ENGINEERING KNOWLEDGE TEST (EKT)
ELECTRICAL AND ELECTRONICS STREAM

BOOKLET SERIES 'G'

Set No 2/15 **TIME ALLOTTED : 45 MINUTES**

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

Q2. 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

Q3. 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%

Q4. The value of Sin θ + Cosθ will be greatest when θ =
(a) 30 (b) 45 (c) 60 (d) 90

Q5. 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

Q6. Out of the following, which one is least commonly emitted by radioactive substance?
(a) electrons (b) electromagnetic radiations
(c) alpha particles (d) neutrons

Q7. Sound produced at a point is heard by a person after 5 seconds, 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

Q8. The most electronegative element among the following is
(a) sodium (b) bromine (c) fluorine (d) oxygen

Q9. The nuclear particles which are assumed to hold the nucleons together are
(a) electrons (b) positrons (c) neutrons (d) mesons

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

Q11. Quantizing noise occurs in
(a) PCM (b) Time - division - multiplexer
(c) FDM (d) PPM

Q12. Which of the following antennas is best excited from a waveguide?
(a) Biconical (b) Horn (c) Helical (d) Discone

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

Q15. 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

Q16. 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.

Q17. 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

Q18. 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

Q19. 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

Q20. The bandwidth requirement of a telephone channel is
(a) 3KHz (b) 5KHz
(c) 10KHz (d) 15KHz

Q21. 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

Q22. P Type Semiconductor material as a whole is
(a) positively charged (b) negatively charged
(c) electrically neutral (d) dipole

Q23. Hartley oscillator is
(a) an inductively coupled oscillator
(b) capacitor coupled oscillator
(c) switchable for low frequencies
(d) resistance coupled oscillator

Q24. h parameters of a transistor
(a) are constant
(b) vary with temperature
(c) are dependant upon collector current
(d) none of the above

Q25. The target cross section is changing, the best system for accurate tracking is
(a) monopulse (b) conical scanning
(c) sequential locking (d) lobe switching

Q26. Waveguides are not used for frequencies below
(a) 1GHz (b) 10 GHz
(c) 100 Ghz (d) 500 Mhz

Q27. The unit of magnetic susceptibility is
(a) Wb-m^2 (b) Wb A-m
(c) Wb/A-m (d) Wb/m^2

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

Q29. 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

Q30. The value of resistor creating thermal noise is doubled .the noise power generated is
(a) halved (b) doubled (c) unchanged (d) tripled

Q31. Subtracting 0101 from 1110 in binary terms, we get
(a) 0110 (b) 1010 (c) 1001 (d) 0011

Q32. The universal gate is
(a) AND (b) NOR
(c) XOR (d) NAND

Q33. Fidelity in a communication receiver is provided by
(a) mixer stage (b) detector stage
(c) various amplifier section (d) audio stage

Q34. 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

Q35. Modulation system used for video modulation in tv transmission is
(a) DSB (b) VSB
(c) SSB (d) SSBSC

Q36. A yagi antenna produces
(a) eight pattern (b) broadside pattern
(c) end fire array (d) helical pattern

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

Q38. In a two cavity klystron , the input cavity resonator is also known as
(a) velocity modulator (b) catcher cavity
(c) buncher cavity (d) accelerator

Q39. 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

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

Q42. The binary code of (21.125)10 is
(a) 10101.001 (b) 10100.001
(c) 10101.010 (d) 10100.111

Q43. 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

Q44. Which of the following is not a 8 bit microprocessor
(a) INTEL8085 (b) MOTOROLA6800
(c) ZILOG280 (d) FAIRCHILD9440

Q45. _____is used for keeping oscillator frequency away from any drift
(a) PLL (b) VCO
(c) comparator (d) frequency synthesizer

Q46. _____ is also an active filter
(a) RC filter (b) notch filter
(c) butterworth filter (d) band pass filter

Q47. In 8085 microprocessor ------is the highest priority interupt
(a) INTR (b) RST5.5
(c) RST (d) trap

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

Q50. Crossover distortion does not occur in _____ amplifiers.
(a) push-pull (b) class-A
(c) class-B (d) class-AB

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