winding is used to _____

a)
To improve cooling

b)
To reduce sparking

c)
To reduce copper losses

d)
To increase generated EMF

Ans: “To reduce sparking”

9.

If a DC motor is connected to AC supply what will happen then?

a)
Not run

b)
Burn

c)
Run at normal speed

d)
Run at extremely low speed

Ans: “Burn”

10.

Which of the following test will be suitable for testing two similar DC series motors of large capacity?

a)
Swinburne’s test

b)
Hopkinson’s test

c)
Field test

d)
Brake test

Ans: “Field test”

11.

In field’s test generator field and motor field are connected in _____

a)
Series

b)
Parallel

c)
Alternatively, series and parallel

d)
Not connected

Ans: “Series”

12.

An induction motor when started on load, it does not accelerate up to full speed but runs at 1/7th of the rated speed The motor is said to be _____

a)
Locking

b)
Plumming

c)
Crawling

d)
Cogging

Ans: “Crawling”

13.

Nowadays dc motor is widely used in

(A)
Machine shops

(B)
Pumping sets

(C)
Electric traction

(D)
Air compressors

Ans: “Electric traction”

14.

The ferrite cores are used for _____ transformers.

a)
Small transformers

b)
Medium transformers

c)
Large transformers

d)
Medium and small transformers

Ans: “Small transformers”

15.

The NO contact and NC contact of (D)O.L. starter is normally

(A)
Open, closed

(B)
Closed, open

(C)
Open, open

(D)
Closed, closed

Ans: “Open, closed”

16.

Transmission line connects

(A)
Generating station to a switching station/step-down transformer station.

(B)
Step-down transformer station to service transformer banks.

(C)
Distribution transformer to consumer premises.

(D)
Service points to consumer premises.

Ans: “Generating station to a switching station/step-down transformer station.”

17.

Which of the following part of thermal power plant causes maximum energy losses?

a)

Alternator

b)
Ash and unburnt carbon

c)
Boiler

d)
Condenser

Ans: “Condenser”

18.

310 km line is considered as

(A)

a long line

B
a medium line

(C)
a short line

(D)

Overhead line

Ans: “a long line”

19.

High voltage transmission lines use

A
suspension insulators

B
pin insulators

C
Tackle insulator

D

Strain insulator

Ans: “suspension insulators”

20.

The volume of copper required for an ac transmission line is inversely proportional to

(A)

Current

(B)

Voltage

(C)

Power factor

(D)

Capacitor

Ans: “Voltage”

21.

The rated voltage of a 3 phase power system is given as-

(A)

rms phase voltage

(B)

peak phase voltage

(C)

peak line to line voltage

(D)

rms line to line voltage

Ans: “rms line to line voltage”

22.

Coincidence factor is reciprocal of _____

a)

average load

b)

demand factor

c)

capacity factor

d)

diversity factor

Ans: “diversity factor”

23.

The principle behind the influence of the power lines on the telephone lines is

a)

Faraday’s laws

b)

Mutual inductance

c)

Self inductance

d)

All of the mentioned

Ans: “Faraday’s laws”

24.

Which of the following is the electrolyte used in a lead-acid battery?

a)
Nitric acid

b)
Sulphuric acid

c)
Lead-acid

d)
Hydrochloric acid

Ans: “Sulphuric acid”

25.

What is the amount of water and acid present in the electrolyte after the full discharge of the battery?

a)
90% of water and 10% of acid

b)
85% of water and 15% of acid

c)
70% of water and 30% of acid

d)
75% of water and 25% of acid

Ans: “85% of water and 15% of acid”

26.

Which of the following device is used in the specific gravity test?

a)
Cadmium rod

b)
Voltmeter

c)
Cell voltage tester

d)
Hydrometer

Ans: “Hydrometer”

27.

Which of these resources does not produce CO_2 during electricity generation?

a)
Coal

b)
Methane

c)
Uranium

d)
Biogas

Ans: “Uranium”

28.

What is the source of tidal energy?

(A)
Movement of seawater

(B)
Movement of tide

(C)

Sunlight

(D)
Wind

Ans: “Movement of tide”

29.

Transistor is a

(A)
Current controlled current device.

(B)
Current controlled voltage device.

(C)
Voltage controlled current device.

(D)
Voltage controlled voltage device.

Ans: “Current controlled voltage device”

30.

In Boolean algebra A + AB

(A)
A + B

(B)
B

(C)
A

(D)

A - B

Ans: “A”

31.

The base of a transistor is …….. doped

(A)
heavily

(B)
moderately

(C)
lightly

(D)
Uniformly

Ans: “lightly”

32.

In a pnp transistor, the current carriers are …….

(A)
acceptor ions

(B)
donor ions

(C)
free electrons

(D)
holes

Ans: “holes”

33.

In a transistor, the base current is about ……. of emitter current

(A)
25%

(B)
20%

(C)
35 %

(D)
5%

Ans: “5%”

34.

The symbol represent gate is

(A)
AND

(B)
OR

(C)
NOT

(D)
NAND

Ans: “NOT”

35.
What are the charge carriers in semiconductors?

(A)
Electrons and holes

(B)
Electrons

(C)
Holes

(D)
Charges

Ans: “Electrons and holes”

36.

Which method can be used to distinguish between the two types of carriers?

(A)
Hall effect

(B)
Rayleigh method

(C)
Doppler effect

(D)
Fermi effect

Ans: “Hall effect”

37.

What should be the band gap of the semiconductors to be used as solar cell materials?

(A)

0.5 eV

(B)

1 eV

(C)
1.5 eV

(D)
1.9 eV

Ans: “1.5 eV”

38.
The current produced in reverse-bias is called as _____

(A)
Reverse Current

(B)
Breakdown Current

(C)
Negative Current

(D)
Leakage Current

Ans: “Leakage Current”

39.

The duty cycle can be written as

(A)
f x T

(B)
f/T

(C)
T/f

(D)
f

Ans: “f x T”

40.

The effect of over-voltages on SCR are minimized by using

(A)
RL circuits

(B)
Circuit breakers

(C)
Varistors

(D)
di/dt inductor

Ans: “Varistors”

GENERAL INTELLIGENCE AND REASONING

41.

Today is Monday, after 61 days it will be?

(A)
Wednesday

(B)
Saturday

(C)
Monday

(D)
Sunday

Ans: “Saturday”

42.

ADGJ, CFIL, EHKN, _____.

(A)
FILO

(B)
HKNQ

(C)
DGJM

(D)
GJMP

Ans: “GJMP”

43.

If PAINT is coded as 74128 and EXCEL is coded as 93596, then how would you encode ACCEPT?

(A)
455978

(B)
735961

(C)
554978

(D)
547978

Ans: “455978”

44.

If SCHOOL is written as TBINPK, how TEACHER can be written in that code?

(A)
DUBBIDS

(B)
NDBBISD

(C)
SEIDIFDS

(D)
UDBBIDS

Ans: “UDBBIDS”

45.

Find the similarity in the following:
Orange, Peach, Olive, Chrome

(A)
All of them are fruits.

(B)
All of them are names of seasons.

(C)
All of them are colours.

(D)
All of them are shades of orange.

Ans: "All of them are colours."

46.

In the following question, one statement is given, followed by two conclusions I and II. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any follow from the given statement.

Statements:
The human organism grows and develops through stimulation and action.

Conclusions:
I. Inert human organism cannot grow and develop.
II. Human organisms do not react to stimulation and action.

(A)
Neither conclusion I nor II follows

(B)
Both conclusions I and II follow

(C)
Only conclusion I follows

(D)
Only conclusion II follows

Ans: "Neither conclusion I nor II follows"

47.

Find the missing alphabetical term.
AI, HB, DF,_, EE

(A)
CH

(B)
IB

(C)
CG

(D)
GA

Ans: "CG"

48.

From the given alternative words select the word which can be formed using the letters of the given word
DISCOVERY

(A)
STORY

(B)
RECOVER

(C)
ROARED

(D)
DECOY

Ans: "DECOY"

49.

In a row of boys, if A who is tenth form the left and B who is ninth from the right interchange their positions, A becomes fifteenth from the left. How many boys are there in the row?

(A)
23

(B)
27

(C)
28

(D)
31

Ans: “23”

50.

Find the missing term.
SCD, TEF, UGH, _____, WKL.

(A)
CMN

(B)
UJI

(C)
VIJ

(D)
IJT

Ans: “VIJ”

GENAERAL AWARENESS

51.

Red rot of sugarcane is caused by

(A)
Colletotrichum falcatum

(B)
Cercospora persoruata

(C)
Alternaria alternata

(D)
Phylophthora infestans

Ans: "Colletotrichum falcatum"

52.

Water is conducted in vascular plant by –

(A)
Phleom tissue

(B)
Parenchyma tissue

(C)
Meristems

(D)
Xylem tissue

Ans: "Xylem tissue"

53.

Earthworm is called farmer’s friend cause–

(A)
It fix atmospheric nitrogen

(B)
It make the soil porous

(C)
It work as insecticide

(D)
It act as fungicide

Ans: “It act as fungicide”

54.

Which one of the following battles led to the foundation of the Mughal rule at Delhi ?

(A)
Third Battle of Panipat

(B)
Second Battle of Panipat

(C)
Battle of Haldighati

(D)
First Battle of Panipat

Ans: “First Battle of Panipat”

55.

Troposphere is the hottest part of the atmosphere because

(A)
It is closest to the Sun

(B)
there are charged particles in it

(C)
It is heated by the Earth’s surface

(D)
heat is generated in it

Ans: “It is heated by the Earth’s surface”

56.

In which Indian state/UT is the Frozen Lake Half Marathon organized?

(A)
Jammu & Kashmir

(B)
Ladakh

(C)
Sikkim

(D)
Uttarakhand

Ans: “Ladakh”

57.

Which country has declared National Emergency in view of Cyclone Gabriel?

(A)
Australia

(B)
Indonesia

(C)
Philippines

(D)
New Zealand

Ans: “New Zealand”

58.

Who won the 15th Hockey World Cup-2023 title?

(A)
France

(B)
Germany

(C)
Fiji

(D)
Haiti

Ans: “Germany”

59.

ULTRASAT, is the first telescope mission of which country?

(A)

France

(B)
Israel

(C)
Iran

(D)
UAE

Ans: “Israel”

60.

What is the sanctioned judicial strength of the Supreme Court of India?

(A)
28

(B)
30

(C)
25

(D)
34

Ans: “34”

MECHANICAL

61.

A flow in which the quantity of liquid flowing per second is constant, is called _____ flow.

(A)

Steady

(B)

Streamline

(C)

Turbulent

(D)

Unsteady

Ans: “Steady”

62.

Fluid is a substance that

(A)

Cannot be subjected to shear forces

(B)

Always expands until it fills any container

(C)

Has the same shear stress at a point regardless of its motion

(D)

Cannot remain at rest under action of any shear force

Ans: “Cannot remain at rest under action of any shear force”

63.

Molecular volume of any perfect gas at 600×10^3 N/m^2 and 27°C will be

(A)

4.17 m^3/kg mol

(B)

400 m^3/kg mol

(C)

0.15 m^3/kg mol

(D)

41.7 m^3/kg mol

Ans: “4.17 m^3/kg mol”

64.

Which of the following operations is carried out at a minimum cutting velocity if the machines are equally rigid and the tool work materials are the same?

(A)

Turning

(B)

Grinding

(C)

Boring

(D)

Milling

Ans: “Milling”

65.

In plunge grinding

(A)

The work is reciprocated as the wheel feeds to produce cylinders longer than the width of wheel face

(B)

The work rotates in a fixed position as the wheel feeds to produce cylinders equal to or shorter than the width of wheel face

(C)

The work is reciprocated as the wheel feeds to produce cylinders shorter than the width of wheel face

(D)

The work rotates in a fixed position as the wheel feeds to produce cylinders longer than the width of wheel face

Ans: “The work rotates in a fixed position as the wheel feeds to produce cylinders equal to or shorter than the width of wheel face”

66.

The condition which must be fulfilled by two gear tooth profiles to maintain a constant angular velocity ratio between them is called_____

(A)

path of contact

(B)

interference

(C)

arc of contact

(D)

law of gearing

Ans: “path of contact”

67.

Velocity of sliding at the pitch point = ($\omega_p + \omega_g$) x _____

(A)

arc of approach

(B)

path of contact

(C)

path of recess

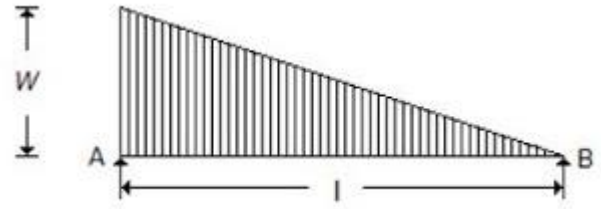
(D)

0

Ans: “0”

68.

A simply supported beam with a gradually varying load from zero at ‘B’ and ‘w’ per unit length at ‘A’ is shown in the below figure. The shear force at ‘B’ is equal to



(A)

wl/6

(B)

wl/3

(C)

Wl

(D)

2wl/3

Ans: “wl/6”

69.

If the columns are effectively held in position and restrained against rotation at both ends. Recommend the value of effective length.

(A)

0.6×l

(B)

0.65×l

(C)

0.77×l

(D)

0.9×l

Ans: “0.65×l”

70.

In Euler’s formula, the column fails due to _____ alone.

(A)

Shear

(B)

Torsion

(C)

Tension

(D)

Bending

Ans: “Bending”

71.

A fixed gear having 200 teeth is in mesh with another gear having 50 teeth. The two gears are connected by an arm. The number of turns made by the smaller

(A)

2

(B)

3

(C)

4

(D)

5

Ans: “4”

72.

The height of a Watt’s governor (in metres) in equal to

(A)

$8.95/N^2$

(B)

$89.5/N^2$

(C)

$895/N^2$

(D)

$8950/N^2$

Ans: “$895/N^2$”

73.

For a simple pendulum, time period for a beat, is

(A)

$\pi \sqrt{l/g}$

(B)

$\pi \sqrt{2l/g}$

(C)

$\pi \sqrt{g/2l}$

(D)

$\pi \sqrt{l/2g}$

Ans: “$\pi \sqrt{l/g}$”

74.

In a centrifugal clutch, what is ω?

(A)

Angular acceleration at which the engagement begins to take place

(B)

Angular running speed at which the engagement takes place

(C)

Angular running speed of the pulley

(D)

Angular acceleration of the pulley

Ans: “Angular running speed at which the engagement takes place”

75.

A petrol engine of a car develops 125 Nm torque at 2700 r.p.m. The car is driven in second gear having gear ratio of 1.75. The final drive ratio is 4.11. If the overall transmission efficiency is 90%, then the torque available at the driving wheels is

(A)

8.091 Nm

(B)

80.91 Nm

(C)

809.1 Nm

(D)

8091 Nm

Ans: “809.1 Nm”

76.

Odometer is an instrument used for measurement of

(A)

Power

(B)

Fuel consumption

(C)

Engine r.p.m.

(D)

Distance

Ans: “Distance”

77.

Which of the following is/are the correct sequence of the decreasing order of brake thermal efficiency of the three given basic types of engines?

(A)

4-stroke S.I. engine, 4-stroke C.I. engine, 2-stroke S.I. engine

(B)

4-stroke C.I. engine, 4-stroke S.I. engine, 2-stroke S.I. engine

(C)

4-stroke S.I. engine, 2-stroke S.I. engine, 4-stroke C.I. engine

(D)

2-stroke C.I. engine, 4-stroke C.I. engine, 4-stroke S.I. engine

Ans: “4-stroke C.I. engine, 4-stroke S.I. engine, 2-stroke S.I. engine”

78.

Which of the following statement is correct regarding normal cetane?

(A)

It is a standard fuel used for knock rating of petrol engines

(B)

Its chemical name is normal hexane

(C)

It has short carbon chain structure

(D)

It is a standard fuel used for knock rating of Diesel engines

Ans: “It is a standard fuel used for knock rating of Diesel engines”

79.

Which are the main constituents of fuel from given options?

(A)

Carbon and Nitrogen

(B)

Oxygen and Hydrogen

(C)

Carbon and Hydrogen

(D)

Helium and Oxygen

Ans: “Carbon and Hydrogen”

80.

Which fuel is called secondary stage in the formation of coal?

(A)

Lignite

(B)

Bituminous coal

(C)

Peat

(D)

Anthracite

Ans: “Lignite”

81.

Which of these gases or liquids are not used as source of hydrogen in fuel cells?

(A)

C_2H_6

(B)

C_2H_2

(C)

C_6H_6

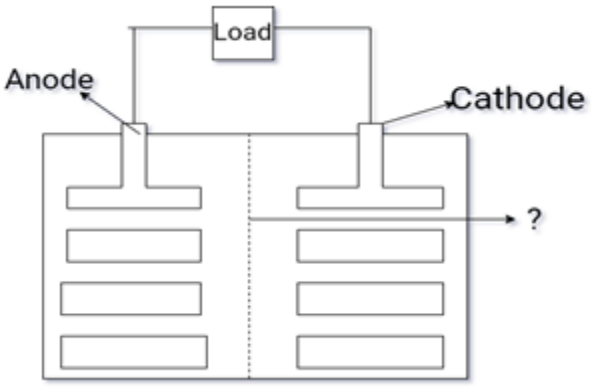
(D)

C_2H_5OH

Ans: “C_2H_5OH”

82.

Which of the following as shown below avoids the direct contact of the positive and negative plate in a lithium-ion battery?



(A)

Electrolyte

(B)

Separator

(C)

Load

(D)

Rectifier

Ans: “Separator”

83.

The science of friction, lubrication and wear is called _____

(A)

Endiology

(B)

Geology

(C)

Tribology

(D)

Morpholog

Ans: “Tribology”

84.

Industrial safety management if that branch of management which is concerned with _____ hazards from the industries.

(A)

Rearranging

(B)

cutting

(C)

moping

(D)

Eliminating

Ans: “Eliminating”

85.

The following extinguisher is suitable for cotton or other textile fire

(A)

Water

(B)

Soda acid

(C)

Foam

(D)

Dry chemicals

Ans: “Dry chemicals”

86.

Buying of the annual requirements of an item during its season is called _____

(A)

Seasonal Buying

(B)

Hand to mouth buying

(C)

Scheduled Buying

(D)

Speculative Buying

Ans: “Speculative Buying”

87.

The first activity of Purchasing cycle is _____

(A)

Communicating requirement to the purchase

(B)

Source Selection and development

(C)

Recognizing the need for procurement

(D)

Inspection of goods

Ans: “Recognizing the need for procurement”

88.

Calcium is an isobar of Argon. They differ in:

(A)

Atomic weight

(B)

Number of nucleons

(C)

Number of neutrons

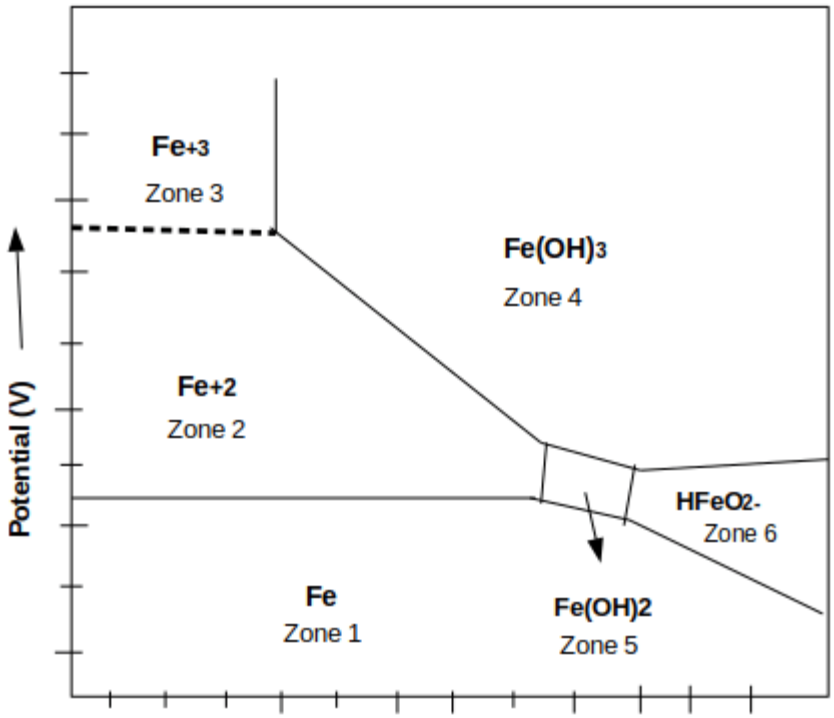
(D)

None of the mentioned

Ans: “Number of neutrons”

89.

What is depicted in the given figure?



(A)

Phase diagram of the Fe-C system

(B)

Pourbaix diagram for Fe-O_2 system

(C)

Pourbaix diagram for Fe-H_2O system

(D)

Colling curve pure iron

Ans: "Pourbaix diagram for Fe-H_2O system"

90.

Nickel filler metals are heat resistant up to _____ in short time service.

(A)

610^oC

(B)

982^oC

(C)

1204^oC

(D)

1666^oC

Ans: "1204^oC"

91

What is the only difference between Plasma arc welding and TIG welding?

(A)

Flux is not used

(B)

Construction of torch is different

(C)

Gas is not used

(D)

Tungsten electrode is not used

Ans: “Construction of torch is different”

92.

Which of the following can be easily be welded from flash butt welding process?

(A)

Tin

(B)

Lead

(C)

Cast irons

(D)

Carbon steel

Ans: “Carbon steel”

93.

Which of the following materials are to be tested using an F-scale?

(A)

Bronze, gunmetal, and beryllium copper

(B)

Thermoplastics

(C)

Case hardened steels

(D)

Copper and brass

Ans: “Copper and brass”

94.

The relation between the number of pairs (p) forming a kinematic chain and the number of links (l) is

(A)

l = 2p – 2

(B)

l = 2p – 3

(C)

l = 2p – 4

(D)

l = 2p – 5

Ans: “l = 2p – 4”

95.

The lubricant which gives _____ force of friction is said to have greater oiliness.

(A)

greater

(B)

lesser

(C)

similar

(D)

equal

Ans: “lesser”

96.

Which of the following will be the value of Refrigeration effect if m_1 = 4 kg/min, and enthalpies for the point 1, 2, 4, 5, 9 are 1350, 1550, 1480, 1620, and 280 kJ/kg. If the refrigeration effect is 4280 kJ/min and work done is 15 kW, then what is the value of C.O.P.?

(A)

4.75

(B)

6.00

(C)

5.50

(D)

4.85

Ans: “4.75”

97.

Which of the following refrigerants are used in Electrolux and Li-Br water refrigeration system?

(A)

Water and Bromide

(B)

Ammonia and Water

(C)

Ammonia and Lithium

(D)

Water and Wate

Ans: “Ammonia and Water”

98.

What is the shape of the tool maker’s flats?

(A)

Circular

(B)

Rectangular

(C)

Square

(D)

Triangular

Ans: “Circular”

99.

Which one of these is not a component of quality?

(A)

Reliability

(B)

Durability

(C)

Acceptance sampling

(D)

Serviceability

Ans: “Acceptance sampling”

100.

Which of the following is not the aim of Kaizen process?

(A)

To make processes efficient

(B)

To make processes effective

(C)

To make processes controllable

(D)

To make processes uncontrollable

Ans: “ To make processes uncontrollable”