UBQUITOUS COMPUTING

UNIT NUMBER 03

1) Physical tag refers to
    a) Mechanical tag
    b) Physical object
    c) Digital tag.
    d) Object tag
2) MEMS stands for
    a) Micro Electronic Machine Systems
    b) Macro Electronic Mechanical Systems
    c) Micro Electro Mechanical Systems.
    d) Micro Electro Movement Systems
3) Life-Cycle for Tagging Physical Objects includes
    a) data processing -> data presentation -> data storage.
    b) data gathering -> data processing -> data presentation -> data storage
    c) data gathering -> data processing -> data storage -> data presentation
    d) data processing -> data gathering -> data presentation
4) Does RFID have the ability to read many tags together at once?
    a) Yes.
    b) No
5) A _____ RFID tag, a tag that can be temporarily deactivated when it leaves the store.
    a) Positive
    b) Zombie.
    c) Negative
    d) Neutral
6) Active RFID tags normally work at
    a) 455 MHz, 2.45 GHz or 5.8 GHz.
    b) 495 MHz, 3.65 GHz or 5.8 GHz
    c) 455 MHz, 4.4 GHz or 5.2 GHz
    d) 255 MHz, 4.45 GHz or 5.8 GHz
7) Passive tags can work at low frequencies
    a) 122 Hz, 124 Hz or 135 Hz.
    b) 124 kHz, 126 kHz or 135 kHz
    c) 13.56 MHz
    d) 860 Hz to 960 Hz
8) Which of the following statements about radio frequency identification (RFID) is not true?
    a) RFID systems use tiny tags with embedded microchips containing data about an item and its location.
    b) Companies may be required to upgrade hardware and software to accommodate the massive amounts data that are being produced by RFID systems.

c) Companies may be required to upgrade hardware and software to accommodate the massive amounts data that are being produced by RFID systems.

d) RFID systems transmit radio signals over long distances.

9) Which of the following is not involved in working of IoT?
   a) RFID
   b) Sensor
   c) Nano tech
   d) Server.
10) RFID tags that contain their own power source are known as
   a) Active RFID.
   b) Passive RFID
   c) Both a and b
   d) none
11) Change in output of sensor with change in input is _____
   a) Threshold
   b) Slew rate
   c) Sensitivity.
   d) None of the mentioned
12) Sensor is a type of transducer.
   a) True.
   b) False
13) _____ that creates a sub graph of the sensor network that contains the minimum energy path.
   a) SMEC.
   b) MEMS
   c) RFID
   d) SINA
14) SINA stands for
   a) Sensor Internet Networking Architecture
   b) Sensor Info Networking Architecture.
   c) System Info Networking Act
   d) Sensor Internet Networking Act
15) Information events extracted from sensors might be keep in an exceedingly _____ server.
   a) RDBMS.
   b) DBMS
16) Application of Sensor network is/ are
   a) Surveillance and Monitoring for security, threat detection
   b) Environmental temperature, humidity, and air pressure
   c) Agriculture
   d) All of above.
17) Which of the following statements about challenges of a Sensor network system is not true?
   a) Sensor energy could be a source resource for information transmission
   b) Limited memory and computation power in sensors

c) Harvest renewable anergy from the surroundings and store.

d) Sensors can generate huge quantities of data

18) Type of transducer that converts some natural phenomenon like heat, light, sound into electrical signals are known as

a) Sensors.

b) RFID

c) SMEC

d) None

19) Design solution for Sensor network system is / are

a) Use a sensor web that deploys, low power, short vary transmissions.

b) Network sensors into mesh network and use multi hop transmissions

c) Both (a) and (b).

d) None

20) Which of the following are components of a sensor network?

a) Sensor nodes.

b) Sensors

c) Gateways

d) All of the above

21) _____ are micron to millimeter scale electronic gadgets created as discrete gadgets or in extensive clusters.

a) SINA

b) SMEC

c) MEMS.

d) DBMS

22) The _____ systems shines the light-weight light through the photo mask, protruding a shadow onto a layer that then reacts with the photo resistant chemical and hardens, permitting the selective removal of components of the substrate to be chemical engraved.

a) Lithography.

b) Orthography

c) ICs

d) Interconnection

23) Point out the correct statement.

a) MEMS is a class of very small sensor or actuator devices where small mechanical systems are driven by electricity to indicate a position

b) The incorporation of low-cost geo-sensors in the form of GPS chips into mobile devices opens the mobile user to a whole range of services based on the client's location

c) The iPhone uses the proximity sensor to turn the screen off when a user puts the phone to his face

d) All of the mentioned.

24) Which of the following represents the inverse transducer of a microphone?

a) Micro speaker.

b) Pressure transducer

c) Bourden element

d) All of the mentioned

25) Polymers can act as humidity sensors.
    a) True.
    b) False
26) Which of the following is not a piezo electric sensor?
    a) PZT
    b) Roscelle salt
    c) Quartz
    d) None of the mentioned.
27) A material with one dimension in Nano range and the other two dimensions are large is called _____
    a) Micro-material
    b) Quantum wire
    c) Quantum well.
    d) Quantum dot
28) The first talk about nano-technology was given by _____
    a) Albert Einstein
    b) Newton
    c) Gordon E. Moore
    d) Richard Feynman.
29) Nanomaterials are the materials with at least one dimension measuring less than _____
    a) 1 nm
    b) 10 nm
    c) 100 nm.
    d) 1000 nm
30) Which of the following is the principal factor which causes the properties of nanomaterials to differ significantly from other materials?
    a) Size distribution
    b) Specific surface feature
    c) Quantum size effects
    d) All of the mentioned.
31) What are the advantages of nano-composite packages?
    a) Lighter and biodegradable
    b) Enhanced thermal stability, conductivity and mechanical strength
    c) Gas barrier properties
    d) All of the mentioned.
32) What does API stand for?
    a) address programming interface
    b) application programming interface.
    c) accessing peripheral through interface
    d) address programming interface
33) Which activity is concerned with identifying the task at the final embedded systems?
    a) high-level transformation
    b) Compilation
    c) Scheduling

d) task-level concurrency management.

34) A _____ is / are a computer circuit thatforms the central process unit for a laptop or embedded controller, however needs further support electronic equipment to perform.
   a) Microprocessor.
   b) Microcontroller
   c) Both (a) and (b)
   d) None

35) FPGA stands for
   a) Field Programmable Gate Array.
   b) Field Processor Gate Array
   c) Forced Programmable Gate Array
   d) Forced Processor Gate Array

36) Embedded system might contain programmable logic parts like
   a) FPGA
   b) ASIC
   c) Both (a) and (b).
   d) None

37) Modern cars organize different _____ systems for Antilock Brake System, Journey control, atmosphere control, wing mirrors and drive sensor information observing, and so forth.
   a) Mechanical
   b) Electrical
   c) Embedded.
   d) None

38) Which of the following is a meet-in-the-middle approach?
   a) peripheral based design
   b) platform based design.
   c) memory based design
   d) processor design

39) What is / are the essential tight constraint/s related to the design metrics of an embedded system?
   a) Ability to fit on a single chip
   b) Low power consumption
   c) Fast data processing for real-time operations
   d) All of the above.

40) Which abstraction level undergo the compilation process by converting a sequential program into finite-state machine and register transfers while designing an embedded system?
   a) System
   b) Behavior.
   c) RT
   d) Logic

41) Which characteristics of an embedded system exhibit the responsiveness to the assortments or variations in system's environment by computing specific results for real-time applications without any kind of postponement?
   a) Single-functioned Characteristic

b) Tightly-constraint Characteristics
c) Reactive & Real time Characteristics.
d) All of the above

42) While designing an embedded system, which sub-task oriented process allocates the time steps for various modules that share the similar resources?
a) Simulation and Validation
b) Iteration
c) Hardware-Software Partitioning
d) Scheduling.

43) In real time operating system _____.
a) all processes have the same priority
b) a task must be serviced by its deadline period.
c) process scheduling can be done only once
d) kernel is not required

44) Hard real time operating system has _____ jitter than a soft real time operating system.
a) Less.
b) More
c) Equal
d) none of the mentioned

45) For real time operating systems, interrupt latency should be _____
a) Minimal.
b) Maximum
c) Zero
d) dependent on the scheduling

46) In which scheduling certain amount of CPU time is allocated to each process?
a) earliest deadline first scheduling
b) proportional share scheduling.
c) equal share scheduling
d) one of the mentioned

47) Time duration required for scheduling dispatcher to stop one process and start another is known as _____
a) process latency
b) dispatch latency.
c) execution latency
d) interrupt latency

48) Which one of the following is a real time operating system?
a) RTLinux
b) VxWorks
c) Windows CE
d) All of the mentioned.

49) Real time systems are _____.
a) Primarily used on mainframe computers
b) Used for monitoring events as they occur.

c) Used for program development
d) Used for real time interactive users

50) Real time systems must have
a) preemptive kernels.
b) non preemptive kernels
c) preemptive kernels or non-preemptive kernels
d) neither preemptive nor non preemptive kernels

51) In a real-time system, the computer results
a) must be produced withing a specific deadline period.
b) may be produced at any time
c) may be correct
d) all of the mentioned

52) Some of the properties of real time systems include
a) single purpose
b) inexpensively mass produced
c) small size
d) all of the mentioned.

53) Memory management units
a) increase the cost of the system
b) increase the power consumption of the system
c) increase the time required to complete an operation
d) all of the mentioned.

54) Processes always require some degree of control action to achieve setpoint.
a) Integrating, Derivative
b) Self-regulating, Integral.
c) Self-regulating, Proportional
d) Runaway, Linear

55) What is the relationship between the steady-state error, gain and the tendency of oscillations when the controller is supposed to be under the proportional action?
a) Steady-state error increases with an increase in gain and oscillation tendency
b) Steady-state error decreases with the decrease in gain and oscillation tendency.
c) Steady-state error decreases with an increase in gain and oscillation tendency
d) Steady-state error increases with the decrease in gain and oscillation tendency

56) The quarter-amplitude decay ratio is basically a design criterion specified by Zeigler-Nichols method implies that the amplitude of an oscillation must be reduced by a factor of _____
a) four over a whole period.
b) four over a half period
c) four over a quarter period
d) four over a quarter and a half period

57) What is the name for information sent from robot sensors to robot controllers?
a) Temperature
b) Pressure
c) Feedback.
d) signal

58) Which of the following terms refers to the rotational motion of a robot arm?

a) Swivel
b) Axle
c) Retrograde
d) Roll.

59) The number of moveable joints in the base, the arm, and the end effectors of the robot determines_____
a) degrees of freedom.
b) payload capacity
c) operational limits
d) flexibility

60) Which of the following places would be LEAST likely to include operational robots?
a) Warehouse
b) Factory
c) Hospitals
d) private homes.

61) For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?
a) Three
b) Four
c) Six.
d) Eight

62) Which of the basic parts of a robot unit would include the computer circuitry that could be programmed to determine what the robot would do?
a) Sensor
b) Controller.
c) Arm
d) End effector

63) A Robot is a
a) Programmable
b) Multi-functional manipulator
c) Both (a) and (b).
d) None

64) The main objective(s) of Industrial robot is to
a) To minimize the labour requirement
b) To increase productivity
c) To enhance the life of production machines
d) All of the above.

65) Drives are also known as
a) Actuators.
b) Controller
c) Sensors
d) Manipulator

66) Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it?

a) Internal State sensors
b) External State sensors
c) Both (a) and (b).
d) None of the above

67) Which of the following statements concerning the implementation of robotic systems is correct?
a) implementation of robots CAN save existing jobs
b) implementation of robots CAN create new jobs
c) robotics could prevent a business from closing
d) All of the above.

68) A robot using control inputs to predict position estimates is moving in the negative y direction in a global coordinate frame. With respect to the variance in its final position estimate, it will have
a) Greatest variance in the y direction
b) Equal variance in the x and y directions
c) Least variance in the direction orthogonal to its motion
d) None of the above.

69) Which of the following is not a programming language for computer-controlled robot?
a) AMU.
b) VAL
c) RAIL
d) HELP

70) Robot is derived from Czech word
a) Rabota
b) Robota.
c) Rebota
d) Ribota

71) Internal state sensors are used for measuring _____ of the end effector.
a) Position
b) Position & Velocity
c) Velocity & Acceleration
d) Position, Velocity & Acceleration.