Department of Electrical Engineering

MS EE Admission Test: Sample

Max Time: 2Hrs   **Total Questions: 100**

Passing Marks : 65%   **Color: Blue**

Brief Instructions to Candidates

1. **Anyone who will violates any of the following instructions will be immediately disqualified**
2. Please ensure that you do not have calculator, any item or information with you in the examination hall. Your mobile phone must be switched off and in your pocket.
3. After the paper is distributed, you are not supposed to look around, whisper, borrow or lending anything from any one.
4. Nobody will leave before half time.
5. There are total of **100** questions and total time is **120** minutes.
6. You will get **one** mark for each correct answer and **zero** mark for incorrect answer. Selection of more than one choice will give you zero mark.
7. Once time is over, put down your pens and put the answer sheets inside the question papers

   Filling In The Answer Sheets

8. **Your answer sheet will be checked by machine. If you do not comply with the instruction, your answers will not be graded correctly.**
9. **Carefully fill your particulars, in case of error your answer sheet will not be accepted by machine.**
10. **Carefully handle the answer sheet, you will not be provided new one.**
11. On the front side of the answer sheet find the space for your name and roll number.
12. Sign the sheet on back side.
13. On the front of the answer sheet, every entry by you will require selecting one circle out of many. Mark the correct one by <u>COMPLETELY</u> filling in the circle representing it. Ink should not spread outside the boundary line of the circle.
14. Circle the colour of your booklet next to your name ON THE FRONTSIDE of your answer sheet.
15. If you fill in the wrong colour, the machine reader may fail you.
16. You can do rough work inside the question booklet wherever you like.
17. After the paper is collected, keep sitting to fill in and sign your attendance sheet which will be circulated.
18. All students must fill and sign their attendance sheet else they will be eliminated from the Admission test.
19. If you violate any instruction, your paper will be cancelled and admission refused.
20. Do not open the next page of the question booklet until you are told.

Complete the following sentences by selecting the most appropriate words from the given lettered choices (A, B, C, D, E) below each question.

Q (1-10)

1. A child should not be _____ as being either very shy or over confident.

   (A)   categorized
   (B)   instructed
   (C)   intoned
   (D)   distracted
   (E)   refrained

2. We never believed that he would resort to _____ in order to achieve his goal; we always regarded him as a _____ man.

   (A)   charm - insincere
   (B)   necromancy - pietistic
   (C)   logic - honorable
   (D)   prestidigitation - articulate
   (E)   subterfuge - honest

3. The recent worldwide increase in oil prices has led to a _____ demand for electric vehicles.

   (A)   greater
   (B)   greatest
   (C)   greatly
   (D)   greatness
   (E)   None of the above

4. Maria has a wide range of experience, _____ worked in technical, production and marketing positions.

   (A)   having
   (B)   has
   (C)   having had
   (D)   had
   (E)   had been

5. Tickets will not be redeemable for cash or credit at any time, _____Will they be replaced if lost or stolen.

    (A)   but
    (B)   though
    (C)   only
    (D)   nor
    (E)   so

6. James asked me ___ him..

    (A) emailing
    (B) to email
    (C) email
    (D) emailed
    (E) mail

7. The organizers of the trip reminded participants to ------- at the steps of the city hall at 2:00 P.M.
    (A) see
    (B) combine
    (C) meet
    (D) go
    (E) wait

8. When he came to Japan 20 years ago, he had no ………. That he was going to end up living in Japan for so long.

    (A) choice
    (B) reason
    (C) matter
    (D) idea
    (E) None of the above

9. ……………. being diagnosed with cancer, he did not give up his dream.

    (A)   Instead of
    (B)   Although
    (C)   Because of
    (D)   Despite
    (E)   None of the above

10. The financial audit of Soft Peach Software ------- completed on Wednesday by a certified accounting firm.

    (A) to be
    (B) having been
    (C) was

(D) were
(E) have to be

Each question below consists of a related pairs of words or phrases, followed by five lettered pairs of words or phrases; select the lettered pair that best expresses a relationship similar to that expressed in the original pair.

Q (11-15)

11. WALK : LEGS
 (A) gleam : eyes
 (B) chew : mouth
 (C) dress : hem
 (D) cover : book
 (E) grind : nose

 (A) wilt: higher
 (B) shirk: greater
 (C) erode: weaker

Read the following Passage carefully and answer the questions given at its end. Q (16-20)

For many centuries, humankind was unable to study certain data contained in the verses of the Qur'an because they did not possess sufficient scientific means. It is only today that numerous verses of the Qur'an dealing with natural phenomena have become comprehensible. A reading of old commentaries on the Qur'an, however knowledgeable their authors may have been in their day, bears solemn witness to a total inability to grasp the depth of meaning in such verses. I could even go so far as to say that, in the 20th century, with its compartmentalization of ever-increasing knowledge, it is still not easy for the average scientist to understand everything he reads in the Qur'an on such subjects, without having recourse to specialized research. This means that to understand all such verses of the Qur'an, one is nowadays required to have an absolutely encyclopedic knowledge embracing many scientific disciplines.

12. The main point from the author's view is that

 (A) Qur'an does not give any scientific views.
 (B) Qur'an only gives directions related to worship.
 (C) Man's soul and spirit already know explanations of verses of Qur'an.
 (D) Knowledge about many scientific disciplines is required to understand whole Qur'an.

13. The phrase ' in the 20th century, with its compartmentalization of ever-increasing knowledge, it is still not easy for the average scientist to understand everything he reads in the Qur'an ' in the passage means
 (A) It is better to have scientific knowledge to understand the Qur'an.
 (B) Muslims did not try to understand Qur'an.
 (C) Qur'an is difficult to understand.
 (D) Qur'an is a book of science.

14. In the author's opinion
   (A) Mankind can find new ways by applying Qur'an in daily life.
   (B) We should only recite Qur'an and not understand it.
   (C) Mankind is heading towards complete destruction.
   (D) It is only today that numerous verses of the Qur'an dealing with natural phenomena have become comprehensible.

15. For many centuries, humankind was unable to study certain data contained in the verses of the Qur'an because

   (A) It is difficult to understand Qur'an
   (B) Sufficient scientific means were not present
   (C) The certain data was not available
   (D) Humankind did not want to study them

16. A suitable title for the above passage is
   (A) Qur'an: a book of science.
   (B) Qur'an: a book for recitation.
   (C) Qur'an: a book of miracle.
   (D) Qur'an: the great book.

Each of the questions below consists of a word in capital letters, followed by five letter words (A, B, C, D, E). Choose the lettered word that is most nearly <u>opposite</u> in meaning to the word in capital letters and write the letter of your choice on your answer sheet.

Q (21-25)

17. ENORMOUS

   (A) Soft
   (B) Average
   (C) Tiny
   (D) Weak
   (E) Fragile

   (A) Neighboring
   (B) Unconcerned
   (C) Peace

Each of the questions below consists of a word in capital letters, followed by five letter words (A, B, C, D, E). Choose the lettered word that is most nearly <u>Synonym</u> in meaning to the word in capital letters and write the letter of your choice on your answer sheet.

Q (26-30)

18. ABANDON

(A) Try
(B) Join
(C) Keep with
(D) Forsake
(E) None

19. ABSOLUTE

(A) Division
(B) Complete
(C) Small
(D) Half
(E) None

20. ABSTAIN

(A) Refrain
(B) Ingest
(C) Take in
(D) Consume
(E) None

21. PIVOTAL

(A) Crucial
(B) Mechanical
(C) Movable
(D) Internal
(E) None

22. FALSE

(A) Inaccurate
(B) Defective
(C) Untrue
(D) Incorrect
(E) None

31. SR latch consists of

    (A) 1 input
    (B) 2 inputs
    (C) 3 inputs
    (D) 4 inputs

32. Which of following gate is represented by $x+y=z$?
    (A) NOR gate
    (B) OR gate
    (C) NOT gate
    (D) XOR gate

33. Transference of information from one register to another is
    (A) Intra-register transfer operation
    (B) Inter-register transfer operation
    (C) Out register transfer operation
    (D) In register transfer operation

    (A) $X(K) = C_k/N$
    (B) $X(K) = C_k$
    (C) $X(K) = NC_k$
    (D) $X(K) = 1/C_k$

34. Advantages of DSP are
    (A) predictable
    (B) repeatable
    (C) Sharing a single processor among a number of signals by time sharing
    (D) all of above

35. Correlation
    (A) It gives a measure of similarity between two data sequences.
    (B) It gives a measure of dis-similarity between two data sequences
    (C) a & b
    (D) none of above

36. The inverse Fourier transform
    (A) converts from the frequency domain to the time domain
    (B) converts from the time domain to the frequency domain
    (C) converts from the phasor domain to the magnitude domain
    (D) is used to make real-time spectrum analyzers

37. From the sampling theorem it is known that a the sampling rate of a critically sampled discrete-time signal with a spectrum occupying the full Nyquist range cannot be reduced any further since such a reduction will introduce

(A) aliasing
(B) quantization
(C) error
(D) none of above

38. Which mathematical notation specifies the condition of periodicity for a continuous time signal?
   (A) $x(t) = x(t + T_0)$
   (B) $x(n) = x(n + N)$
   (C) $x(t) = e^{-at}$
   (D) None of the above

39. Duality Theorem / Property of Fourier Transform states that

   (A) Shape of signal in time domain & shape of spectrum can be interchangeable
   (B) Shape of signal in frequency domain & shape of spectrum can be interchangeable
   (C) Shape of signal in time domain & shape of spectrum can never be interchangeable
   (D) Shape of signal in time domain & shape of spectrum can never be interchangeable

40. The type of systems which are characterized by input and the output quantized at certain levels are called
   (A) Analog
   (B) Discrete
   (C) Continuous
   (D) Digital

41. Two rectangular waveforms of duration t_1 and t_2 seconds are convolved. What is the shape of the resulting waveform?
   (A) Triangular

   (B) Rectangular

   (C) Trapezoidal

   (D) Semi-circular
   (A) Unity
   (B) Infinite
   (C) Average

42. Root locus specifies the movement of closed loop poles especially when the gain of system
   (A) Remains constant
   (B) Exhibit variations
   (C) Gives zero feedback
   (D) Gives infinite pole

43. In regenerating the feedback, the transfer function is given by

   (A) C(s)/R(s)=G(s)/1+G(s)H(s)
   (B) C(s)/R(s)=G(s)H(s)/1/G(s)H(s)
   (C) C(s)/R(s)=G(s)/1xG(s)H(s)
   (D) C(s)/R(s)=G(s)/1-G(s)H(s)

44. Multiplication of two matrices is defined if and only if number of columns of left matrix is same as

number of

    (A) left matrix row

    (B) right matrix row

    (C) left matrix column

    (D) right matrix column

45. Vector which contains scalar that have eigenvalues is called

    (A) Eigen vector

    (B) scalar vector

    (C) point vector

    (D) unit vector

46. $Log_2 16$ is equals to

    (A) 4
    (B) 8
    (C) 12
    (D) 16

47. Two 100W, 200 V lamps are connected in series across a 200 V supply. The total power consumed by each lamp will be _____ watts.

    (A) 25
    (B) 50
    (C) 100
    (D) 200

48. A short circuit is that which

    (A) Uses short pieces of wire
    (B) Goes only a short distance
    (C) All elements connected in series
    (D) Offers very low resistance path for current to flow

49. Which of the following stays the same in all parts of a series circuit?

    (A) Voltage
    (B) Power
    (C) Resistance
    (D) current
    (E) a current source

50. In a resistor R, power P equals

    (A) vi
    (B) $i^2 v$
    (C) iR
    (D) iR^2

51. The voltage v across an inductor L carrying current I equals

(A) Li
(B) Li^2
(C) $L\ di/dt$
(D) $L \int i dt$

52. Two resistances are connected in parallel and each dissipates 40 watts. The total power supplied by the source equals

(A) 40 watts
(B) 80 watts
(C) 160 watts
(D) 20 watts

53. Two charges are separated a distance d apart. There exists

(A) Electromagnetic field
(B) Magnetic field
(C) Electrostatic field
(D) All of the above

54. A dc voltage V is applied at time $t=0$ to a series RC circuit. The steady state current is

(A) V/R
(B) V/C
(C) $V / (R^2+C^2)^{1/2}$
(D) zero

55. Transient current in a circuit results from

(A) voltage applied to the circuit
(B) impedance of the circuit
(C) resistance of the circuit
(D) changes in the stored energy in inductors and capacitors

56. Energy stored in a capacitor over a cycle, when excited by an a.c. source is

(A) the same as that due to a d.c. source of equivalent magnitude
(B) half of that due to a d.c. source of equivalent magnitude
(C) zero
(D) none of the above

57. Which of the following transformers will be largest in size

(A) 1 kVA, 50 Hz
(B) 1 kVA, 60 Hz
(C) 1 kVA, 100 Hz
(D) 1 kVA, 500 Hz

58. The energy required to liberate an electron from an atom is called

(A) Kinetic energy
(B) Potential energy

(C) Excitation energy

(D) Ionization energy

59. In n-type semiconductor

(A) n = p

(B) p < n

(C) p << n

(D) p >> n

60. In p-type semiconductor

(A) holes form the minority carrier

(B) free electrons form the minority carriers

(C) hole density equals free electron density

(D) impurity is pentavalent

61. The resistance of a reverse biased ideal diode is

(A) zero

(B) low

(C) negative

(D) infinity

62. n a symbol of transistor, the sign of arrow shows

(A) emitter

(B) base

(C) collector

(D) base and collector both

63. A FET consists of

(A) a source and a gate

(B) a source, gate and a drain

(C) a source and a drain

(D) a gate and a drain

64. Improper biasing of transistor results in

(A) distortion in output signal

(B) excessive heating at collector terminal

(C) heavy loading of emitter terminal

(D) all of above

(E) divided by Even Numbers

(F) Which can be divided by Number 1 & by itself Number

(G) Which can be divided by any Number

65. The internal Components of the processor are connected by _____

(A) Processor intra-connectivity circuitry

(B) Processor bus

(C) Memory bus
(D) Ram bus

66. Within a software program subroutine nesting means,

(A) Having multiple subroutines in a program
(B) Using a linking nest statement to put many sub routines under the same name
(C) Having one routine call the other
(D) None of the mentioned

67. _____ converts the programs written in assembly language into machine instructions.

(A) Machine compiler
(B) Interpreter
(C) Assembler
(D) Converter

68. The BOOT sector files of the system are stored in _____

(A) Harddisk
(B) ROM
(C) RAM
(D) Fast solid state chips in the motherboard

69. The reason for the implementation of the cache memory is _____

(A) To increase the internal memory of the system
(B) The difference in speeds of operation of the processor and memory
(C) To reduce the memory access and cycle time
(D) All of the mentioned

70. The product of 1101 & 1011 is

(A) 10001111
(B) 10101010
(C) 11110000
(D) 11001100

71. We make use of _____ circuits to implement multiplication.

(A) Flip flops
(B) Combinatorial
(C) Fast adders
(D) None of the mentioned

72. The CISC stands for _____

(A) Computer Instruction Set Compliment
(B) Complete Instruction Set Compliment
(C) Computer Indexed Set Components
(D) Complex Instruction set computer

73. The computer architecture aimed at reducing the time of execution of instructions is _____

(A) CISC
(B) RISC
(C) ISA
(D) ANNA

74. If $x = -1$, then what is the value of the function $f(x) = x^3 + 4x + 12$
(A) 7
(B) 9
(C) 11
(D) 13

75. Power transformers should be designed to have maximum efficiency
(A) at one-fourth load
(B) at one-half load
(C) at or near full load
(D) any of the above

76. The transformer noise is mainly because of
(A) cooling oil
(B) sinusoidal current
(C) magnetic flux
(D) all of the above.

77. The induced e.m.f. in the transformer secondary will depend on
(A) Frequently of the supply only.
(B) Number of turns in secondary only.
(C) Maximum flux in core and frequency only.
(D) Frequency, flux and number of turns in the secondary.

78. Two numbers are respectively 10% and 20% more than a third number. The ratio of the two numbers is ?

(A) 11:12
(B) 12:13
(C) 4:5
(D) 9:10

79. The Fleming left-hand rule is applicable to
(A) generator
(B) motor
(C) transformer

(D) (a) and (b) both

80. The speed of d.c. series motor at no load is
    (A) zero
    (B) 1500 r.p.m.
    (C) Infinity
    (D) 3000 r.p.m.

81. The function of the commutator in a d.c. machine is
    (A) to change alternating current to a direct current
    (B) to improve commutation
    (C) for easy control
    (D) to change alternating voltage to direct voltage

82. The direction of rotation of a d.c. series motor can be changed
    (A) by interchanging supply terminals
    (B) by interchanging field terminals
    (C) either (a) or (b)
    (D) none of above