

ENGINEERING KNOWLEDGE TEST (EKT)
COMPUTER SCIENCE STREAM

BOOKLET SERIES 'F'
TIME ALLOTTED : 45 MINUTES

Set No 2/15

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. Three houses are available in a locality. Three persons apply for the houses. Each applies for one house without consulting others. The probability that all the three apply for the same house is
(a) $2/9$ (b) $1/9$ (c) $8/9$ (d) $7/9$
- Q2. What is the next number in the series 1,3,11,19,37,_____
(a) 41 (b) 56 (c) 55 (d) None of the above
- Q3. An unbiased die with faces marked 1, 2, 3, 4, 5 and 6 is rolled four times. Out of four face values obtained, the probability that the minimum face value is not less than 2 and the maximum face value is not greater than 5 is
(a) $16/81$ (b) $1/81$ (c) $80/81$ (d) $65/81$
- Q4. The projection of a vector on another vector is
(a) scalar (b) vector
(c) neither vector nor scalar (d) either scalar or vector
- Q5. The value of $\sin \theta + \cos \theta$ will be greatest when $\theta =$ _____.
(a) 45 (b) 30 (c) 90 (d) 60
- Q6. How long is an IPv6 address?
(a) 32 bits (b) 128 bytes (c) 64 bits (d) 128 bits
- Q7. What flavor of Network Address Translation can be used to have one IP address allow many users to connect to the global Internet?
(a) NAT (b) Static (c) Dynamic (d) PAT
- Q8. What are the two main types of access control lists (ACLs)?
(i) Standard (ii) IEEE (iii) Extended (iv) Specialized
(a) (i) and (iii) (b) (ii) and (iv)
(c) (iii) and (iv) (d) (i) and (ii)
- Q9. What is a stub network?
(a) A network with more than one exit point.
(b) A network with more than one exit and entry point.
(c) A network with only one entry and no exit point
(d) A network that has only one entry and exit point.
- Q10. Which of the following languages is more suited to a structured program?
(a) PL/1 (b) FORTRAN (c) BASIC (d) PASCAL
- Q11. Which of the following is the 1's complement of 10?
(a) 01 (b) 110 (c) 11 (d) 10
- Q12. The time required for the fetching and execution of one simple machine instruction is
(a) delay time (b) CPU cycle (c) real time (d) seek time
- Q13. A single packet on a data link is known as
(a) Path (b) Frame (c) Block (d) Group
- Q14. ASCII stands for
(a) American Standard Code for Information Interchange
(b) All purpose Scientific Code for Information Interchange
(c) American Security Code for Information Interchange
(d) American Scientific Code for Information Interchange

- Q15. A program that converts computer data into some code system other than the normal one is known as
 (a) Encoder (b) Simulation (c) Emulator (d) Coding
- Q16. Which of the following are the two main components of the CPU?
 (a) control unit and registers (b) registers and main memory
 (c) control unit and ALU (d) ALU and bus
- Q17. The function of CPU is
 (a) to provide a hard copy
 (b) to read, interpret and process the information and instruction
 (c) to communicate with the operator
 (d) to provide external storage of text
- Q18. When an input electrical signal $A=10100$ is applied to a NOT gate, its output signal is
 (a) 01011 (b) 10001 (c) 10101 (d) 00101
- Q19. Your router has the following IP address on Ethernet: 172.16.2.1/23. Which of the following can be valid host IDs on the LAN interface attached to the router?
 (i) 172.16.1.100 (ii) 172.16.1.198 (iii) 172.16.2.255 (iv) 172.16.3.0
 (a) (i) only (b) (ii) and (iii) only
 (c) (iii) and (iv) only (d) None of the above
- Q20. Frames from one LAN can be transmitted to another LAN via the device
 (a) Router (b) Bridge (c) Repeater (d) Modem
- Q21. Which of the following is not a logical data-base structure?
 (a) tree (b) relational (c) network (d) chain
- Q22. Conversion of decimal number 61_{10} to its binary number equivalent is
 (a) 110011_2 (b) 11001110_2 (c) 111101_2 (d) 11111_2
- Q23. What logic function is obtained by adding an inverter to the inputs of an AND gate?
 (a) OR (b) NAND (c) XOR (d) NOR
- Q24. A medium for transferring data between two locations is called
 (a) Network (b) Communication channel
 (c) Modem (d) Bus
- Q25. What is the name of the technique in which the operating system of a computer executes several programs concurrently by switching back and forth between them?
 (a) Partitioning (b) Multitasking (c) Windowing (d) Paging
- Q26. The slowest transmission speeds are those of
 (a) twisted-pair wire (b) coaxial cable
 (c) fibre-optic cable (d) microwaves
- Q27. A computer program consists of
 (a) system flowchart (b) program flowchart
 (c) algorithms written in computer's language (d) discrete logical steps.
- Q28. Which is the computer memory that does not forget?
 (a) ROM (b) RAM
 (c) NVRAM (d) All of the above
- Q29. A combinational logic circuit which is used when it is desired to send data from two or more source through a single transmission line is known as
 (a) encoder (b) decoder (c) multiplexer (d) demultiplexer
- Q30. Which of the following services use TCP?
 (i) DHCP (ii) SMTP (iii) HTTP (iv) TFTP (v) FTP
 (a) (i) and (ii) (b) (ii), (iii) and (v)
 (c) (i),(ii) and (iv) (d) (i), (iii) and (iv)

- Q31. Which of the following memories must be refreshed many times per second?
(a) static RAM (b) dynamic RAM
(c) EPROM (d) ROM
- Q32. An adder in which the bits of the operands are added one after another is
(a) half-adder (b) full-adder
(c) serial adder (d) all of the above
- Q33. The register which contains the instruction that is to be executed is known as
(a) Index register (b) Instruction register
(c) Memory address register (d) Memory data register
- Q34. Which of the following is used to hold ROM, RAM, CPU and expansion cards?
(a) computer bus (b) motherboard
(c) cache memory (d) all of the above
- Q35. A hard disk is divided into tracks which are further subdivided into
(a) clusters (b) sectors
(c) vectors (d) heads
- Q36. Out of the following pairs, choose the pair in which the physical quantities do not have identical dimension?
(a) Pressure and Young's modulus
(b) Planck's constant and Angular momentum
(c) Impulse and moment of force
(d) Force and rate of change of linear Momentum
- Q37. Out of the following, which is not emitted by radioactive substance?
(a) electrons (b) electromagnetic radiations
(c) alpha particles (d) neutrons
- Q38. 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
- Q39. The most electro-negative element among the following is
(a) sodium (b) bromine (c) fluorine (d) oxygen
- Q40. The nuclear particles which are assumed to hold the nucleons together are
(a) electrons (b) positrons (c) neutrons (d) mesons
- Q41. The most abundant rare gas in the atmosphere is
(a) He (b) Ne (c) Ar (d) Xe
- Q42. For attenuation of high frequencies we should use
(a) shunt capacitance (b) series capacitance
(c) inductance (d) resistance
- Q43. A voltage will influence current only if the circuit is
(a) open (b) insulated
(c) high resistance (d) closed
- Q44. Which resistive component is designed to be temperature sensitive?
(a) Thermistor (b) Rheostat
(c) Potentiometer (d) Photoconductive cell
- Q45. If doubling the voltage across a resistor doubles the current through the resistor then
(a) the resistor value decreased
(b) the resistor value did not change
(c) the resistor value increased
(d) it is impossible to determine the change in the resistor value

- Q46. Friction factor for fluid flow in pipe does not depend upon the
- (a) pipe length.
 - (b) pipe roughness.
 - (c) fluid density & viscosity.
 - (d) mass flow rate of fluid
- Q47. If the resistance in a circuit with constant voltage increases, the current will
- (a) increase
 - (b) decrease
 - (c) stay the same
 - (d) Not enough information
- Q48. A transponder is a satellite equipment which
- (a) receives a signal from earth station and amplifies
 - (b) changes the frequency of the received signal
 - (c) retransmits the received signal
 - (d) does all of the above-mentioned functions
- Q49. To make antenna more directional, either its size must be increased or
- (a) the number of its feed horns must be increased
 - (b) the frequency of its transmission must be increased
 - (c) its effective isotropic radiated power (eirp) must be increased
 - (d) its footprint must be increased
- Q50. All of the following alloying elements of steel increase hardness but sacrifice ductility, except
- (a) nickel
 - (b) vanadium
 - (c) molybdenum
 - (d) chromium