1. When three the same resistance value are connected parallel?
   A. 1/3 (the individual resistance value)
   B. 3 (the individual resistance value)
   C. 2/3 (the individual resistance value)
   D. 5/2 (the individual resistance value)
2. Pure power factor
   A. Zero B. unity C. lagging D. leading
3. What is the advantage of preventive maintenance
   A. To increase the quality of the material
   B. To increase the reliability of the material
   C. To improve the down time
   D. To reduce the life span of the material
4. Which of the ff is the correct step of plc system
   A. Self-test --- input scan --- logic scan ---- output scan
   B. input scan --- logic scan --- Self-test --- output scan
   C. input scan --- Self-test --- logic scan --- output scan
   D. logic scan --- input scan --- Self-test --- output scan
5. who has the responsibility to make the quality of a product
   A. the quality assurance offices C. worker
   B. all team member D. leader
6. power of pneumatic
   A. air B. power C. oil D. gass
7. to treatment skin burn
   A. to apply alcohol B. to apply oil C. apply cool water D. cool apply tooth
8. measure & manipulated variable pressure, temperature flow value
   A. Sensor B. actuator C. instrument
9. Linear movement in one direction
   A. Single acting B. double acting C. pneumatic
10. Based on the electrons flow of electrons?
    A. Positive to negative B. negative to positive C. line to line
11. Input data & controlling
    A. Program mode B. run mode C. process mode
12. In vertical line the under diagram sources
    A. Power source B. power line C. power branch
13. It is used as a safety valve in most applications, the valve opens when the pressure.
    A. Shuttle valve B. pressure limit valve C. pressure sequence valve D. check valve
14. What procedure you will do first during testing defective electrical control system.
    A. Calibrate & check testing instrument C. record the result
    B. Test the deficit part of the instrument D. replace defective part of the instrument
15. One of the following discrete output device of programmable logic control.
    A. Momentary contact switch C. analog temperature gauge
    B. Status indicate lamp D. pressure regulator switch
16. One of the following device can be used to isolate the control ckt from the load.
    A. Relay B. c.b C. rotary switch D. toggle switch
17. An output device of plc that used to operate external & internal device of the plc is
    A. Lamp B. limit switch C. relay contact point D. relay coil
18. An electrical measuring instrument that can display the electrical signal directly.
    a. Multimeter b. signal generator c. oscilloscope d. tachometer
19. A component used as brain element of the programmable logic control.
    a. Output module b. input module c. ladder logic d. process unit

20. Which of the following as a type of contact sensor.

a. Reed switch b. limit switch c. inductive sensor d. optical sensor

21. A sensor that defect any material sense than the air is.

a. Capacitive sensor b. inductive sensor c. optical sensor d. reed switch

22. A valve than permit air flow in one direction only & shut off in the opposite direction.

a. Check valve c. 3/2 way directional control valve

b. Control valve d. 5/2 way directional control valve

23. From the following one is the types reciprocating piston compressor.

a. Roots blower c. sliding vane rotary compressor

b. Diaphragm compressor d. two axle screw compressor

24. The basic of operation of transformer is the effect of

A. Self – inductance C. Coupled – inductance

B. Mutual – inductance D. Decoupled – inductance

25. A "step up" transformer is one which has

A. More turns on the primary than on the secondary

B. More turns on the secondary then on the primary

C. Larger primary voltage than secondary voltage

D. Larger secondary current than primary

26. Which one of the following is the same value in parallel connection?

A. Voltage B. resistor C. current D. capacitor

27. Three resistors connected in parallel, what is the value of total resistance

A. High B. medium C. low D. none

28. The core of transformer is laminated in order to use

A. To reduce copper loss C. to increase eddy current

B. To reduce eddy current D. to increase copper loss

29. Which one the following device is a switch devices?

A. Capacitor B. Transistor C. Zener diode D. Inductor

30. In delta connected three - phase generator, if one phase is opened

A. It stop generating C. It generate under the rated output

B. It generate the rated output D. It is burned

31. To reverse rotation direction of DC compound motor

A. Reverse leads to the armature C. Reverse leads to shunt field coil

B. Reverse leads to series field coil D. Reverse leads to both armature & field coils

32. The moving part in a relay is called

A. A slip ring B. The yoke C. Moving coil D. An armature

33. The power developed in a circuit using energy at the rate of 500 joule per second is

A. 5w B. 50w C. 500w D. 5kw

34. In star-delta three phase motor. Which among the group is the correct pair of terminals connection?

A.	W2 & W1 for L1	V1 & U2 for L2	W2 & V2 for L3
B.	U1 & U2 for L1	V1 & V2 for L2	W1 & V2 for L3
C.	U1 & V2 for L1	V1 & W2 for L2	W1 & U2 for L3
D.	U2 & V2 for L1	V1 & W1 for L2	U1 & W2 for L3
E.	V1 & W2 for L1	V1 & U1 for L2	W1 & U2 for L3

35. Thermocouple is used to measure

A. Pressure B. Temperature C. Composition D. Current

36. Which one of the following is used to isolated the load of motor

A. Circuit breaker B. Relay C. Toggle switch D. All

37. What is the first step to be done in rewinding a motor?

A. stripping the old winding B. insulating the slots

C. baking and varnishing D. taking data E. testing

38. The winding of the motor us situated in

A. Rotor B. shaft C. stator D. all

39. The color coded the resistor **brown, black, red , gold** what is the value of the resistance

A. 10k B. 1k C. 100k D. 1000k

40. After rewinding the motor you will be test

A. Forward & reverse test C. use low voltage test

B. Star – delta D. all

41. Transformer is transferred

A. Voltage B. current C. voltage and current D. frequency

42. Which of the following is input PLC

A. Speed B. solenoid valve C. linear electrical actuator D. light

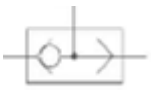
43. The resistive of conductor is affected by

C. Pressure B. current C. temperature D. composition

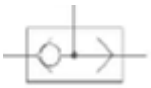
44. Which DC motor has approximately constant speed?

A. Shunt DC B. Series DC C. Composed DC D. All

45. Shuttle valve "OR" function is

A  B. C. D

46. Two Pressure valve " AND" function is

A.  B. C. D.

47. Which one is advantages of PLCs?

A. Small physical size than hard-wire solutions.

B. Easier and faster to make changes.

C. PLCs have integrated diagnostics and override functions.

D. Diagnostics are centrally available.

E. All

48. Star –delta connection of the motor is used to

A. Reduce voltage state to rotor starter C. reduce voltage state to starter

B. To increase voltage state to starter D. to increase voltage state to rotor

49. When you touched a motor you feel shock, the problem cause is __?

A. Open winding of the coil C. Short between winding

B. Short between winding & body D. B & C

50. An electrical motor convert

A. Mechanical energy to electrical energy

B. Electrical energy to mechanical energy

C. AC electrical energy & DC electrical energy

D. B & C

51. A protective relay should have one of the following characteristics

A. Speed B. Sensitivity C. Selectivity D. All

52. Which is **NOT** included in the function of the motor control circuit?

A. Change the supply frequency
B. Change the direction of rotation of the motor
C. Protect the motor from overloading
D. Used to minimize the drawn current during starting period
E. Used to protect the motor from the short circuit

53. Which of the following is written communication

A. Speech B. Dissection C. Instruction D. None

54. The efficiency of an electrical machine is:

A. The ratio between output power and input power
B. The ratio between active power and apparent power
C. The ratio between starting torque and maximum torque
D. The ratio between rotor speed and rotation field speed
E. The ratio between rotor speed and the maximum torque

55. Which of the following is **NOT** included in the group of reduced voltage magnetic starter?

A. Auto-transformer magnetic starter
B. Star-delta magnetic starter
C. Reverse-forward magnetic starter
D. Primary resistance magnetic starter
E. Part-winding magnetic starter

56. The component of a PLC that stores & executes the main program is the _____?

A. Programming device C. Input/output module
B. Operator interface D. CPU

57. The rotation speed of an asynchronous motor can be increased by

A. Increasing the Voltage
B. Increasing the Current
C. Increasing the Frequency
D. Decreasing the voltage

58. Is the result of comparison b/n unknown quantity and predefined standard?

A. Instrumentation C. Measurement
B. B. Sensor D. Actuator

59. Refers to the act of evaluating and adjusting the precision and accuracy of measurement equipment?

A. Measurement C. Calibration
B. Instrument D. Digital Multimeter

60. Based on EEPCo standard, what color of wire is used for the neutral conductor in a three-phase power supply?

A. Blue B. White C. red D. green-yellow E. black

61. Transformer has 1600 turns in the secondary, when a voltage of 16v is applied to the primary, an emf of 80v is induced in the secondary. The number of turns in the primary is

A. 320 B. 3200 C. 800 D. 8000

62. A potential difference of 1 volt is equal to

A. One amp per ohm C. One amp – ohm
B. One amp per second D. One amp per joule

63. An auto transformer has

A. More turns on the primary than on the secondary
B. More turns on the secondary then on the primary
C. Only one winding
D. More than one winding

64. Which one of the following is the same value in series connection?
A. Voltage B. resistor C. current D. capacitor

65. One byte is made up of _____?
A. 32 bits C.16 bits
B. 2 bits D. 8 bits

66. Overload relay is used to protect the motor circuits from _____
A. Short circuit B. Grounded circuit C. Over voltage
D. Leakage current E. Excess load that would result in overheating

67. What is the average speed of a 3-phase synchronous motor w/ 4-pole, 220V, 60Hz?
A. 1400 rpm B. 1200 rpm C. 1800 rpm
D. 900 rpm E. 400 rpm

68. In a device that receives energy from one system in one form & retransmits it to another system
A. Relay C. Limit switch
B. Ultrasonic sensor D. Transducer

69. A programming language that used symbols resembling elements used in hard-wired control line diagrams is referred to as _____?
A. Statement list C. A flow chart
B. Ladder logic D. Function blocks

70. What is the current rating of a protective device installed for a 7.2KW, 240V rated water heater?
A. 10A B. 40A C. 16A D. 25A E. 32A

SECTION B – MATCHING TYPE QUESTIONS

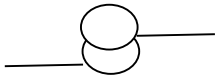
Instructions for Section B
Match column A to column B. Write only the letter of the correct answer in the space provided before each item.

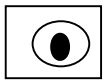
Ans	Column **A**	Column **B**
J	1. It provides a leading current to easily start a single phase motor	A. indicating circuit
L	2. A motor that operated a high starting torque	B. coil
M	3. Its main job is to separate the start winding from the main winding after a predetermine speed	C. Three phase motor
O	4. A type of single phase motor which could be operated by both AC and DC supply	D. shunt motor
G	5. A device that conducts unidirectional current flow in a circuit.	E. induction transformer
C	5. A commonly used AC motor in the industry because of its good characteristics and performance	F. auto-transformer
E	6. A type of transformer which has no connection between the primary coil to secondary coil	G. Diode
A	7. A group of lamps used to monitor the status of the motor's circuit	H. generator
K	8. This device is the reason why a 3-phase motor is capable to be activated in automatic star and delta connections	I. magnetic contactor
I	9. A motor controller circuit which main task is to connect a	J. capacitor motor

	motor from the supply lines	
S	11. The device that use to correct the power factor	K. timer
V	12. An electrical device that generates signal that calls the attention of the operator that something is wrong on the machine.	L. series motor
T	13. Switch to be used at forward or backward movement to automatically stop the overhead crane at the end of the rail.	M. Centrifugal switch
W	14. A device that connected across the terminals of the start push button to ensure that the motor will run continuously after the start push button is released.	N. control circuit
D	15. A motor that operated a constant speed	O. universal motor
		P. Capacitor
		Q. power circuit
		R. Two phase motor
		S. capacitor bank
		T. limit switch
		U. thermal relay
		V. buzzer
		W. retaining contact
		X. thermostat

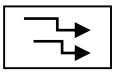
PART-II: - MATCHING

E 1. AC to DC pulsating	A. resistor
G 2. High starting torque	B. memory
F 3. Constant speed	C. Infinitive or resistance inductive
B 4. To store program	D. feedback (smoking detector)
A 5. Limit current	E. rectifier
P 6. Smoking detector	F. shunt motor
M 7.current transformer	G. dc series motor
K 8. voltage transformer	H. quality control
N 9. Washing machine	I. effective communication
O 10. Push button	J. successes
I 11. Encourage idea improvement	K.

M. 

N. 

O.

P. 

MATCHING

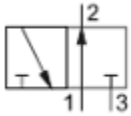
A

1. Type of small computer used in industrial control application M
2. An electro-magnetically actuating switch used to make or break electrical ckt N
3. A device primary uses an electro-magnetically to drive a plunger for actuating of pneumatic control system P
4. A device that convert physically valves of object in to electrical signal Q
5. Pneumatic elements that is designed to introduce oil particles In to the moving parts of the system L
6. Read only memory B
7. Hard ware/software drive of plc used for process sensor in Industrial application

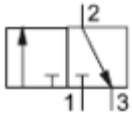
B

A. Output device
B. Data memory
C. ROM
D. Proximity switch
E. Cylinder
F. Input device
G. Filter
H. Pneumatic system
K. Program memory
L. Lubricant
M. PLC
N. Relay
P. Solenoids
Q. Sensor
S. RAM

8. GPM = flow
9. Contact switch = limit switch
10. Contact less switch = reed switch
11. Air lubricate & clean = air service unit
12. 3/2 way(NO)



13. 3/2 way(NC)



4

14. Logic control = PLC
15. Lack of accuracy = error
16. Indicate the air = pressure gauge
17. Mechanical energy into compressor = compressor motor