061/2017

Question Booklet Alpha Code	A	Question Booklet Serial Number	

Total Number of Questions : 100 **Time : 75 Minutes**

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four versions of Question Booklets with Question Booklet Alpha Code viz. **A, B, C** & **D**.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the Question Booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a Question Booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same alpha code.
6. The Question Booklet will be sealed at the middle of the right margin. Candidate should not open the Question Booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him/her contains all the 100 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the Question Booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

1. Cross over distortion will occur in
   A) Push pull amplifiers
   B) Complementary symmetry amplifiers
   C) Emitter follower
   D) Single-stage amplifiers

2. In MOD-10 counter, how many flip-flop are cascaded ?
   A) 2 B) 4 C) 3 D) Any number

3. The reverse saturation current of a Ge P.N. junction doubles for every °C rise in ambient temperature
   A) 1°C B) 2°C
   C) 10°C D) None of the above

4. Memory that loses its contents when power is lost
   A) Nonvolatile B) Volatile
   C) Random D) Static

5. In 8085, the instruction RAL is
   A) One byte instruction B) Two byte instruction
   C) Three byte instruction D) Four byte instruction

6. Modern FM receivers use de-emphasis circuit for
   A) Reducing high frequency noise
   B) Reducing the amplitude of high frequencies in the audio signal
   C) Increasing the amplitude of higher modulating frequencies
   D) Making demodulation easy

7. For sound portion of TV transmission, deviation ratio is
   A) 5 B) 1.67 C) 88 D) 200

8. Negative feedback reduces distortion in the amplifier only when it
   A) comes as part of input signal
   B) is generated in it
   C) is part of its output
   D) exceeds a certain safe level

9. The unit of dielectric strength is
   A) KV/m
   B) current/min.
   C) ampere/second
   D) volts/div.

10. For insulators, the forbidden energy gap is of the order of
   A) 5 eV
   B) 1 eV
   C) 0.1 eV
   D) Zero

11. In an unbiased junction the thickness of charge depletion region is of the order of
   A) 0.005 μm
   B) 0.5 μm
   C) 5 μm
   D) 10^{-10} m

12. Schottky barrier diode can be used as
   A) Low noise amplifier
   B) Variable capacitance device
   C) Power supply rectifier
   D) Low level detector

13. JFET has main drawback of
   A) having low input impedance
   B) having high output impedance
   C) being noisy
   D) having small gain-bandwidth product

14. In voltage amplifiers the load resistance should be
   A) as large as possible
   B) as small as possible
   C) equal to output impedance
   D) equal to input impedance

15. Darlington amplifier circuit is obtained by cascading
   A) two emitter follower amplifiers
   B) two CB stages
   C) two CE stages
   D) a CE stage followed by a CB stage

16. To turn-off or commutate a thyristor
    A) gate current is made zero
    B) forced commutation is used
    C) reverse blocking voltage is applied
    D) none of the above

17. Thyristors are not made using germanium, because
    A) it is a stable semiconductor
    B) group V elements cannot doped with it
    C) its current handling capacity is less than silicon
    D) it has high leakage current

18. A tuned amplifiers amplifies
    A) a wide band of frequencies
    B) audio frequencies only
    C) video frequencies only
    D) a narrow band of frequencies

19. Wein bridge oscillator is basically a
    A) pulse generator
    B) sine wave generator
    C) square wave generator
    D) triangular wave generator

20. The ASCII Code is
    A) 5 bit code
    B) 7 bit code
    C) 9 bit code
    D) 11 bit code

21. In 8085 μP, the address of the next instruction to be executed, is stored in
    A) stack pointer
    B) address latch
    C) program counter
    D) general purpose register

22. A switched mode power supply operating at 20 KHz to 100 KHz range uses as the main switching element
    A) Thyristor
    B) MOSFET
    C) Triac
    D) UJT

23. Which represents a magnetic transducer ?
    A) LVDT
    B) Strain gauge
    C) Thermocouple
    D) Photoconductive cell

24. A UJT with $R_{BB} = 10\ K\Omega$ and $R_{BZ} = 4\ K\Omega$ has intrinsic stand-off ratio
    A) 0.6
    B) 0.4
    C) 0.25
    D) 5/3

25. To generate a 1 MHz signal, the most suitable oscillator is
    A) Colpitts oscillator
    B) Phase-shift oscillator
    C) Wein-bridge oscillator
    D) None of these

26. Which material is generally used for LED ?
    A) Compounds of silica
    B) Compounds of phosphorus
    C) Compounds of gallium
    D) Compounds of sulphur

27. Which of the following is a unipolar device ?
    A) P.N. diode
    B) FET
    C) Zener diode
    D) Ordinary transistor

28. An audio oscillator uses
    A) Positive feedback
    B) Negative feedback
    C) Both positive and negative feedback
    D) None of these

29. The binary equivalent of A16 is
    A) 1010 B) 1011
    C) 1000 D) 1110

30. Signal attenuation means is
    A) Amplification B) Transmission
    C) Stoppage D) Weakening

31. The power factor of a resonant circuit is (series RLC)
    A) 1 B) 0 C) –1 D) 0.5

32. In a home TV, the lead from the antenna is
    A) an ordinary twisted wire
    B) a co-axial cable
    C) a twin wire fat ribbon of 300 ohms
    D) a bare copper wire

33. HDD stands for
    A) High Disk Drive B) Huge Disk Drive
    C) Hard Disk Drive D) None of the above

34. Voltage for control grid is supplied by
    A) EHT
    B) Extra applied voltage
    C) Received signals
    D) None of the above

35. An antenna is a device
    A) That converts electromagnetic energy into RF signal
    B) That converts RF signal into electromagnetic energy
    C) That converts guided EM waves into free space EM waves and vice versa
    D) None of these

36. To connect several microphone, PA amplifier system required
    A) Amplifier B) Mixture
    C) Woofer D) Tweeters

37. VHF range is between
    A) 30 – 30000 MHz
    B) 3 – 40 MHz
    C) 30 – 300 MHz
    D) 3 – 300 MHz

38. The two colour different signal is designated as in PAL
    A) X and Y signals
    B) U and V signals
    C) I and Q signals
    D) P and Q signals

39. The Parabolic Dish Antenna (PDA) gain in db_s is
    A) $\log\left[\frac{\pi D}{\lambda}\right]\times\eta$
    B) $\log\left[\frac{\lambda}{\pi D}\right]\times\eta$
    C) $10\log\left[\frac{\pi D}{\lambda}\right]\times\eta$
    D) $10\log\left[\frac{\pi D^2}{\lambda}\right]\times\eta$

40. The material used for making permanent magnet in PMMC is
    A) Aluminium
    B) Alnico
    C) Alloy of iron and aluminium
    D) Iron

41. By using Boolean algebra $A+\overline{A}=$
    A) A
    B) $\overline{A}$
    C) 0
    D) 1

42. The antenna is matched to the RF amplifier by help
    A) transformer
    B) small transmission line
    C) balun
    D) coupled circuit

43. What is the type active component used in electronic tuning ?
    A) Varactor diode
    B) PIN diode
    C) Tunnel diode
    D) Schottky diode

44. LNBC stands for
    A) Low Noise Broadcasting Converter
    B) Low Noise Broadband Converter
    C) Low Noise Blocking Converter
    D) Low Noise Blockdown Converter

45. In the truth table of JK flip-flop, the condition J = K = 1 represents
    A) set B) reset C) toggle D) no change

46. The heart of oscilloscope is
    A) power supply B) vertical amplifier
    C) horizontal amplifier D) cathode ray tube

47. The technique used to generates HV in EHT is
    A) split addition B) split subtraction
    C) multiplexer D) extra multiwinding

48. A bistable circuit used to produce a rectangular output waveform is
    A) Astable B) R-S flip-flop
    C) Schmitt trigger D) Shift register

49. I AM radio receiver, the detection process is done by using
    A) Foster seeley discriminator B) Ratio detector
    C) Diode detector D) Quadrature detector

50. The I.F. (Intermediate Frequency) of F.M. radio receiver is
    A) 10.7 MHz B) 455 KHz C) 33.4 MHz D) 20 KHz

51. The frequency of oscillation of RC phase shift oscillator is
    A) $f = \frac{1}{2\pi\sqrt{RC}}$ B) $f = \frac{1}{2\pi\sqrt{6.RC}}$ C) $f = \frac{1}{2\pi\sqrt{LC}}$ D) $f = \frac{1}{2\pi\sqrt{L_1 + L_2}}$

52. Zener diodes are
    A) forward biased and heavily doped B) reverse biased and heavily doped
    C) forward biased and lightly doped D) reverse biased and lightly doped

53. The ability of a material to hold its magnetism after the magnetising force has been removed

A) Hysteresis
B) Co-ercive force
C) Retentivity
D) Permeability

54. The reciprocal of resistance

A) Permeance
B) Hysteresis
C) Conductance
D) Reluctance

55. SCR has

A) P-N-P-N layers
B) N-P-P-N layers
C) P-P-N-P layers
D) P-N-P-N layers

56. Band II (88-108 MHz) is used for

A) AM radio broadcasting
B) FM radio broadcasting
C) Television broadcasting
D) Defence Communication

57. The basic building block of any counter is

A) AND gate
B) OR gate
C) NAND gate
D) Flip-flop

58. Kirchhoff's voltage law is concerned with

A) IR drops
B) Junction voltages
C) Battery e.m.fs.
D) Both A) and B)

59. Ferrite cores commonly used at high frequencies

A) Increase core losses
B) Decrease core losses
C) Decrease inductance
D) Increase inductance

60. Rating of a battery is usually expressed in

A) Watt-hour
B) Joule
C) Ampere-hour
D) Amperes

61. The average value of an A.C. current wave given by $i = 100 \sin 100 \pi t$ is

A) 70.7
B) 141.4
C) 157
D) 63.7

62. Resonance curve shows the variation of circuit current with

A) Voltage
B) Power
C) Frequency
D) Impedance

63. The time constant of RL circuit is

A) λ = RC seconds

B) $\lambda = \frac{L}{R}$ seconds

C) $T = \frac{1}{RC}$ seconds

D) λ = 63.3% × RC seconds

64. Avalanche breakdown is primarily dependent on the phenomenon of

A) Collision
B) Doping
C) Ionisation
D) Recombination

65. The depletion region of a junction is formed

A) During the manufacturing process
B) When forward bias is applied to it
C) When reverse bias is applied to it
D) When its temperature is reduced

66. The acceptor impurities are

A) Antimony
B) Boron
C) Germanium
D) Carbon

67. Depletion region of P-N junction contains

A) Immobile ions
B) Negatively charged electrons
C) Electrons and holes
D) None of the above

68. Counters can be also used for measurement of

A) Voltage
B) Current
C) Phase relationships
D) Frequency

69. The negative resistance characteristic is in

A) Zener diode
B) Tunnel diode
C) PIN diode
D) LED

70. A coil has $X_L = 1000\,\Omega$. If both its inductance and frequency are doubled, its reactance will becomes

A) 2000 B) 500 C) 250 D) 4000

71. Q-factor of parallel circuit is

A) $Q = \frac{2\pi f_0 L}{R}$ B) $Q = \frac{XL}{R}$ C) $Q = \frac{L}{CR}$ D) $Q = \frac{f_0}{R}$

72. Co-efficient of coupling measured in

A) $M = \sqrt{L_1 L_2}$ B) $K = \frac{M}{\sqrt{L_1 L_2}}$ C) $e = {}^{-}N\frac{d\phi}{dt}$ D) e = Blv

73. A circuit with many inputs but only one output

A) Multiplexer B) Decoder C) Demultiplexer D) Encoder

74. The method of winding of inductor

A) Honey comb B) Toroid

C) Series-opposition D) Both A) and B)

75. One henry =

A) $L = \frac{N\phi}{I}$ B) BIv C) $L_1 + L_2 + 2M$ D) $K\sqrt{L_1 L_2}$

76. The torque which stops the oscillations of the pointer of an instrument is called

A) Controlling torque B) Damping torque

C) Deflection torque D) Spring control

77. A photosensitive resistor is

A) Photovoltaic cell B) Thermistor C) VDR D) LDR

78. Specific gravity is measured by

A) Hydrometer B) Lactometer C) Barometer D) Ammeter

79. The ripple frequency of a full-wave rectifier is

A) 50 Hz B) 100 Hz C) 60 Hz D) 200 Hz

80. A frequency converter stage in radio receiver contains

A) Mixer and local oscillator B) R. F. amplifier and mixer

C) I. F. amplifier and detector D) Mixer

81. Indian Penal Code is not applicable at
A) Goa
B) Jammu and Kashmir
C) Nagaland
D) Mizoram

82. When did Kerala Legislative Assembly passed Malayalam Bhakha bill for promoting and enrich Malayalam language ?
A) 2015 Dec.17
B) 2015 Feb. 21
C) 2016 May 6
D) 2016 June 1

83. Which animal is the symbol of the 'Make in India' initiative ?
A) Bull
B) Tiger
C) Lion
D) None of the above

84. Who was the first Indian President to die in office ?
A) Rajendra Prasad
B) K.R. Narayan
C) Sail Singh
D) Zakir Hussain

85. Which agitation in Kerala is known as the 'Marumarakkal Samaram' ?
A) Attingal revolt
B) Punnapara Vayalar revolt
C) Channar revolt
D) Perinad revolt

86. Who is the Human Resource Development Minister of Union Cabinet ?
A) Prakash Javadekar
B) Venkaiah Naidu
C) Smriti Irani
D) Suresh Prabhu

87. How many organs are in a normal human body ?
A) 76
B) 73
C) 79
D) 70

88. Who is the captain of the Keral team for the Santhosh Trophy Football Tournament 2017 ?
A) P. Usman
B) Vineeth
C) Shafequ
D) I.M. Vijayan

89. Who is known as the Nightingale of India ?
A) Indira Gandhi
B) Mother Theressa
C) Sarojini Naidu
D) Sister Nivithitha

90. Which of the following project studied to ensure integrated development of Children up to 6 years ?
A) ICDS
B) RMSA
C) SSA
D) NSPS

91. Who is known as Kerala Lincoln ?
A) C. Kesevan
B) Pandit Karuppan
C) Ayyankali
D) Dr. Palppu

92. Name the first person nominated from Kerala to Rajya Sabha
A) Sardar K.M. Panikar
B) K.M. Chandy
C) M.M. Jacob
D) A.K. Antony

93. Who is the author of 'A Long Way' ?
A) Indira Gandhi
B) Rajiv Gandhi
C) A.B. Vajpayee
D) P.V. Narasimha Rao

94. Nagaland is also known as
A) Land of festival
B) Land of letters
C) Land of happiness
D) Land of cultural heritage

95. Which Taluk in Kerala have longest sea coastal area ?
A) Kollam
B) Cherthala
C) Kozhikode
D) Kannur

96. Which place is known as 'Gift of Pamba' ?
A) Kuttanad
B) Mennachel
C) Erumali
D) Karuvata

97. Name foreign country issue postal stamp for the sake of Sree Narayana Guru
A) Nepal
B) Sri Lanka
C) China
D) Myanmar

98. Which Indian state have Common Civil Code ?
A) Jammu and Kashmir
B) Mizoram
C) Goa
D) Nagaland

99. Which place is famous for natural sandal wood forest in Kerala ?
A) Chinnar
B) Mangala vanam
C) Vayanad
D) Marauyar

100. In 1936 India start its first National Park in which state ?
A) Uttarakhand
B) Nagaland
C) Himachal Pradesh
D) Mizoram

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Space for Rough Work

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