

**Objective Paper-II-2012**

1. For a memory system, the cycle time is
  - (A) Same as the access time
  - (B) Larger than the access time
  - (C) Shorter than the access time
  - (D) Sub-multiple of the access time
  
2. When referring to instruction words, mnemonic is
  - (A) A short abbreviation for the operand address
  - (B) A short abbreviation for the operation to be performed
  - (C) A short abbreviation for the data word stored at the operand address
  - (D) Shorthand for machine language
  
3. The instruction PCHL in 8085 is used for
  - (A) Load PC with contents of HL
  - (B) Load HL with contents of memory location pointed by PC
  - (C) Load HL with contents of PC
  - (D) Load PC with the contents of memory location pointed by HL pair
  
4. An 8085 microprocessor based system uses a 4K x 8-bit RAM whose starting address is AA00H. The address of the last byte in this RAM is
  - (A) 0FFFH
  - (B) 1000H
  - (C) B9FFH
  - (D) BA00H
  
5. The following is not true for RS232 standard:
  - (A) It establishes the way data is coded
  - (B) It defines signal voltage levels
  - (C) Does not decide data transmission rate
  - (D) It defines standard connector configurations
  
6. In case of dynamic memory the wrong statement is?
  - (A) Contents tend to decay over a period of time
  - (B) Contents are retained without distortion
  - (C) Power consumption is low
  - (D) The speed is low as compared to static memory
  
7. How many initialization Command Words are essential if 8259 is used in single chip with special fully nested mode configuration?
  - (A) 2
  - (B) 3
  - (C) 4
  - (D) 1
  
8. Number of address lines necessary to connect 8k memory chip is
  - (A) 10
  - (B) 11
  - (C) 12
  - (D) 13
  
9. In double sideband suppressed carrier modulation, the modulated wave undergoes phase reversal, whenever
  - (A) Modulating signal's amplitude decreases
  - (B) Modulating signal's amplitude increases
  - (C) Modulating signal crosses zero
  - (D) Carrier signal crosses zero

10. One of the main functions of RF stage amplifier in Super Heterodyne Radio Receiver is to  
(A) Provide improved tracking  
(B) Permit better adjacent channel rejection  
(C) Increase tuning range of the receiver  
(D) Improve rejection of image frequency
11. Good voice reproduction via PCM requires 128 quantization levels. If bandwidth of voice channel is 4 kHz, then data rate is  
(A) 250 kbps                      (B) 128 kbps                      (C) 56 kbps                      (D) 28 kbps
12. All types of linear modulation can be detected by  
(A) Product demodulator                      (B) Envelop detector  
(C) Filtering                      (D) Linear detector
13. Bandwidth occupied by 100 MHz carrier, AM modulated by signal frequency of 10 kHz is  
(A) 100 MHz                      (B) 20 kHz                      (C) 10 kHz                      (D) 110 MHz
14. The maximum deviation allowed in a frequency modulation system is 100 kHz; the modulating signal frequency is 10 kHz. The bandwidth requirement as per Carson's rule will be  
(A) 220 kHz                      (B) 110 kHz                      (C) 120 kHz                      (D) 210 kHz
15. A binary data is to be sent at the rate of 100 kbps over a channel with 60 dB transmission loss and noise power spectral density  $N_o = 10^{-12}$  W/Hz at the receiver. The digital modulation system that will require minimal transmitted power if probability of error is to be maintained at  $10^{-3}$  is  
(A) Non – coherent ASK                      (B) Coherent BFSK  
(C) BPSK                      (D) 16 – array
16. The type of noise reduced by limiters in FM receivers is  
(A) Avalanche noise                      (B) Burst noise  
(C) Narrow band – pass noise                      (D) Impulse noise
17. A binary channel with capacity 36 kbps is available for PCM transmission. If signal is band limited to 3.2 kHz, then approximate values of quantizing levels (L) and sampling frequency ( $f_s$ ) respectively are  
(A) 32 and 3.6 kHz                      (B) 64 and 7.2 kHz  
(C) 64 and 3.6 kHz                      (D) 32 and 7.2 kHz
18. The following events will not happen when quantizing noise is decreased in PCM :  
(A) Increase in the number of standard levels  
(B) Increase in bandwidth  
(C) Decrease in channel noise  
(D) Decrease in randomness due to difference in digit sent and actual signal at an instant
19. In a super – heterodyne receiver, the frequency of local oscillator is  
(A) Half that of incoming signal  
(B) Slightly less than that of incoming signal  
(C) Higher than that of incoming signal  
(D) Equal to that of incoming signal

20. Digital modulating system among the following is  
(A) PPM (B) PCM (C) PWM (D) PFM
21. Among the following pairs, the one not correctly matched is  
(A) UJT – Intrinsic stand-off ratio (B) FET – Pinch-off voltage  
(C) TRIAC – Breakdown voltage (D) DIAC – Firing voltage
22. A current source inverter is obtained by inserting a large  
(A) Inductance in series with dc supply  
(B) Capacitance in parallel with dc supply  
(C) Inductance in parallel with dc supply  
(D) Capacitance in series with dc supply
23. A voltage source inverter (VSI) is normally employed when  
(A) Source inductance is large and load inductance is small  
(B) Source inductance is small and load inductance is large  
(C) Both source inductance and load inductance are small  
(D) Both source inductance and load inductance are large
24. A single – phase ac regulator fed from 50 Hz supply feeds a load having  $4\Omega$  resistance and  $12 : 73$  mH inductance. The control range of firing angle will be  
(A)  $0^\circ$  to  $180^\circ$  (B)  $45^\circ$  to  $180^\circ$  (C)  $90^\circ$  to  $180^\circ$  (D)  $0^\circ$  to  $45^\circ$
25. A single – phase two pulse converter feeds an R – L load with insufficient smoothing but the conduction is continuous. If the resistance of the load circuit is increased, then  
(A) The ripple content of the load current will remain the same  
(B) The ripple content of the load current will decrease  
(C) The ripple content of the load current will increase  
(D) There is possibility of discontinuous conduction due to an increase in the ripple Content
26. A three – phase semi – converter feeds the armature of a separately excited dc motor supplying a non – zero load torque. For steady state operation the motor current is found to assume zero value at certain instances of time. At such instances the armature voltage.  
(A) Is equal to the instantaneous value of ac voltage  
(B) Is equal to the instantaneous value of motor back emf  
(C) Assumes an arbitrary value  
(D) Becomes zero
27. In a three–phase semi–converter, if firing angle is less than or equal to  $60^\circ$ , then the duration of conduction of each thyristor and diode would be respectively  
(A)  $60^\circ$  to  $60^\circ$  (B)  $90^\circ$  to  $30^\circ$  (C)  $120^\circ$  to  $120^\circ$  (D)  $180^\circ$  to  $180^\circ$
28. A dc source of 100 volts supplies a purely inductive load of 0.1 H; the controller is an SCR in series with source and load. If the specified latching current is 100 mA, then the minimum width of the gating pulse to ensure turn – on of SCR would be  
(A)  $10\mu\text{s}$  (B)  $50\mu\text{s}$  (C)  $100\mu\text{s}$  (D)  $1\mu\text{s}$

29. In forward-bias portion of the thyristors I-V characteristic, the number of stable operating regions is  
 (A) One (B) Two (C) Three (D) None
30. An SCR triggered by a current pulse applied to the gate-cathode can be turned off  
 (A) By applying a pulse to the cathode  
 (B) By applying a pulse to the anode  
 (C) By applying another pulse of opposite polarity to the gate - cathode  
 (D) By reversing the polarity of the anode and cathode voltage
31. When a thyristor is in the forward blocking state, then  
 (A) All 3 junctions are reverse biased  
 (B) Anode and cathode junctions are forward biased but gate junction is reverse biased  
 (C) Anode junction is forward biased but other two are reverse biased  
 (D) Anode and gate junctions are forward biased but cathode is reverse biased
32. A thyristor has a PIV of 650 V. The voltage safety factor is 2. Then the voltage up to which the device can be operated is given by  
 (A) 1300 V (B) 650 V (C) 325 V (D) 230 V
33. If  $n$  is the number of electrons per unit volume of the semiconductor and  $v_d$  is the drift velocity of the electrons, then the current flowing through a semi-conductor is given by  
 (A)  $i = \frac{n}{v_d}$  (B)  $i = nv_d$  (C)  $i = \frac{v_d}{n}$  (D)  $i = nv_d^{1/2}$
34. The following is a unipolar device:  
 (A) BJT (B) IGBT (C) GTO (D) MOSFET
35. Match List I (Device) with List II (Switching Time) and select the correct answer using the code given below the lists:

List-I (DEVICE)	List-II (SWITCHING TIME)
a. TRIAC	1. 5 – 10 $\mu$ s
b. SCR	2. 100 – 400 $\mu$ s
c. MOSFET	3. 50 – 100 $\mu$ s
d. IGBT	4. 200 – 400 $\mu$ s

- (A) a(4), b(3), c(2), d(1) (B) a(1), b(2), c(3), d(4)  
 (C) a(4), b(2), c(3), d(1) (D) a(1), b(3), c(2), d(4)
36. In time division multiplexing, cross talk may be avoided by  
 (A) Proper base band filtering  
 (B) Proper selection of time of sampling  
 (C) Increasing the amplitude of signal  
 (D) Proper quantization

37. A comparison of FDM and TDM systems shows that  
(A) FDM requires lower bandwidth, but TDM has greater noise immunity  
(B) FDM has greater noise immunity and requires lower bandwidth than TDM  
(C) FDM requires channel synchronization, while TDM has greater noise immunity  
(D) FDM requires more multiplexing, while TDM requires band – pass filter
38. Frequency frogging is used in carrier system to  
(A) Conserve frequencies  
(B) Reduce distortion  
(C) Reduce cross talk  
(D) Reduce bandwidth
39. A 6–pole, 50Hz, 3–phase induction motor with a rotor resistance of  $0.25\Omega$  develops a maximum torque of 10 Nm at 875 rpm. The rotor reactance and slip at maximum torque is  
(A)  $2\Omega$  and 0.125 pu  
(B)  $2\Omega$  and 0.25 pu  
(C)  $1\Omega$  and 0.25 pu  
(D)  $1\Omega$  and 0.125 pu
40. DPCM is particularly suited for  
(A) Radar signals transmission  
(B) Radio signals transmission  
(C) Speech signals transmission  
(D) Seismic signals transmission
41. A 15 kW, 400 V, 4–pole, 50 Hz, star–connected 3–phase induction motor has full load slip of 4%. The output torque of the machine at full load is  
(A) 1.66 Nm  
(B) 95.5 Nm  
(C) 99.47 Nm  
(D) 624.73 Nm
42. The rotor frequency of a 3– phase, 5 kW, 400 V, 50 Hz, 4–pole slip ring induction motor is 25 Hz. The speed of the motor when connected to a 400 volt, 50 Hz supply will be  
(A) 1500 rpm  
(B) 1000 rpm  
(C) 750 rpm  
(D) Zero
43. A large synchronous generator is feeding power into an infinite bus at slightly lagging power factor. If a total loss of field occurs and the system can supply sufficient reactive power without a large terminal voltage drop, the unit will  
(A) Continue to run as a synchronous generator and no tripping is necessary  
(B) Get short–circuited and it should be tripped instantaneously  
(C) Run as an induction generator and it should be tripped after a time delay  
(D) Run as a synchronous motor and it should be tripped after a time delay
44. Consider the following statements with regard to synchronous machines :  
1. When a synchronous motor is over–excited, its back emf is greater than the supply voltage  
2. When a synchronous motor is over–excited, its power factor is leading.  
3. Synchronous motor is used as a capacitor where load is so large that construction of a static capacitor is impractical.  
Correct statements are  
(A) 1 and 2 only  
(B) 1 and 3 only  
(C) 2 and 3 only  
(D) 1, 2 and 3
45. A synchronous generator has its effective internal impedance  $Z_s = 10\Omega$  and resistance  $r_a = 1.0\Omega$ . Its generated voltage  $E_f$  and terminal voltage  $V_t$  are both 500 V. The maximum power output is  
(A) 5000 W  
(B) 4550 W  
(C) 3000 W  
(D) 2250 W

46. A 500 MW, 13.8 kV star connected synchronous generator at 0.8 PF will deliver a full load current of  
(A) 12.1 kA                      (B) 21.0 kA                      (C) 26.15 kA                      (D) 46.5 kA
47. A Pelton wheel turbine having a rated speed. Of 300 rpm is connected to an alternator to produce power at 50 Hz. The number of poles required in the alternator is  
(A) 4                                  (B) 8                                  (C) 10                                  (D) 20
48. The overall efficiency of a dc shunt generator is maximum when its variable loss equals  
(A) The stray loss                  (B) The iron loss                  (C) Constant loss                  (D) Mechanical loss
49. A dc series motor is running at rated speed and rated voltage, feeding a constant power load. If the speed has to be reduced to 0.25 pu, the supply voltage should be reduced to  
(A) 0.75 pu                      (B) 0.5 pu                      (C) 0.25 pu                      (D) 0.075 pu
50. A separately excited dc generator is feeding a dc shunt motor. If the load torque on the motor is reduced to half, then  
(A) The armature current of both motor and generator are reduced to half  
(B) The armature current of motor is halved and that of generator remains unchanged  
(C) The armature current of generator is halved and that of motor remains unchanged  
(D) The armature current of both machines remains unchanged
51. A 4-pole dc generator is running at 1500 rpm. The frequency of current in the armature winding is  
(A) 50 Hz                              (B) 150 Hz                              (C) 25 Hz                              (D) 100 Hz
52. The speed of a dc motor is related to the back emf and flux in the following ways :  
(A) Directly proportional to flux and inversely proportional to back emf  
(B) Directly proportional to back emf and inversely proportional to flux  
(C) Inversely proportional to flux and inversely proportional to back emf  
(D) Directly proportional to flux and inversely proportional to back emf
53. In a dc machine running with a heavy load, and with the brushes located on the geometrical neutral axis, sparking occurs at the brushes during commutation, because of  
(A) The high current – density at the coil – ends  
(B) The centrifugal force exerted on the brushed by the commutator  
(C) The shifting of the magnetic neutral axis  
(D) The reduced main – field flux – density in the inter-polar regions
54. The air-gap between the yoke and armature in a dc motor is kept small  
(A) To achieve a stronger magnetic field  
(B) To avoid overheating of the machine  
(C) To avoid locking of the armature  
(D) To avoid transverse motion
55. In which one of the following sets of 3 – phase transformer connections will zero sequence current be present in the transformer windings ?  
(A) Primary in star, neutral grounded; secondary in star, neutral not grounded  
(B) Primary in star, neutral grounded; secondary in delta  
(C) Primary in star, neutral not grounded; secondary in star, neutral grounded  
(D) Primary in star, neutral not grounded; secondary in delta

56. A 100 kVA, 2400 V/ 240 V, 50 Hz single phase transformer has an exciting current of 0.64 A and core loss 700 W when its high voltage side is energized at rated voltage and frequency. If load current is 40 A at 0.8 PF lagging on the LV side, then magnitude of the primary current will be  
 (A) 4.58 A (B) 4 A (C) 4.64 A (D) 4.85 A
57. Consider the following statements:  
 The open-circuit test in a transformer can be used to obtain  
 1. Core losses  
 2. Magnitude of exciting current  
 3. Copper losses  
 4. Equivalent series impedance  
 Correct statements are  
 (A) 1, 2, 3 and 4 (B) 1 and 3 only (C) 1 and 2 only (D) 2 and 4 only
58. A 10 kVA, 2200/220 V transformer gave the following test results: Open-circuit test, High-voltage side open:  $V=220$  V,  $I=1.5$  A,  $W=150$  W. Short-circuit test, Low voltage side short-circuited:  $V=115$  V,  $I=\text{rated}$ ,  $W=220$  W. The half full-load efficiency of the transformer operating at unity power factor is  
 (A) 95% (B) 95.5% (C) 96% (D) 96.5%
59. Match List I with List II and select the correct answer using the code given below the lists:
- | List-I                  | List-II                |
|-------------------------|------------------------|
| a. Magnetic flux        | 1. Resistance          |
| b. Magneto motive force | 2. Electric Current    |
| c. Reluctance           | 3. Conductivity        |
| d. Permeability         | 4. Electromotive force |
- (A) a(2), b(1), c(4), d(3) (B) a(3), b(1), c(4), d(2)  
 (C) a(2), b(4), c(1), d(3) (D) a(3), b(4), c(1), d(2)
60. A 200 V/100 V, 50 Hz transformer is to be excited at 40 Hz from 100 V side. For the exciting current to be the same, the applied voltage should be  
 (A) 150 V (B) 80 V (C) 100 V (D) 125 V
61. In an interconnected power system, the most suitable power plant to meet the peak load conditions is  
 (A) Hydel (B) Nuclear (C) Steam (D) Pumped storage
62. The utilizable water from a catchment is  $60 \times 10^6$  cu manually and the hydro-station has head of 40m. Assuming ideal generator and turbine, the power that can be theoretically generated is  
 (A) 250kW (B) 300kW (C) 500kW (D) 750kW





70. Fault calculations using computer program are usually done by  
(A)  $Y_{bus}$  method (B)  $Z_{bus}$  method  
(C) Both of the above (D) None of the above
71. The per unit value of a  $4\Omega$  resistor at 100 MVA base and 10kV base voltage is  
(A) 2 pu (B) 4 pu (C) 0.4 pu (D) 40 pu
72. An unloaded generator with a pre-fault voltage 1 pu has the following sequence impedances:  
 $Z_0 = j0.15$  pu,  $Z_1 = Z_2 = j0.25$  pu  
The neutral is grounded with a reactance of 0.05 pu. The fault current in pu for a single line to ground fault is  
(A) 3.75 pu (B) 4.28 pu (C) 6 pu (D) 7.25 pu
73. For a fault in a power system, the term critical clearing time is related to  
(A) Reactive power limit (B) Transient stability limit  
(C) Short circuit current limit (D) steady state stability limit
74. The rate of rise of re-striking voltage (RRRV) is dependent upon  
(A) Resistance of the system only  
(B) Inductance of the system only  
(C) Capacitance of the system only  
(D) Inductance and capacitance of system
75. The method used to implement an asynchronous link is  
(A) DC back to back connected converter  
(B)  $0 - 360^\circ$  static phase shifter  
(C) Rotary transformer  
(D) Static Var compensator
76. The concentration of minority carriers in an extrinsic semiconductor under equilibrium is  
(A) Directly proportional to the doping concentration  
(B) Inversely proportional to the doping concentration  
(C) Directly proportional to the intrinsic concentration  
(D) Inversely proportional to the intrinsic concentration
77. For a silicon n-p-n transistor, the base to emitter voltage ( $V_{BE}$ ) is 0.7V and the collector to base voltage ( $V_{CB}$ ) is 0.2V. Then the transistor is operating in the  
(A) Normal active mode (B) Saturation mode  
(C) Inverse active mode (D) Cut-off mode
78. In an open circuited p-n junction diode space charge density at the junction is  
(A) Maximum (B) Zero (C) Positive (D) Negative
79. Early effect is the modulation of effective base width by  
(A) Emitter voltage (B) Emitter current  
(C) Collector voltage (D) Junction temperature

80. A Bipolar junction Transistor (BJT) works in three regions:  
1. Saturation  
2. Active  
3. Cut-off  
If BJT is to be used in amplifier circuit, the region it works in is/are  
(A) 1, 2 and 3                      (B) 1 and 2 only                      (C) 2 only                      (D) 1 only
81. The following instruction copies a byte of data from the accumulator into the memory address given in the instruction:  
(A) STA address                      (B) LDAX B                      (C) LHLD address                      (D) LDA address
82. The instruction that exchanges top of stack with HL pair is  
(A) XTHL                      (B) SPHL                      (C) PUSH H                      (D) POP H
83. The correct sequence of steps in the instruction cycle of a basic computer is  
(A) Fetch, Execute, Decode and Read effective address  
(B) Read effective address, Decode, Fetch and Execute  
(C) Fetch, Decode, Read effective address and Execute  
(D) Fetch, Read effective address, Decode and Execute
84. The register which holds the information about the nature of results of arithmetic or logic operations is called as  
(A) Accumulator                      (B) Condition code register  
(C) Flag register                      (D) Process status register
85. The address bus of Intel 8085 is 16-bit wide and hence the memory which can be accessed by this address bus is  
(A) 2 k bytes                      (B) 4 k bytes                      (C) 16 k bytes                      (D) 64 k bytes
86. The sub-system which ensures that only one I/O device is active at a time to avoid a bus conflict caused by two I/O devices writing different data to the same bus is  
(A) Control bus                      (B) Control instructions  
(C) Address decoder                      (D) Priority encoder
87. Follow is a 16-bit register for 8085 microprocessor:  
(A) Stack pointer                      (B) Accumulator                      (C) Register B                      (D) Register C
88. The present microinstructions fetched from a micro-programmed control unit is held in the  
(A) Next address register                      (B) Control address register  
(C) Control data register                      (D) Pipeline register
89. To operate correctly, starting a ring counter requires  
(A) Clearing all the flip-flops  
(B) Presetting one flip-flop and clearing all other  
(C) Clearing one flip-flop and presetting all other  
(D) Presetting all the flip-flops
90. A divide-by-6 counter is obtained using  
(A) 6-bit ripple counter                      (B) 6-bit ring counter  
(C) 3-bit ripple counter                      (D) 3-bit twisted- ring counter



98. Generally, the gain of transistor falls a high frequencies due to the  
 (A) Internal capacitances of the device  
 (B) Coupling capacitor at the input  
 (C) Skin effect  
 (D) Coupling capacitor at the output
99. Material used for fabrication of Tunnel diode is  
 (A) Ge or GaAs (B) Si and GaAs (C) Si and InSb (D) Ge and InSb
100. Match List I with List II and select the correct answer using the code given below the lists:

List-I	List-II
a. BJT	1. Population inversion
b. MOS capacitor	2. Pinch-off voltage
c. LASER diode	3. Early effect
d. JFET	4. Flat band voltage

- (A) a(3), b(1), c(4), d(2) (B) a(2), b(1), c(4), d(3)  
 (C) a(3), b(4), c(1), d(2) (D) a(2), b(4), c(1), d(3)
101. The rated slip of an induction motor at full-load is 5% while the ratio of starting current to full load current is four. The ratio of the starting torque to full load torque would be  
 (A) 0.6 (B) 0.8 (C) 1.0 (D) 1.1
102. Statement (I): ECL gate has the highest speed of operation.  
 Statement (II): The transistors in ECL gate operate in active region.  
 (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
 (B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
 (C) Statement (I) is true but Statement (II) is false  
 (D) Statement (I) is false but Statement (II) is true
103. Statement (I): In a transistor switching circuit, it is desirable that the transistor should not be driven into hard saturation for fast switching applications.  
 Statement (II): When a transistor is under saturation state, both its emitter-base and collector-base junctions remain under forward bias  
 (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
 (B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
 (C) Statement (I) is true but Statement (II) is false  
 (D) Statement (I) is false but Statement (II) is true

104. Statement (I): Most JFETs are designed to work in depletion mode.  
Statement (II): Depletion mode takes advantage of very high input resistance of reverse biased state.
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
105. Statement (I): A good amplifier should not only amplify but also should faithfully reproduce the input signal.  
Statement (II): Distortion takes place in amplifiers due to non-linearity of the devices.
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
106. Statement (I): While deriving the equation of torque developed in non-salient pole machines, only the fundamental components of the stator and the rotor mmfs are considered, and are represented by space phasors  $F_s$  and  $F_R$  respectively, directed along their respective magnetic axes, separated by an angle  $\delta$   
Statement (II): The two mmfs  $F_s$  and  $F_R$  cause the appearance of stator and rotor poles, along with their respective magnetic axis which results in the development of electromagnetic torque.
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
107. Statement (I): In tuned amplifier, a high gain is achieved at a narrow band of frequencies.  
Statement (II): A high-Q parallel resonant circuit is used as load in the amplifier.
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true

108. Statement (I): In a negative feedback amplifier, the noise voltage due to noise generated within the amplifiers is reduced.  
Statement (II): Negative feedback reduces the amplifier gain  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
109. Statement (I): A feedback amplifier can oscillate under certain conditions.  
Statement (II): Loop gain is infinity and phase shift is zero during oscillation  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
110. Statement (I): A push-pull amplifier gives output per active device for a given amount of distortion.  
Statement (II): Even harmonics are absent in the output of a push-pull amplifier.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
111. Statement (I): Much of the distortion introduced in large signal amplifiers is eliminated by push-pull circuit  
Statement (II): The signals applied to the two transistors in push-pull mode are  $180^\circ$  out of phase.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
112. Statement (I): An RC phase shift oscillator satisfies Barkhausen criteria of oscillations.  
Statement (II): An RC phase shift oscillator must use 3 equal valued resistors and 3 equal valued capacitors.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true

113. Statement (I): Tristate logic is used for bus oriented systems.  
Statement (II): The tristate logic has three output states; 0, 1 and indeterminate.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
114. Statement (I): XOR gate is not a universal gate  
Statement (II): It is not possible to realize any Boolean function using XOR gates only.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
115. Statement (I): Star/Delta connection is commonly used for high voltage to low voltage transformation  
Statement (II): It is desirable to ground the neutral on the high voltage side.  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
116. Statement (I): 2's complement arithmetic is preferred in digital computers.  
Statement (II): The hardware required to obtain the 2's complement of a number, is simple  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true
117. Statement (I): In 8255, port A can work as input port only  
Statement (II): Port A can work in mode 0, mode 1 or mode 2  
(A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)  
(B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)  
(C) Statement (I) is true but Statement (II) is false  
(D) Statement (I) is false but Statement (II) is true

118. Statement (I): The main function of a starter in a 3-phase induction motor is to provide starting torque.
- Statement (II): The 3-phase induction motor is a self-starting motor
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)
- (B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)
- (C) Statement (I) is true but Statement (II) is false
- (D) Statement (I) is false but Statement (II) is true
119. Statement (I): The performance of a phase controlled converter is degraded for large values of firing angle  $\alpha$
- Statement (II): The output voltage is reduced for large value of  $\alpha$
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)
- (B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)
- (C) Statement (I) is true but Statement (II) is false
- (D) Statement (I) is false but Statement (II) is true
120. Statement (I): Multiple pulse width modulation is used to reduce the harmonic content in inverters.
- Statement (II): The higher order harmonics can be easily filtered using passive filter.
- (A) Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I)
- (B) Both Statement (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of Statement (I)
- (C) Statement (I) is true but Statement (II) is false
- (D) Statement (I) is false but Statement (II) is true