

A.P - ECET - ECE - 2015 PAPER - SET - A

1. Avalanche breakdown is primarily dependent on the phenomenon of
 - (1) collision
 - (2) recombination
 - (3) dopling
 - (4) ionisation
2. Which of the following device characteristics are very close to constant current source
 - (1) A gas diode
 - (2) A BJT in CB mode
 - (3) A triode
 - (4) A BJT in CE mode
3. For a power supply, the ripple factor is a measure of
 - (1) its voltage regulation
 - (2) its diode rating
 - (3) unwanted power output
 - (4) peak inverse voltage (PIV)
4. An ideal current source has
 - (1) zero internal conductance
 - (2) zero internal resistance
 - (3) zero voltage on no load
 - (4) zero ripple
5. An emitter follower has high input impedance because
 - (1) large emitter resistance is used
 - (2) large biasing resistance is used
 - (3) the emitter-base junction is highly reverse biased
 - (4) there is negative feedback in the base emitter circuit
6. For an RC coupled amplifier, the upper cutoff frequency does not depend upon
 - (1) coupling capacitor
 - (2) biasing
 - (3) emitter bypass capacitor
 - (4) output capacitance of signal source
7. The oscillator which is independent on phase shift is
 - (1) wien bridge
 - (2) hartley
 - (3) relaxation
 - (4) crystal
8. The figure of merit of an Op-Amp differential amplifier is
 - (1) CMRR
 - (2) slew rate
 - (3) bandwidth
 - (4) input bias current
9. The extremely high input impedance of a MOSFET is primarily is
 - (1) absence of its channel
 - (2) depletion of current carriers
 - (3) extremely small leakage current of its gate capacitor
 - (4) Negative V_{GS}

10. A 555 timer based astable multivibrator produces at its output
- (1) symmetrical square waves
 - (2) unsymmetrical square waves
 - (3) symmetrical triangular waves
 - (4) unsymmetrical triangular waves
11. The Wien bridge oscillator is used to generate
- (1) VHF signals
 - (2) UHF signals
 - (3) audio frequency signals
 - (4) medium frequency signals
12. Current feedback connections tend to the output impedance. Voltage feedback connections tend to the output impedance.
- (1) Decrease, increase
 - (2) Increase, increase
 - (3) decrease, decrease
 - (4) increase, decrease
13. Miller's sweep circuit produces type of waveform
- (1) sinusoidal wave
 - (2) positive going ramp
 - (3) square wave
 - (4) negative going ramp
14. A class C amplifier has a tank circuit in the output. The amplifier is conducting only 28° . The output voltage is
- (1) 0V
 - (2) a dc value equal to V_{cc}
 - (3) a sine wave
 - (4) a square wave with a frequency determined by the tank
15. The function of JFET in its equivalent circuit can be represented as a
- (1) voltage controlled current source
 - (2) current controlled current source
 - (3) current controlled voltage source
 - (4) voltage controlled voltage source
16. The rms value of the a-c voltage $v(t) = 200 \sin(314t)$ is
- (1) 200 V
 - (2) 141.42 V
 - (3) 314 V
 - (4) 157.23 V
17. The colour code of a resistor is yellow, violet, orange and gold. The range of values, with a tolerance specified, is between
- (1) $40 \text{ k}\Omega$ and $42.5 \text{ k}\Omega$
 - (2) $43.25 \text{ k}\Omega$ and $45.22 \text{ k}\Omega$
 - (3) $44.65 \text{ }\Omega$ and $49.3 \text{ }\Omega$
 - (4) $44.65 \text{ k}\Omega$ and $49.35 \text{ k}\Omega$
18. A parallel resonance circuit consisting of a resistance of 100 ohms, an inductance of value 1 mH and a capacitance of value 10 nF. Its Q - factor is
- (1) 1
 - (2) 10
 - (3) 100
 - (4) 20π

19. Form factor for a sine wave is
(1) 1.11 (2) 1.414
(3) 0.707 (4) 0.637
20. The skin effect of a conductor reduces with increases in the
(1) Cross section of the conductor (2) Supply frequency
(3) Permeability of the conductor (4) Resistivity of the conductor material
21. The response across the resistor of a series RC circuit to a pulse input for smaller time constant is
(1) Ramp (2) Spikes
(3) Exponential (4) None
22. There is no reflection of the incident wave
(1) The reflection is maximum due to termination
(2) The reflection is maximum due to termination
(3) There are a large number of maximum and minimum on the line
(4) The incident current is zero for any applied signal
23. Which of the following is an example of unipolar device
(1) P - N junction diode (2) Zener diode
(3) Tunnel diode (4) Schottky diode
24. While using ohmmeter, applied voltage is to be disconnected from the circuit because
(1) Voltage source will increase resistance (2) Current will decrease resistance
(3) The ohm meter has its own internal battery (4) It damages the ohm meter
25. In a free running oscilloscope, the horizontal deflection system is driven by which type of wave form
(1) Ramp (2) Step
(3) Impulse (4) DC
26. A megger is an example of
(1) Moving iron type instrument (2) Electro - static type instrument
(3) Hot - wire type instrument (4) Moving coil type instrument
27. An oscilloscope indicates of voltage, when an AC signal is applied
(1) DC value (2) RMS value
(3) Peak to peak value (4) Average value
28. The device used for measurement of an electric current is
(1) Electrometer (2) Galvanometer
(3) Voltmeter (4) Coulometer
29. The pressure coil of a dynamo meter type wattmeter is
(1) Highly inductive (2) Purely resistive
(3) Highly resistive (4) Purely inductive

30. The PIV of the diodes used in centre tapped based full wave rectifier should be (in terms of maximum voltage V_m)
- (1) $> V_m$ (2) $> 2 V_m$
(3) $< 2 V_m$ (4) $< V_m$
31. Hysteresis of an instrument indicates
- (1) The change in the same reading when input is first increased and then decreased
(2) The reliability of the instrument
(3) The repeatability of the instrument
(4) The inaccuracy due to change in temperature
32. Schering bridge is used to measure
- (1) Inductance (2) Frequency
(3) Resistance (4) Capacitance
33. Which of the following instrument can be used for both AC and DC
- (1) PMMC type (2) Induction type
(3) Moving - iron type (4) None of the above
34. After firing an SCR, the gating pulse is removed. The current in the SCR will
- (1) Remains the same (2) Abruptly fall to zero
(3) Increases rapidly (4) Increases a little and then fall to zero
35. A resistor connected across the gate and cathode of an SCR in a circuit increases its
- (1) dv/dt rating (2) Holding current
(3) Turn - off time (4) Noise immunity
36. Frequency of ON and OFF of a chopper depends on
- (1) The applied voltage (2) The type of chopper
(3) The load current (4) Initial conditions of the circuit
37. A Cycloconverter is a device which
- (1) Measures the frequency of A.C mains
(2) Converts A.C to D.C
(3) Converts D.C to A.C
(4) Converts A.C of one frequency into A.C to some other frequency
38. LVDT is which type of transducer
- (1) Magnetostriction (2) Inductive
(3) Displacement (4) Resistive
39. A strain gauge converts
- (1) Pressure into a change of resistance
(2) Force into a displacement
(3) Pressure into displacement
(4) Mechanical displacement into a change of resistance

40. Which one of the following is an example of photo emissive cell
- (1) LDR
 - (2) Photo diode
 - (3) Photo transistor
 - (4) Photo multiplier
41. Which among the following power supplies will be most energy - efficient if operated under wide input voltage variation and at full load
- (1) Linear power supply
 - (2) Switched mode power supply
 - (3) Switched mode followed by linear power supply
 - (4) Linear followed by switched mode power supply
42. The purpose of compensation for a thermocouple is
- (1) To increase the voltage
 - (2) To cancel unwanted voltage output of a thermo couple
 - (3) To decrease temperature sensivity
 - (4) Used for high - temperature circuits
43. Puled - echo ultrasonic method of flaw detertion is also known as method of flaw direction
- (1) Shadow
 - (2) Piezoelectric
 - (3) Reflection
 - (4) Transmission
44. An analog signal is band - limited to 4 kHz, sampled at the Nyquist rate and the samples are quantized into 4 levles. The quantized levels are assumed to be independent and equally probale. If two quantized samples per second are transmitted, the information is bits/second
- (1) 4
 - (2) 1
 - (3) 2
 - (4) 3
45. A 400 W carrier is amplitude modulated with $m = 0.75$. The total power in AM is
- (1) 400 W
 - (2) 512 W
 - (3) 588 W
 - (4) 650 W
46. Assuming zero initial condition, the response $y(t)$ of the integrator at a unit step input $u(t)$ is
- (1) $u(t)$
 - (2) $t^2 / 2 u(t)$
 - (3) $e^t u(t)$
 - (4) $t^* u(t)$
47. Which of the following types of noise is significant at high frequencies
- (1) Transmit time noise
 - (2) Shot noise
 - (3) Impulse noise
 - (4) Rando:n noise
48. In transistor radio receivers, the number of IF amplifier stages are
- (1) 1
 - (2) 4
 - (3) 2
 - (4) 6

49. A source $v_s(t) = \cos(100\pi t)$ has an internal impedance of $(4 + j3) \Omega$. If a purely resistive load connected to this source has to extract the maximum power out of the source, its value in Ω should be
- (1) 3 (2) 4
(3) 5 (4) 7
50. An important impairment to digital signals in a communication system is the irregularities in timing caused by imperfections in clock extraction and waveform regeneration. This effect is known as
- (1) Aliasing (2) Fading
(3) Attenuation (4) Jitter
51. Time synchronization is necessary in
- (1) FDM (2) TDM
(3) WDM (4) Quadrature multiplexing
52. VSB modulation is preferred TV because
- (1) It reduces the bandwidth requirement to half
(2) It avoids phase distortion at low frequencies
(3) It results in better reception
(4) It increases the bandwidth
53. Which of the following is taken as reference antenna for directive gain
- (1) Half wave dipole (2) Elementary doublet
(3) Isotropic (4) Infinitesimal dipole
54. Waveguides are used mainly for microwave signals because
- (1) They depend on straight - line propagation
(2) Losses would be too heavy at lower frequencies
(3) There are no generators powerful enough to excite them at low frequency
(4) They would be too bulky at low frequency
55. The reflection coefficient on a line is $0.25 \angle 45^\circ$. The SWR is
- (1) 0.8 (2) 1.5
(3) 1.45 (4) 1.67
56. The action of backward wave oscillator is similar to that of
- (1) PIN diode (2) Multivavity Klystron amplifier
(2) Magnetron (4) Parametric amplifier
57. A microwave junction is matched at all ports if the matrix
- (1) Has all diagonal elements zero (2) Has all diagonal elements equal but not zero
(3) Has all diagonal elements complex (4) is hermitian
58. Which of the following is not used as a microwave mixer or detector
- (1) Crystal diode (2) PIN diode
(3) Schottky barrier diode (4) Backward diode

59. In a loss less line the propagation constant is equal to
- (1) \sqrt{LC}
 - (2) $j\omega LC$
 - (3) $j\omega\sqrt{LC}$
 - (4) LC
60. An isotropic source of a radiation is one that
- (1) Absorbs all radiations
 - (2) Does not absorb radiations
 - (3) Changes the direction of radiations
 - (4) Radiates uniformly in all directions in space
61. The frequency range of x-band is
- (1) 2–4 GHz
 - (2) 8–12 GHz
 - (3) 18–26 GHz
 - (4) 4–8 GHz
62. Shannon's law relates
- (1) Antenna gain to band width
 - (2) Frequency to antenna gain
 - (3) Antenna gain to transmission losses
 - (4) Information carrying capacity to S/N ratio
63. Which antenna is used for sending back signals from satellite to earth
- (1) Parabolic antenna
 - (2) Dipole antenna
 - (3) Yagi antenna
 - (4) Areal antenna
64. Transmission bandwidth for satellite system least depends on
- (1) Ionospheric characteristics
 - (2) Modulation method
 - (3) Overall costs
 - (4) Available technology
65. The main advantage of satellite communication is
- (1) Low cost
 - (2) High distortion
 - (3) High reliability
 - (4) Low bandwidth
66. Kepler's first law states that
- (1) The path followed by a satellite around the primary will be an ellipse
 - (2) The path followed by a satellite around the primary will be a circle
 - (3) The path followed by a satellite around the primary will be a sphere
 - (4) The path followed by satellite is rectangular
67. Which one of the following is a tracking radar
- (1) Monostatic radar
 - (2) Bistatic radar
 - (3) Monopulse radar
 - (4) Secondary surveillance radar
68. Channel spacing in advanced mobile phone system is
- (1) 60 KHz
 - (2) 30 KHz
 - (3) 10 KHz
 - (4) 25 KHz
69. Which modulation scheme is used in GSM
- (1) BPSK
 - (2) QPSK
 - (3) OQPSK
 - (4) GMSK


70. A dynamic RAM can be constructed using
(1) 6 transistors (2) 1 transistor and 1 capacitor
(3) 2 transistor and 2 capacitors (4) 2 capacitor only
71. How many flip-flops are required to generate 31 length data using linear feedback shift register
(1) 2 (2) 3
(3) 4 (4) 5
72. The purpose of sample - and - hold circuits in analog-to digital converters (ADCs) is to
(1) Sample and hold the output of the binary counter during the conversion process
(2) Stabilize the comparator's threshold voltage during the conversion process
(3) Stabilize the input analog signal during the conversion process
(4) Sample and hold the D/A converter staircase waveform during the conversion process
73. The primary disadvantage of the flash analog-to digital converter (ADC) is that
(1) A large number of output lines are required to simultaneously decode the input voltage
(2) It requires the input voltage to be applied to the inputs simultaneously
(3) A long conversion time is required
(4) A large number of comparators are required to represent a reasonable sized binary number
74. Which one of the following nonvolatile type of memory that can be programmed and erased in sectors than one byte at a time
(1) MPROM (2) Flash memory
(3) EEPROM (4) EPROM
75. Synchronous counters eliminate the delay problems encountered with asynchronous (ripple) counters because the input clock pulses are
(1) Applied simultaneously to each stage (2) Applied only to the first and last stage
(3) Applied only to the last stage (4) Not used to activate any of the counter stages
76. Which of the following ICs acts as inverter
(1) IC 7404 (2) IC 7432
(3) IC 740 (4) IC 748
77. Which of the following describes the operation of a positive edge-triggered D-type flip-flop
(1) When both inputs are LOW, an invalid state exists
(2) The outputs will follow the input on the leading edge of the clock
(3) If both inputs are HIGH, the output will toggle
(4) The input is toggled into the flip-flop on the leading edge of the clock and is passed to the output on the trailing edge of the clock
78. The range of an 8-bit two's complement word is from
(1) $+128_{10}$ to -128_{10} (2) $+128_{10}$ to -127_{10}
(3) -128_{10} to $+127_{10}$ (4) $+127_{10}$ to $+127_{10}$

79. When a CPU is interrupted, it
- (1) Stops execution of instructions
 - (2) Acknowledges interrupt and continues
 - (3) Acknowledges interrupt and waits for the next instruction from the interrupting device
 - (4) Acknowledges interrupt and branches of subroutine
80. When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected
- (1) PSW
 - (2) SP
 - (3) DPTR
 - (4) PC
81. How many bytes of bit addressable memory is present in 8051 based microcontrollers
- (1) 8 bytes
 - (2) 32 bytes
 - (3) 16 bytes
 - (4) 128 bytes
82. Which addressing mode is used pushing or popping any element on or from the stack
- (1) Immediate
 - (2) Direct
 - (3) Indirect
 - (4) Register
83. Which of the following instruction represents the indexed addressing mode
- (1) MOVX A, @DPTR
 - (2) MOV A, R0
 - (3) MOV @R0, A
 - (4) MOVC @A+DPTR, A
84. In 8257 DMA, each of the four channels has
- (1) A pair of two 8-bit registers
 - (2) An 8-bit register
 - (3) A pair of two 8-bit registers
 - (4) One 16-bit register
85. The symbol, 'addr 16' represents the 16-bits address which is used by the instructions to specify the
- (1) Destination address of CALL
 - (2) Source address of JUMP
 - (3) Source address of call or jump
 - (4) Destination address of call or jump
86. Programmable peripheral input-output port is other name for
- (1) Serial input-output port
 - (2) Parallel input-output port
 - (3) Serial input port
 - (4) Parallel output port
87. For 8086 microprocessor, the stack segment may have a memory block of a maximum of
- (1) 64 K bytes
 - (2) 32K bytes
 - (3) 16K bytes
 - (4) 8K bytes
88. The reason for using MOVX instruction used to access the port of the 8255 is
- (1) Because 8255 is used to access the memory mapped I/O
 - (2) Because 8255 is used to access the external communication
 - (3) Because 8255 is used to access the data transfer
 - (4) Because 8255 is used to access the interfacing of LCD, motor etc.

89. Which of the following represents secondary colours
(1) Red, Green, Blue (2) Red, Cyan, Yellow
(3) Cyan, Yellow, Magenta (4) Magenta, Cyan, Green
90. Which one of the following camera tubes is based on photo emissive principle
(1) Vidicon (2) Saticon
(3) Image orthicon (4) Newvicon
91. A television (TV) transmission is an example of which type of transmission
(1) Simplex (2) Half duplex
(3) Full duplex (4) Full-full duplex
92. Which of the following camera tube uses lead oxide (pbo) for the photo-conductive target plate
(1) Vidicon (2) Saticon
(3) Image othicon (4) Plumicon
93. The field rate in the NTSC television system is
(1) 30 Hz (2) 120 Hz
(3) 90 Hz (4) 60 Hz
94. The bit rate for digital television depends very much on the
(1) Information format (2) Picture format
(3) Voice format (4) None of these
95. _____ is the process of converting digital data to a digital signal
(1) Block coding (2) Line coding
(3) Scrambling (4) Source coding
96. Which of the following encoding has a transition at the beginning of each '0' bit
(1) Differential manchester (2) Manchester
(3) RZ (4) Polar-RZ
97. The data rate of original IEEE 802.11 is _____ Mbps
(1) 11 (2) 22
(3) 6 (4) 1
98. Which of the following topology requires multipoint connection
(1) star (2) Mesh
(3) Bus (4) Ring
99. ATM standard defines how many layers
(1) 2 (2) 3
(3) 4 (4) 5
100. A CDMA signal is transmitted at a chip rate of 3.84 M chips/sec with a processing gain of 16. Then the bit rate is
(1) 3840 Kbps (2) 6144 Kbps
(3) 240 Kbps (4) 256 Kbps

KEY

1) 2	2) 2	3) 3	4) 1	5) 4	6) 2	7) 3	8) 1	9) 1	10) 2
11) 3	12) 4	13) 4	14) 3	15) 1	16) 2	17) 4	18) 1	19) 1	20) 2
21) 2	22) 1	23) 4	24) 3	25) 1	26) 4	27) 3	28) 2	29) 2	30) 2
31) 1	32) 4	33) 3	34) 1	35) 4	36) 2	37) 4	38) 3	39) 4	40) 1
41) 2	42) 2	43) 3	44) 1	45) 2	46) 4	47) 1	48) 3	49) 3	50) 4
51) 2	52) 1	53) 3	54) 4	55) 4	56) 3	57) 1	58) 2	59) 3	60) 4
61) 2	62) 4	63) 1	64) 1	65) 3	66) 1	67) 3	68) 2	69) 4	70) 2
71) 4	72) 3	73) 4	74) 2	75) 1	76) 1	77) 2	78) 3	79) 4	80) 1
81) 3	82) 3	83) 4	84) 3	85) 4	86) 2	87) 1	88) 1	89) 3	90) 3
91) 1	92) 4	93) 4	94) 2	95) 2	96) 1	97) 4	98) 3	99) 2	100) 3


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