INSTRUCTIONS FOR CANDIDATES
1. **Total number of Questions 50. Each Question carries three marks.**
2. **One mark will be deducted for every wrong answer.**
3. **No mark will be deducted for un-attempted questions.**

Q1. Out of the following pairs, choose the pair in which the physical quantities do not have identical dimension?
 (a) Pressure and Young's modules
 (b) Planck's constant and Angular momentum
 (c) Impulse and moment of force
 (d) Force and rate of change of linear Momentum

Q2. If the area of the square is increased by 69% the side of the square increases by
 (a) 13%   (b) 30%   (c) 39%   (d) 130%

Q3. Out of the following, which one is least commonly emitted by radioactive substance?
 (a) Electrons
 (b) Electromagnetic Radiations
 (c) Alpha Particles
 (d) Neutrons

Q4. The nuclear particles which are assumed to hold the nucleons together are
 (a) electrons   (b) positrons   (c) neutrons   (d) mesons

Q5. A car travelled 75% of way from town A to town B at an average speed of 50 mph. The car travelled at the average speed of S mph for remaining part of the trip. The average speed for the entire trip was 40 mph. What is S?
 (a) 10   (b) 20   (c) 25   (d) 30

Q6. Sound produced at a point is heard by a person after 5 second, while the same sound is heard by another person after 6 seconds. If the speed of sound is 300 m/s, what could be the maximum and minimum distances between the two persons?
 (a) 1.8 km, 0.15 km
 (b) 2.2 km, 0.20 km
 (c) 2.8 km, 0.25 km
 (d) 3.3 km, 0.30 km

Q7. The value of $\sin \theta + \cos \theta$ will be greatest when $\theta =$
 (a) 30   (b) 45   (c) 60   (d) 90

Q8. The energy stored will be least in
 (a) coil
 (b) capacitor
 (c) resistor
 (d) same energy will be stored in all

Q9. The most electronegative element among the following is
 (a) sodium   (b) bromine   (c) fluorine   (d) oxygen

Q10. The most abundant rare gas in the atmosphere is
 (a) He   (b) Ne   (c) Ar   (d) Xe

Q11. Thevenin's theorem is applied to networks with
 (a) DC source only
 (b) AC source only
 (c) both AC & DC source
 (d) none of the above

Q12. Quantizing noise occurs in
 (a) PCM
 (b) Time - division - multiplexer
 (c) FDM
 (d) PPM

Q13. The peak transmitted power in a radar system is increased by a factor of 16 the maximum range will be increased by a factor of
 (a) 2   (b) 4   (c) 8   (d) 16

Q14. Which of the following antennas is best excited from a waveguide
 (a) Biconical   (b) Horn   (c) Helical   (d) Discone

Q15. What is the next number in the series 1,3,11,19,37,_____
 (a) 55   (b) 41   (c) 56   (d) None of the above

Q16. The bandwidth requirement of a telephone channel is
(a) 3KHz
(b) 5KHz
(c) 10KHz
(d) 15KHz

Q17. The Shannon's Theorem sets limit on the
(a) highest frequency that may be sent over channel
(b) maximum capacity of a channel with a given noise level
(c) maximum number coding levels in a channel
(d) maximum number of quantizing levels in a channel.

Q18. P Type Semiconductor material as a whole is
(a) positively charged
(b) negatively charged
(c) electrically neutral
(d) dipole

Q19. Given a carrier frequency of 100 KHz and a modulating frequency of 5KHz, the bandwidth of AM transmission is
(a) 5KHz
(b) 200KHz
(c) 10KHz
(d) 20KHz

Q20. In class A operation of an amplifier the current flows through the active device for
(a) whole of the input cycle
(b) half of the input cycle
(c) more than half of the input cycle
(d) more than three fourth of the input cycle

Q21. Maxwell's electromagnetic equations are valid under all conditions except one that is
(a) they do not apply to non-isotropic media
(b) they do not apply to non-homogeneous media
(c) they do not apply to media which move with respect to system coordinates
(d) they do not apply to non-linear-media

Q22. The target cross section is changing, the best system for accurate tracking is
(a) monopulse
(b) conical scanning
(c) sequential locking
(d) lobe switching

Q23. The unit of magnetic susceptibility is
(a) Wb-m^2
(b) Wb A-m
(c) Wb/A-m
(d) Wb/m^2

Q24. Hartley oscillator is
(a) An inductively coupled oscillator
(b) Capacitor coupled oscillator
(c) Switchable for low frequencies
(d) Resistance coupled oscillator

Q25. In a modulation system, if modulating frequency is doubled, the modulation index also becomes double , the system is
(a) FM
(b) AM
(c) PM
(d) Both FM and AM

Q26. h parameters of a transistor
(a) are constant
(b) vary with temperature
(c) are dependant upon collector current
(d) none of the above

Q27. Waveguides are not used for frequencies below
(a) 1GHz
(b) 10 GHz
(c) 100 Ghz
(d) 500 Mhz

Q28. Schmitt trigger can be used as a
(a) comparator
(b) square wave generator
(c) flip flop
(d) all of these

Q29. The value of resistor creating thermal noise is doubled .the noise power generated is
(a) halved   (b) doubled   (c) unchanged   (d) tripled

Q30. The universal gate is
(a) AND   (b) NOR
(c) XOR   (d) NAND

Q31. For making a capacitor, it is better to select a dielectric having
(a) high permittivity   (b) low permittivity
(c) same permittivity as that of air   (d) very low permittivity

Q32. The TWT is sometimes preferred to the magnetron as a radar transmitter outputtube because it is
(a) capable of a longer duty cycle   (b) a more efficient amplifier
(c) more broadband   (d) less noisy

Q33. Subtracting 0101 from 1110 in binary terms, we get
(a) 0110   (b) 1010   (c) 1001   (d) 0011

Q34. Modulation system used for video modulation in tv transmission is
(a) DSB   (b) VSB
(c) SSB   (d) SSBSC

Q35. A yagi antenna produces
(a) eight pattern   (b) broadside pattern
(c) end fire array   (d) helical pattern

Q36. _____is used for keeping oscillator frequency away from any drift
(a) PLL   (b) VCO
(c) comparator   (d) frequency synthesizer

Q37. Medium frequency waves travel mainly as
(a) sky waves   (b) surface waves
(c) space waves   (d) ground wave

Q38. Fidelity in a communication receiver is provided by
(a) mixer stage   (b) detector stage
(c) various amplifier section   (d) audio stage

Q39. In a two cavity klystron , the input cavity resonator is also known as
(a) velocity modulator   (b) catcher cavity
(c) buncher cavity   (d) accelerator

Q40. Multiplication of 2 binary numbers A and B yields 11011; if A is 101 B is
(a) 101   (b) 111
(c) 110   (d) none of these

Q41. An op-amp zero crossing detector is basically_____converter
(a) sine to square wave   (b) square to sine wave
(c) sine to sine wave   (d) sine to triangle wave

Q42. Which of the following can measure pressure directly?
(a) LVDT   (b) strain guage
(c) rotameter tube   (d) bourdon tube

Q43. When the gate of a P- channel junction field effect transistor is more positive , the draincurrent
(a) is increased   (b) is reduced
(c) remains unaltered   (d) decreases

Q44. The binary code of (21.125)10 is
(a) 10101.001   (b) 10100.001
(c) 10101.010   (d) 10100.111

Q45. Which of the following is not a 8 bit microprocessor
(a) INTEL8085   (b) MOTOROLA6800
(c) ZILOG280   (d) FAIRCHILD9440

Q46. In 8085 microprocessor ------is the highest priority interupt
   (a)   INTR   (b)   RST5.5
   (c)   RST   (d)   trap

Q47. Crossover distortion does not occur in _____ amplifiers.
   (a)   push-pull   (b)   class-A
   (c)   class-B   (d)   class-AB

Q48. In the standard TTL the totem pole stage refers to
   (a)   the multi emitter I/p stage (b)   phase splitter
   (c)   o/p buffer   (d)   open collector o/p stage

Q49. _____ is also an active filter
   (a)   RC filter   (b)   notch filter
   (c)   butterworth filter   (d)   band pass filter

Q50. Decimal equivalent of hex no E5 is
   (a)   279   (b)   229
   (c)   427   (d)   3000