ENGINEERING KNOWLEDGE TEST (EKT)
COMPUTER SCIENCE STREAM

BOOKLET SERIES 'F'

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. 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 θ +cosθ will be greatest when θ =_____.
(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 modules
(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

aglasem