# Answer Key :Electronics & Communication Engg.

**Type: Electronics & Communication Engg.**

## 1) In register index addressing mode, the effective address is given by

**Options:**

- 1.the index register value.
- 2.the sum of the index register value and the operand.
- 3.the operand.
- 4.the difference of the index register value and the operand.

**Correct Option:** 1

**Type: Electronics & Communication Engg.**

## 2) If fixed positive charges are present in the gate oxide of an n-channel enhancement type MOSFET, it will lead to

**Options:**

- 1.a decrease in the threshold voltage
- 2.channel length modulation
- 3.an increase in substrate leakage current
- 4.an increase in accumulation capacitance

**Correct Option:** 1

**Type: Electronics & Communication Engg.**

## 3) An npn bipolar junction transistor (BJT) is operating in the active region. If the reverse bias across the base-collector junction is increased, then

**Options:**

- 1.the effective base width increases and common emitter current gain increases
- 2.the effective base width increases and common emitter current gain decreases
- 3.the effective base width decreases and common emitter current gain increases
- 4.the effective base width decreases and common emitter current gain decreases

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

**4) In a p-n junction diode at equilibrium, which one of the following statements is NOT TRUE?**

**Options:**

- 1.The hole and electron diffusion current components are in the same direction.
- 2.The hole and electron drift current components are in the same direction.
- 3.On an average, holes and electrons drift in opposite direction.
- 4.On an average, electrons drift and diffuse in the same direction.

**Correct Option:** 4

**Type: Electronics & Communication Engg.**

**5) Two identical FETs, each characterized by the parameters gm and rd, are connected in parallel. The composite FET is then characterized by the parameters.**

**Options:**

- 1.gm/2 and and 2rd
- 2.gm/2 and rd /2
- 3.2gm and rd /2
- 4.2gm and 2rd

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

**6) Choose the correct match for input resistance of various amplifier configurations shown below: Configuration Input resistance CB: Common Base LO: Low CC: Common Collector MO: Moderate CE: Common Emitter HI: High**

**Options:**

- 1.CB−LO, CC−MO, CE−HI
- 2.CB−LO, CC−HI, CE−MO
- 3.CB−MO, CC−HI, CE−LO
- 4.CB−HI, CC−LO, CE−MO

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 7) If the emitter resistance in a common-emitter voltage amplifier is not bypassed, it will

**Options:**

- 1.reduce both the voltage gain and the input impedance.
- 2.reduce the voltage gain and increase the input impedance.
- 3.increase the voltage gain and reduce the input impedance.
- 4.increase both the voltage gain and the input impedance.

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 8) Convolution of x(t + 5) with impulse function δ(t - 7) is equal to

**Options:**

- 1. x(t - 12)
- 2.x(t - 12)
- 3.x(t - 2)
- 4.x(t + 2)

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

## 9) For a parallel RLC circuit which one of the following statements is NOT correct?

**Options:**

- 1.The bandwidth of the circuit decreases if R is increased
- 2.The bandwidth of the circuit remains same if L is increased
- 3.At resonance, input impedance is a real quantity.
- 4.At resonance, the magnitude of input impedance attains its minimum value

**Correct Option:** 4

**Type: Electronics & Communication Engg.**

## 10) The average power delivered to an impedance (4 - j3)Ω by a current 5 cos (100 πt + 100) A is

**Options:**

- 1.44.2 W
- 2.50W
- 3.62.5 W
- 4.125 W

**Correct Option:** 2

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**Type: Electronics & Communication Engg.**

**11) The impulse response h[n] of a linear time-invariant system is given by h[n] = u[n + 3] + u[n − 2] − 2u[n − 7] where u[n] is the unit step sequence. The above system is**

**Options:**

- 1.Stable but not causal
- 2.Stable and causal
- 3.Causal but unstable
- 4.Unstable and not causal

**Correct Option:** 1

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**Type: Electronics & Communication Engg.**

**12) Which of the following signals is non-periodic?**

**Options:**

- 1. s(t) = cos 2t + cos 3t + cos 5t
- 2.s(t) = exp ( j8πt)
- 3.s(t) = exp (−7t) sin 10πt
- 4.s(t) = cos 2t cos 4t

**Correct Option:** 3

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**Type: Electronics & Communication Engg.**

**13) An electric field on a plane is described by its potential V = 20(r^−1 + r^−2) where r is the distance from the source. The field is due to**

**Options:**

- 1.a monopole
- 2.a dipole
- 3.both a monopole and a dipole
- 4.) a quadrupole

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

**14) For static electric and magnetic fields in an inhomogeneous source-free medium, which of the following represents the correct form of two of Maxwell's equations?**

**Options:**

- 1.$\nabla \cdot E = 0, \nabla \times B = 0$
- 2.$\nabla \cdot E = 0, \nabla \cdot B = 0$
- 3.$\nabla \times E = 0, \nabla \times B = 0$
- 4.$\nabla \times E = 0, \nabla \cdot B = 0$

**Correct Option:** 4

**Type: Electronics & Communication Engg.**

**15) An AM signal is detected using an envelope detector. The carrier frequency and modulating signal frequency are 1 MHz and 2 kHz, respectively. An appropriate value for the time constant of the envelope detector is**

**Options:**

- 1.500 μ sec
- 2.20 μ sec
- 3.0.2 μ sec
- 4.1 μ sec

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

**16) Which of the following analogue modulation scheme requires the minimum transmitted power and minimum channel band-width?**

**Options:**

- 1.VSB
- 2.DSB-SC
- 3.SSB
- 4.AM

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

## 17) The Nyquist plot of a loop transfer function G(jω)H(jω) of a system encloses the (1 -, j0) point. The gain margin of the system is

**Options:**

- 1. less than zero
- 2.zero
- 3.greater than zero
- 4.infinity

**Correct Option:** 1

**Type: Electronics & Communication Engg.**

## 18) 4-bit 2's complement representation of a decimal number is 1000. The number is

**Options:**

- 1.8
- 2.0
- 3.-7
- 4.-8

**Correct Option:** 4

**Type: Electronics & Communication Engg.**

## 19) The gain of a bipolar transistor drops at high frequencies. This is due to

**Options:**

- 1.Coupling and bypass capacitors
- 2.Early effect
- 3. Inter-electrode transistor capacitances
- 4.The fact that reactance becomes high

**Correct Option:** 3

**Type: Electronics & Communication Engg.**

## 20) In tunnel diode, the Fermi level lies

**Options:**

- 1. in the energy band gap but above valence band of p-type and below conduction band of n-type semiconductors.
- 2.inside valance band of p-type and inside conduction band of n-type semiconductors
- 3.in the energy band gap but closer to conduction band of n-type semiconductors
- 4.in the energy band gap but closer to valence band of p-type semiconductors

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 21) If (1235)x=(3033) y where x and y indicate bases of the corresponding numbers, then

**Options:**

- 1. x = 7 and y = 5
- 2.x = 8 and y = 6
- 3.x = 6 and y = 4
- 4.x = 9 and y = 7

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 22) Which one of the following mid-band frequency of IF section is used in FM radio

**Options:**

- 1.10.7MHz
- 2.100.7MHz
- 3.0.455MHz
- 4.455MHz

**Correct Option:** 1

**Type: Electronics & Communication Engg.**

## 23) For an n-variable Boolean function, the maximum number of prime implicants is

**Options:**

- $1.2(n - 1)$
- 2.n/2
- 3.2n
- 4.2(n-1)

**Correct Option:** 4

**Type: Electronics & Communication Engg.**

## 24) The Boolean function A + BC is a reduced form of

**Options:**

- 1.AB + BC
- 2.(A + B) . (A + C)
- 3.(A + C)· B
- 4.None of these

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 25) The bit rate of a digital communication system is R Kbits/sec. The modulation used is 32-QAM. The minimum band width for inter symbol interference free transmission is

**Options:**

- 1.R/10 Hz
- 2.R/10 kHz
- 3.R/5 kHz
- 4.R/5 Hz

**Correct Option:** 2

**Type: Electronics & Communication Engg.**

## 26) If the number of bits per sample in a PCM system is increased from a n to n + 1, the improvement in signal to quantization nose ratio will be

**Options:**

- 1.6 dB
- 2.3 dB
- 3.2 dB
- 4.2n dB

**Correct Option:** 1

**Type: Electronics & Communication Engg.**

## 27) The VSWR can have any value between

Options:

- 1.0 and 1
- 2.– 1 and + 1
- 3.0 and ∞
- 4.1 and ∞

**Correct Option:** 4

Type: Electronics & Communication Engg.

## 28) The magnitudes of the open-circuit and short-circuit input impedances of a transmission line are 100 Ω and 25 Ω respectively. The characteristic impedance of the line is,

Options:

- 1.25 Ω
- 2.50 Ω
- 3.100 Ω
- 4.75 Ω

**Correct Option:** 2

Type: Electronics & Communication Engg.

## 29) The number of roots of s^3 + 5s^2 + 7s + 3 = 0 in the left half of the s-plane is

Options:

- 1.Zero
- 2.One
- 3.Two
- 4.Three

**Correct Option:** 4

Type: Electronics & Communication Engg.

## 30) An ideal op-amp is an ideal

Options:

- 1.Voltage controlled current source
- 2.Voltage controlled voltage source
- 3.Current controlled current source
- 4.Current controlled voltage source

**Correct Option:** 2

**Type: Common**

**31) Which one of the following belongs to the category of homogeneous data**

**Options:**

- 1.Multi-storeyed houses in a colony
- 2.Trees in a garden
- 3.Vehicular traffic on a highway
- 4.Student population in a class

**Correct Option:** 1

**Type: Common**

**32) Following incomplete series is presented. Find out the number which should come at the place of question mark which will complete the series 4, 16, 36, 64,?**

**Options:**

- 1.200
- 2.300
- 3.100
- 4.150

**Correct Option:** 3

**Type: Common**

**33) In the absence of covariance among securities in the portfolio, if each security has an average standard deviation of 20%, the portfolio of 100 securities would have a standard deviation of**

**Options:**

- 1.0.02
- 2.0.2
- 3.0.05
- 4.Zero

**Correct Option:** 1

**Type: Common**

**34) In a certain code, 'bi nie pie' means 'some good jokes', 'nie bat lik' means 'some real stories', and 'pie lik tol' means 'many good stories'. Which word in that code means 'jokes'?**

Options:

- 1.bi
- 2.nie
- 3.pie
- 4.None of the above

**Correct Option:** 1

**Type: Common**

**35) 'Demonstrator' is related to 'Laboratory' in the same way as 'Leader' is related to**

Options:

- 1.Podium
- 2.Assembly
- 3.Country
- 4.State

**Correct Option:** 2

**Type: Common**

**36) A variable that is presumed to cause a change in another variable is called**

Options:

- 1.A categorical variable
- 2.A dependent variable
- 3.An independent variable
- 4.An intervening variable

**Correct Option:** 3

**Type: Common**

**37) The research design is**

**Options:**

- 1.A common method adopted by all researchers to carry out research
- 2.The final choice between using qualitative or quantitative methods.
- 3.Presentation of research findings
- 4.A framework for every stage of the data collection and its analysis

**Correct Option:** 4

**Type: Common**

**38) A technique of building up a list or a sample of a special population by using an initial set of members as informants is called**

**Options:**

- 1.Quota sampling
- 2.Convenience sampling
- 3.Snowball sampling,
- 4.Purposive sampling

**Correct Option:** 3

**Type: Common**

**39) In the context of Data Mining, which one of the following is a method of Data Reduction?**

**Options:**

- 1.Data Compression
- 2.Multiple Regression
- 3.Normalization
- 4.Outlier Analysis

**Correct Option:** 1

**Type: Common**

**40) A hypothesis can be described as**

**Options:**

- 1.Just as a hunch
- 2.A wild guess
- 3.A type of statement made by researchers when they are attempting to get funding for their research

- 4. A prediction of some sort regarding the possible outcomes of a study

**Correct Option:** 4

**Type: Common**

## 41) Which scheme on performance and credit rating has been launched by Union MSME Ministry to assess the credit worthiness and capabilities of industries in the sector?

**Options:**

- 1.Zero Defect Scheme
- 2.Certification Performance and Economy Rating Scheme
- 3.Performance and Credit Rating Scheme
- 4.Industrial Incentive Scheme

**Correct Option:** 3

**Type: Common**

## 42) Interlocking of two or more types of food chains at different trophic levels is called

**Options:**

- 1.Food chain
- 2.Food web
- 3.Succession
- 4.Ecological pyramid

**Correct Option:** 2

**Type: Common**

## 43) A by-product of fossil fuel combustion is carbon dioxide. Which of the following is the cleanest with respect to the release of carbon dioxide?

**Options:**

- 1.Coal
- 2.Oil
- 3.Wood
- 4.Natural gas

**Correct Option:** 4

**Type: Common**

## 44) Maintaining balance between fulfilment of human needs and protection of environment is termed as

**Options:**

- 1.Environmental development
- 2.Sustainable development
- 3.Economic development
- 4.None of the above

**Correct Option:** 2

**Type: Common**

## 45) Identify the main Principle on which the Parliamentary System operates.

**Options:**

- 1.Responsibility of Executive to Legislature
- 2.Supremacy of Parliament
- 3.Supremacy of Judiciary
- 4.Theory of Separation of Power

**Correct Option:** 1

**Type: Common**

## 46) A 280 m train is moving at a speed of 80 kmph. How much time will it take to pass a bridge that is 120 m long?

**Options:**

- 1.30 s
- 2.32 s
- 3.18 s
- 4.40 s

**Correct Option:** 3

**Type: Common**

**47) A, B, C, D and E are sitting on a bench. A is sitting next to B; C is sitting next to D, and D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?**

Options:

- 1.Between B and D
- 2.Between B and C
- 3.Between E and D
- 4.Between C and E

**Correct Option:** 2

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**Type: Common**

**48) If all the letters in the word 'ARGUMENT' are rearranged in alphabetical order and substituted by the letter immediately following it in English alphabet, then what will be the new arrangement of letters?**

Options:

- 1.BFHNOSUV
- 2.BFHONSWV
- 3.BFHNOUSV
- 4.BFHNOQUV

**Correct Option:** 1

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**Type: Common**

**49) Find the odd pair of words**

Options:

- 1.Room : House
- 2.Atom : Electron
- 3.Car : Engine
- 4.Milk : Water

**Correct Option:** 1

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**Type: Common**

**50) Vinita, who is the sister-in-law of Amit, is the daughter-in-law of Kamni. Deepak is the father of Sandy who is the**

**only brother of Amit. How is Kalyani related to Ashok?**

**Options:**

- 1.Mother-in-law
- 2.Aunt
- 3.Wife
- 4.None of the above

**Correct Option:** 4

**only brother of Amit. How is Kalyani related to Ashok?**

**Options:**

- 1.Mother-in-law
- 2.Aunt
- 3.Wife
- 4.None of the above