TNUSRB SI Technical – **Model Question Paper 2**

General Studies:

1. Which of the following is the lightest metal?
   a)Mercury   b)Silver
   c)Lithium   d)Lead
2. The most important ore of aluminum is
   a)Bauxite   b)Calamine
   c)Calcite   d)Galena
3. The chemical name of urea is
   a)Aneurin   b)Chloroetane
   c)**Carbamide**   d)None
4. Where is ""Jim Corbett National Park" (India First National park) situated?
   a)Tamil Nadu   b)Assam
   c)Uttrakhand   d)Orissa
5. What is the reason for the Blue Color Appearance of the SKY?
   a)Spectroscopy
   b)Scattering of Light
   c)Refraction
   d)Reflection
6. Which is the Acid found in Ants?
   a)Acitic Acid   b)Lactic Acid
   c)Formic Acid   d)None
7. Which is the imaginary line that passes diagonally through india?
   a)Tropic of Capricon   b)Polar circle
   c)**Tropic of cancer**   d)None
8. The Sun gets heat and light energy from
   a)Nuclear Fission   **b)Nuclear Fusion**
   c)Burning of Gas   d)None
9. D.N.A. is made up of
   a)Proteins   b)Amino Acids
   c)Nucleotides   d)None
10. Which Gas is filled in the Fire Extinguisher?
    a)Oxygen   **b)Carbon di oxide**
    c)Hydrogen   d)Nitrogen
11. Polio virus affect Human Body through?
    a)Mosquito bite
    b)Unsanitary food and water
    c)Insect Bite
    d)Worms
12. How many railway stations are located in Tamil Nadu?
    a)589   **b)536**
    c)489   600
13. The train "Palace of wheels" runs in which state?
    a)West Bengal   **b)Rajasthan**
    c)Tamil Nadu   d)Delhi
14. Which is the 23rd State of India?
    (A) Mizoram   (B) Manipur
    (C) Punjab   (D) Odissa
15. Which color of the light has the longest wavelength?
    a)Yellow   b)**Red**
    c)Blue   d)White
16. Red Data Book provides data on
    A) Biota of Red sea
    B) Infra red rays
    C) Red pigmented plants
    D) Endangered species
17. Political mentor of Kamaraj was
    A) V.O. Chidambaram Pillai
    B) Gandhiji
    C) Bharathiar
    D) Sathyamoorthy
18. India's longest highway tunnel is
    A) Maliguda Tunnel   B) Pir Panjal Tunnel
    C) Banihal Tunnel   **D) Patnitop Tunnel**

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19. Number of elected members to Lok Sabha from union territories is
    A) 16   **B) 13**
    C) 14   D) 15

20. Roger federer and Beluida Benic won Hope man cup for Switzerland held in which country?
    A) Germany   B) USA
    C) Australia   D) France

21. India's first National Park for differently able inaugurated in which city?
    A) Bangalore   **B) Hyderabad**
    C) Bhopal   D) Pune

22. Which of the following airport has become the 5th airport in India having CATIIIB landing system runaway O1R?
    A) Kolkata's Netaji Subash Chandra Bose Airport
    B) Kempe Gowda Airport, Bangalore
    C) Cochin International Airport
    D) Jawaharlal Nehru Airport Bangalore

23. Air India ties up with Three International Banks to avail loans for Boeing 777 Planes. Then which of the following bank is not in list?
    A) Abu dhabi Bank
    B) HSBC Bank
    C) Standard Charter eel Bank
    D) Mashreq Bank

24. Reliance Industries ltd announced that it has commissioned and achieved design through put of the world's largest refinery off the gas at which country?
    A) Gujarat   B) Rajasthan
    C) Uttar Pradesh   D) Haryana

25. RBI Puts Allahabad Bank under Prompt Corrective Action. Allahabad Bank is the_____th Bank to face PCA.
    A) 10   **B) 11**
    C) 12   D) 13

26. Dhanu Yatra festival held in which state
    A) Jharkhand   B) Chhattisgarh
    C) Bihar   **D) Odisha.**

27. Which of the following state has declared open defecation free in India North east region after Sikkim?
    A) Manipur
    B) Arunachal Pradesh
    c)Tamil Nadu
    d)Karnataka

28. The sun temple at
    (a)Bhubaneshwar   **(b) Konark**
    (c) Mount abu   (d) Delhi

29. Rajatarangini book was wrote by
    (a)Kalhana   (b) Jeyadeva
    (c) Prithviraj   (d) Somadeva

30. In the following rays which is not involved in Radio activity?
    (A) X-rays   (B) α – rays
    (C) β -rays   (D) γ- rays

31. The time taken by the light to reach the earth from the sun is
    (A) 10 seconds   (B) 50 seconds
    (C) 100 seconds   **(D) 500 seconds**

32. Eskimos are found in
    (A) Tundra Region
    (B) Coniferous forest region
    (C) Equatorial region
    (D) Tropical and temporate deserts

33. Who started the newspaper kesari and Maratha?
    A)Gopala Krishna Gokhale
    B)Bala Gangadhar Tilak
    C)Arabind Ghosh
    D)Bibin chandra pal

34. Thiruthangara means
    (A) Preacher   (B) Religion
    (C) Non stealing   (D) Celibacy

35. Who constructed the cities of mahendra-mangalam and Mahendravadi?
    A)Mahendravarman-I
    B)Simhavishnu
    C)Narasimhavarman-I

D)Narasimhavarman-II

36. Election Commission is a

(A) Legislative Body

(B)Constitutional Body

(C) Executive Body

(D) Extra Legislative Body

38. Powerful tsunami are produced by

A)Volcanic eruptions   B)Cyclone

C)Tornados   **D)Earthquake**

39. Volcanic eruption do NOT occur in the

A)Baltic Sea   B)Black Sea

C)Caribbean Sea   D)Caspian Sea

40. Pedology is the study of

A)Climate   B)Rocks

C)Earthquakes   **D)Soil**

41. Seismograph is an instrument used for

A)Measuring rainfall

B)Measuring temperature

C)Recording the Earthquake shocks

D)Measuring pressure

42. Which of the following influence soil erosion in India?

A)Slope of land   B)Terracing

C)Deforestation   D)Irrigation

43. National Institute of Disaster Management is at?

A)Punjab   B)Manipur

C)New Delhi   D)Hyderabad

44. Which of the following state has became the first state in India have "Industrial Policy for Women Entrepreneur" exclusively for women?

A) Madhya Pradesh   B) Gujarat

C) Telegana   **D) Maharashtra**

45. Which of the following private bank recently launches service to open PPF account online?

A) ICICI Bank

B) Axis Bank

C) City Union Bank

D) South Indian Bank

46. Tesla builds world's biggest lithium – ion battery in which country?

A) India   **B) Australia**

C) Newzealand   D) Ireland

47. World first camel hospital inaugurated in which city of UAE (United Arab Emirates)?

A) Sharjah   **B) Dubai**

C) Fujairah   D) Ajman

48. UP governor Ram Naik unveiled Kumbh 2019 a logo for Kumbh mela festival which is held for every _____ years?

A) 6   **B) 12**   C) 18   D) 9

49. India ranks 100th in Global Prosperity Index then which Country Tops the List?

A) Norway   B) Newzealand

C) Finland   D) Switzerland

50. 14th Inclusive finance India summit held in which city?

A) Mumbai   **B) Newdelhi**

C) Nagpur   D) Cochin

51. Shubankar Sharma is related to which Sport?

A) Table Tennis   B) Hockey

C) Squash   **D) Golf**

52. World's longest glass pedestrian bridge open in which country?

A) Switzerland   B) Netherland

C) China   D) Scotland

53. India's first air conditioned suburban local train is inaugurated in which city?

A) Chennai   B) Kolkata

C) Mumbai   D) Hyderabad

54. Four Planets of the inner circle is

(A) Jupiter, Saturn, Uranus and Mars

(B) Mercury, Venus, Earth and Mars

(C) Mercury, Venus, Saturn and Mars

(D) Mercury, Venus, Earth and Jupiter

55. Pick out the correct one from the following :

When the speed of the body is doubled its kinetic energy becomes

(A) doubled   (B) half

(C) quadruple   (D) one fourth

56. Who became the united nation's youngest - ever messenger of peace?

(A) MalalaYousafzai

(B) Midori

(C) Haya Bint AlHusein

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(D) ChalizeTheron

57. Which one is not subject to Judicial review?
    (A) Fundamental Rights
    (B) Preamble
    (C) Fundamental Duties
    (D) Directive Principle of State Policy

58. The Indian President is elected by which of the following voting systems?
    (A) One man one vote
    (B) Plural voting
    (C) Open ballot
    (D) Single transferable vote

59. Which one of the following hormones contains iodine?
    A)Thyroxine   B)Testosterone
    C)Insulin   D)Adrenaline

60. Who gave the title "Periyar" to E.V. RamasamyNaicker?
    (A) Dharmambal
    (B) MoovalurRamamirdham
    (C) Muthulakshmi Reddy
    (D) Maniyammai

Technical:

1. Which resistance plays a significant role in stabilization of Q-point for self – biasing circuit of BJT?
   a)Emitter resistance
   b)Collector resistance
   c)Source resistance
   d)Drain resistance

2. Which among the below mentioned reasons is/are responsible for the occurrence of second breakdown in power BJT?
   a)Large current
   b)Distribution of current in a non-uniform manner
   c)Excessive power dissipation
   d)All of the above

3. Which capacitors assists in preventing the loss of gain due to negative feed back without affecting the DC stability of R-C coupled amplifier?
   a)Coupling capacitors(C_c)
   b)Bypass Capacitors(C_E)
   c)Both a and b
   d)None of the above

4. Which among the below mentioned circuits resemble its behavior similar to that of an amplifier in high frequency region, as the response decreases with an increase in frequency?
   a)Simple high pass circuit
   b)Simple low pass circuit
   c)Simple band pass circuit
   d)Simple band stop circuit

5. Consider the assertions given below
   A)Replacement of each coupling and bypass capacitors by a short circuit
   B)Replacement of transistor by its hybrid equivalent model for further analysis
   C)Replacement of DC voltage sources by a short circuit
   Which is the correct sequential order of steps to be carried out for analysis of a transistor amplifier circuit?
   a)A,B,C   b)B,A,C
   c)A,C,B   **d)C,A,B**

6. On which factors does the value of thermal resistance depend?
   a)size of transistor
   b)Type of cooling system
   c)Type of heat transfer mechanism
   d)All of the above

7. Which among the following components is/are not involved in the feedback network configuration of LC oscillators?
   a)Inductor   b)Capacitor
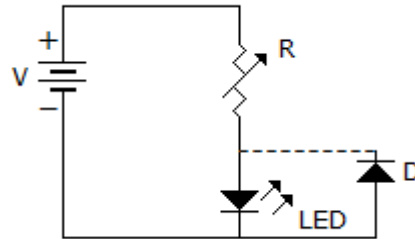   **c)Resistor**   d)All of the above

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8. What is an angle of phase shift for each designed RC network in the phase shift oscillator circuit?

a)30^0 **b)60^0**

c)90^0 d)180^0

9. After passing through which circuit/network, does the signal X_d (output signal obtained by taking the difference of two input signals) get multiplied by'-1?

a)Amplifier circuit

b)Feedback network

c)Mixing network

d)Sampling network

10. Which among the following is an output provided by trans resistance amplifier?

a)Output current proportional to signal voltage

b)Output voltage proportional to signal current

c)Output voltage proportional to input voltage

d)Output current proportional to signal current

11. A differential relay comparator used for the protection of three phase transformers has

a)One comparator

b)Two comparator

c)Three comparator

d)Six comparator

12. In double delta transformation, a double delta refers to the case where there are two delta transformations in

a)Parallel

b)Series

c)Both series and parallel

d)Neither series nor parallel

13. In a single phase, full wave bridge circuit and in three phase, delta full wave bridge circuit, the ripple voltage frequency is always

a)Twice the line frequency, six times the line frequency

b)Both will be twice the line frequency

c)Both will be six times the lines frequency

d)None of these

14. Scott connection is used for the conversion of

a)Single phase to three phase

b)Three phase to single phase

c)Single phase to two phase

d)All of these

15. While connecting three phase transformer in star-star connection, the terminals of secondaries are wrongly joined. Then the mutual phase angle and magnitude of line voltages of secondaries will

a)Equal to 120 degree and equal as before

b)Not equal to120 degree and different

c)Equal to 120 degree and different

d)None of these

16. In a three phase transformer, the current flowing in three primaries producers three corresponding fluxes. The sum of these fluxes at any instant is

a)zero

b)Three time of any individual flux

c)One third of any individual flux

d)None of these

17. In a three phase transformer, the angle between two consecutive cores is

a)30 degree   b)60 degree

c)120 degree   d)150 degree

18. The high leakage impedance transformer are suitable for the application of

a)Arc welding

b)Personal computers

c)Street lights

d)Electric lamp

19. The constant current transformer are mainly used for

a)Supplying series connected street light

b)Personal computers

c)Arc welding

d)Electric toys

20. In an autotransformer if the power transferred inductively is equal to the power conducted through then transformer ratio is given by
a)1 **b)0.5**
c)2 d)0

21. Sine wave having period of 1ms has angular frequency
a)**6.14Krad/s** b)3.14 Krad/s
c)6.14 rad/s d)3.14 rad/s

22. Which of following can be building blocks for representing signals
a)sine waves
b)Impulse function
c)Any signal with many frequency components
d)All of these

23. A transistor as amplifier requires
a)DC supply b)AC supply
c)Both d)None of the above

24. Power amplifier is used to drive
a)Speaker b)Antenna
c)Fan **d)both a and b**

25. Fourier series is the
a)Summation of pure sines
b)Summation of many sines
c)Simpler representation of signal
d)All of these

26. Discrete signals have
a)Finite y axis values
b)infinite y axis values
c)Finite x-axis values
d)Infinite X-axis values and infinite Y-axis values

27. Microphone is an example of
a)Transducers
b)Electrical component
c)Both
d)Amplifier

28. Voltage gain in dB is has a factor of
a)10 **b)20**

29. If an input signal of amplifier is large, output will contain
a)Good amplified signal
b)Additional spurious information
c)More power amplification
d)Less distortion

30. Amplification essentially is
a)Division
b)Addition
c)Subtraction
d)Multiplication

31. The bus request control input of micro processor indicates the temporary suspension of current operation by driving all buses into ____
a)High impedance state
b)Low impedance state
c)Both a &b
d)None of the above

32. The devices that provide the means for a computer to communicate with the user or other computers are referred to as
a)CPU b)ALU
c)I/O d)None of the above

33. Single bit indicators that may be set or cleared to show the results of logical or arithmetic operations are the
a)Flags b)Registers
c)Monitors d)Decisions

34. The technique of assigning a memory address to each I/O device in the computer system is called:
a)Memory-Mapped
b)Ported I/O
c)Dedicated I/O
d)Wired I/O

35. What type of circuit is used at the interface point of an output port?
a)Decoder **b)Latch**

c)0 d)30

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c)Tristate buffer   d)None of the above

36. The register in the 8085A that is used to keep track of the memory address of the next op-code to be run in the program is the:
a)Stack pointer
b)Program counter
c)Instruction pointer
d)Accumulator

37. All computer programs for a machine are called:
a)Software   b)Firmware
c)Hardware   d)None of the above

38. Because microprocessor CPUs do not understand mnemonics as they are, they have to be converted to ___
a)Hexadecimal machine code
b)Binary machine code
c)Assembly language
d)All of the above

39. Which bus is bidirectional bus?
a)Address bus
b)Data bus
c)Address bus and data bus
d)None of the above

40. What kind of computer program is used to convert mnemonic code to machine code?
a)Debug   **b)Assembler**
c)C++   d)Fortran

41. A binary input 000 is fed to a 3bit DAC/ADC. The resultant output is 101. Find the type of error?
a)Settling error   b)Gain error
c)Offset error   d)Linearity error

42. All the commercially available DAC are
a)Monotonic
b)Non-Monotonic
c)Either Monotonic or Non monotonic
d)None of the above

43. A 4 bit R/2R digital to analog (DAC) converter has a reference of 5volts. What is the analog output for the input code 0101
a)0.3125V   **b)3.125V**
c)0.78125V   d)-3.125V

44. An alternate function of port pin P3.4 in the 8051 is
a)Timer 0   b)Timer 1
c)Interrupt 0   d)Interrupt 1

45. Which of the following instructions will load the value 35H into the high byte of timer 0?
a)MOV TH0,#35H
b)MOV TH0,35H
c)MOV T0,#35H
d)MOV T0,35H

46. The 8-bit address bus allows access to an address range of:
a)0000 to FFFFH   b)000 to FFFH
c)00 to FFH   d)0 to FH

47. The number of data registers is:
a)8   b)16
c)32   d)64

48. The microcontroller is useful in systems that have non variable programs for dedicated applications
a)True   b)False

49. A HIGH on which pin resets the 8051 microcontroller?
a)RESET   **b)RST**
c)PSEN   d)RSET

50. An alternate function of port pin P3.1 in the 8051 is
a)Serial port input
b)Serial port output
c)Memory write strobe
d)Memory read strobe

51. Which waveform plays a crucial role in determining the radiation pattern of the dipole/wire antennas?

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a)**Current**   b)Voltage

c)Frequency   d)Phase

52. If an observation point is closely located to the source, then the field is termed as____

    a)**Induced**   b)Radiated

    c)Reflected   d)Far-Field

53. Under which conditions of charge does the radiation occur through wire antenna?

    a)For a charge with no motion

    b)For a charge moving with uniform velocity with straight & infinite wire

    c)**For a charge oscillating in time motion**

    d)All of the above

54. According to Webster's dictionary, What is an antenna?

    a)Impedance matching device

    b)Sensor of Electromagnetic waves

    c)Transducer between guided wave & free space wave

    d)**Metallic device for radiating or receiving radio waves**

55. The knowledge of which parameter is sufficient foe deriving the time varying electromagnetic field?

    a)Electric field intensity

    b)Magnetic field intensity

    c)**Current density**

    d)Power density

56. Power density is basically termed as ___ power per unit area

    a)Reflected   b)Refracted

    c)**Radiated**   d)Diffracted

57. In which kind of waveform is the phase velocity defined?

    a)**Sinusoidal**   b)Rectangular

    c)Square   d)Triangular

58. For receiving a particular frequency signal, which tuning component must be used by the loop to form a resonant circuit for tuning to that frequency?

    a)**Capacitor**   b)Inductor

    c)Resistor   d)Gyrator

59. Dipole antenna is symmetrical in nature where the two ends are at equal potentials with respect to ___ point

    a)Initial   b)Eventual

    c)**Mid**   d)None of the above

60. In the solutions of inhomogeneous vector potential wave equation, which component exists if the source is at origin and the points are removed from the source(J_z=0)?

    a)Inward   b)**Outward**

    c)Both a & b   d)None of the above

61. Which ionization layer exists during day time & usually vanishes at night due to highest recombination rate?

    a)**D-region**

    b)Normal E-region

    c)Sporadic E-region

    d)Appleton region

62. At which angles does the front to back ratio specify an antenna gain?

    a)**0^0 & 180^0**   b)90^0 & 180^0

    c)180^0 & 270^0 d)180^0 & 360^0

63. The code in convolution coding is generated using

    a)**EX-OR logic**   b)AND logic

    c)OR logic   d)None of the above

64. Parity bit coding may not be used for

    a)Error in more than single bit

    b)Which bit is in error

    c)**Both a& b**

    d)None of the above

65. The channel capacity according to Shannon's equation is

    a)Maximum error free communication

    b)Defined for optimum system

c)Information transmitted

d)All of the above

66. Information rate is defined as

a)Information per unit time

b)Average number of bits of information per second

c)rH

d)All of the above

67. Synchronization of signals is done using

a)Pilot clock

b)Extracting timing information from the received signal

c)Transmitter and receiver connected to master timing source

d)All of the above

68. The technique that may be used to reduce the side band power is

a)MSK

b)BPSK

c)Gaussian minimum shift keying

d)BFSK

69. Which mode of coaxial cable represents the cable bandwidth by a single stream of data during the transmission of any data/information?

a)Baseband mode

b)Broadband mode

c)Passband mode

d)None of the above

70. Which addresses are supposed to be of greater importance for transmitting the data from source to destination?

a)Physical address

b)IP addresses

c)Both a& b

d)None of the above

71. A star connected load has three equal impedance each of $(40 + j30)$ Ω If the line current is 5 A then value of line voltage is

a) 250 V.   **b) 250 √3 V.**

c) 250 / √3 V.   d) 200 V.

72. For a 3 - phase load balanced condition, each phase has the same value of

a) impedance.   b) resistance

c) power factor.   **d) all of these.**

73. Which of the following is not a bilateral?

a)Resistor   **b)Diode**

c)Capacitor   d)Inductor

74. In the circuit of figure the function of resistor R and diode D are

a)**To limit the current and to protect LED against over voltage**

b)To limit the voltage and to protect LED against over current

c)To limit the current and protect LED against reverse breakdown voltage

d)None of these

75. If a 3 phase alternator is short circuited at its terminal, then the initial value of short circuit current will be limited by

a. Synchronous reactance

b. Transient reactance

c. Sub transient reactance

d. All of the above

76. If an autotransformer having transformation ratio equal to 0.6 is supplying a load of 8kw then its power transferred from primary to secondary is given by

a) 3 kW   **b)3.2 kW**

c)3.4 kW   d) 3.5 kW

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77. A silicon (PN) junction at a temperature of 20°C has a reverse saturation current of 10 pico Ampere. The reverse saturation current at 40°C for the same bias is approximately.
    a)30pA   **b)40pA**
    c)50pA   d)60pA

78. Which architecture defines the inter face between the basic machine instruction set and the runtime and I/O control
    1) Instruction set   2) Assembly set
    3) Processing set   4) Memory set

79. The word to be stored into the memory location is first loaded by the CPU into a specified
    1) ALU   **2) MDR**
    3) MAR   4) MDD

80. The address of the operand is obtained by adding a constant to the content of a register called........
    1) Index Register
    2) Segment Pointer
    3) Stack Pointer
    4)Index Word register

81. Which is not a component of CPU
    1) Register Set
    2) Arithmetic and Logic Unit
    3) Control Unit
    4) Processing Unit

82. Which specifies the type of the data that will be contained in the array
    1) size   2) data
    3) data type   4) data value

83. Converting the symbolic representation into machine language is performed by a special
    1) Linker   2) Loader
    3) Assembler   4) Interpreter

84. A table which is generated by the first pass which includes all symbols and binary values which is known as table
    1) Information   **2) Symbol**

3) Instruction   4) Code

85. Missing slot covers on a computer can cause?
    a)Over heat
    b)Power surges
    c)Incomplete path for ESD
    d)None of the above

86. With respect to a network interface card, the term 10/100 refers to
    a)Protocol speed
    b)A fiber speed
    c)Mega bites per second
    d)Minimum and maximum server speed

87. What product is used to clean smudged keys on a keyboard?
    a)TMC solvent
    b)Silicone Spray
    c)Denatured alcohol
    d)All purpose cleaner

88. What beep codes could indicate a system board or power supply failure?
    a)Steady short beep
    b)No beep
    c)One long continuous beep tone
    d)All of the above

89. What tool is used to test serial and parallel ports?
    a)High voltage probe
    b)Cable scanner
    c)loop backs(Wrap plugs)
    d)Sniffer

90. Commonly used mode for 3G networks is
    a)TDMA   b)FDMA
    c)TDD   **d)FDD**

91. The interface between the neighboring base stations is avoided by
    a)Assigning different group of channels
    b)Using transmitters with different power level
    c)Using different antennas
    d)All of the above

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92. Centre excited hexagonal cells use
    a)Sectored directional antennas
    b)Omni directional antennas
    c)Yagi uda antennas
    d)None of the above

93. The advantage of using frequency reuse is
    a)Increased capacity
    b)Limited spectrum is required
    c)Same spectrum may be allocated to other network
    d)All of the above

94. Advantage of using Dynamic channel assignment is
    a)Blocking is reduced
    b)Capacity of the system is increased
    c)Both a & b
    d)None of the above

95. In Dynamic channel assignment any channel which is being used in one cell can be reassigned simultaneously to another cell in the system at a reasonable distance
    a)True   b)False

96. Which of the following refers to the fastest, biggest and most expensive computers?
    a)Personal computers
    b)Super computers
    c)Laptops
    d)Note books

97. UNIVAC IS
    a)Universal Automatic Computer
    b)Universal Array Computer
    c)Unique Automatic Computer
    d)Unvalued Automatic Computer

98. IBM 1401 is
    a)First Generation Computer
    b)Second Generation Computer
    c)Third Generation Computer
    d)Fourth Generation Computer

99. Interface between the application program and high level language is referred to........ architecture
    1) Tools   **2) Language**
    3) Instruction   4) Program

100.   CPU is divided into
    1) Information section   2) Data section
    3) Control section   **4) both (1) & (2)**

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