

**Answer all questions**

(1). The first Automated Sequence Controlled Calculator and the first digital computer that used stored programs are

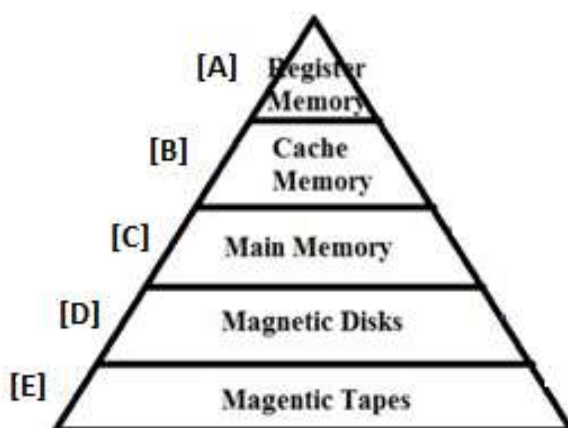
- 1) Abacus and EDVAC                      2) Mark - I and EDVAC.                      3) ABC and UNIVAC.  
4) Mark - I and UNIVAC.                      5) Mark - I and ENIAC

(2). Consider the following statements

- A - Response time should be short  
B - Data processing is to be carried out at periodic intervals  
C - Transactions are in batches  
D - Transactions do not occur periodically  
Batch processing is used when

1. A and B only                      2. A, C and D only                      3. B and C only  
4. A, B and C only                      5. A, B and C only

(3). Consider the following memory hierarchy diagram to answer questions



The memory in a computer can be divided into hierarchies based on the speed as well as use. Which of the following is/are considered as volatile storage device/devices

- 1) A,B,C Only                      2) C,D,E Only                      3) E only                      4) D,E Only  
5) All A,B,C,D,E

(4) Consider the following statements about firmware

A). Program that's needs to boot up the computer is firmware.

B). Firmware are using in air-condition machines.

C). After a period of time firmware can change simply. From the above which is/are correct statement/s

1) A only

2). B only

3). A and B

4). A and C

5). A,B and C

(5) Conversion of the decimal 0.8125 into its binary number will be

1) 0.1001

2) 0.11101

3) 0.1101

4) 0.110011

5) 0.110110

(6). What is the 8 bit 2's complement representation of 10110010

1) 01001101

2) 01001110

3) 10110010

4) 11000010

5) 178

(7).  $(67.5)_8 + (45.6)_8$

1)  $1\ 3\ 5\ .\ 3_8$

2)  $13.53_8$

3)  $13.53_{16}$

4)  $112.3_8$

5)  $1100000.1011_2$

(8). Find the sign-magnitude of -25

1) 000011001

2) 00011001

3) 10011001

4) 10011111

5) 00010101

(9). Octal equivalent of the number 11010.1011 is....

1) 32.15

2) 63.51

3). 32.27

4) 62.31

5) 32.51

(10). Which of the following represents the bitwise XOR operation of two binary numbers 10110110 and 11111010

1) 44

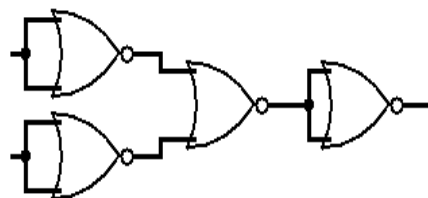
2) 76

3) 32

4) 238

5) 215

(11). Consider the following combinatory circuit implemented using the universal gates



1)  $(AB)'$

2)  $(A+B)'$

3)  $AB$

4)  $A+B$

5)  $A$

(12). Which of the following Karnanmap is correct about full adder?

Sum output and Carry output -  $C_{out}$  generates the K-map shown.

- 1)
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 0  | 1  | 0  |
| 1 | 0 | 1     | 1  | 1  | 1  |
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 1  | 0  | 1  |
| 1 | 1 | 0     | 1  | 0  | 0  |
- 2)
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 0  | 1  | 1  |
| 1 | 0 | 1     | 1  | 1  | 1  |
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 1  | 0  | 1  |
| 1 | 1 | 0     | 1  | 0  | 0  |
- 3)
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 0  | 1  | 0  |
| 1 | 0 | 1     | 1  | 1  | 1  |
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 1     | 0  | 1  | 0  |
| 1 | 1 | 0     | 1  | 0  | 0  |
- 4)
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 0  | 1  | 0  |
| 1 | 1 | 0     | 1  | 1  | 1  |
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 1  | 0  | 1  |
| 1 | 1 | 0     | 1  | 0  | 0  |
- 5)
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 0  | 1  | 0  |
| 1 | 1 | 1     | 1  | 1  | 1  |
- |   |   |       |    |    |    |
|---|---|-------|----|----|----|
|   |   | BC in |    |    |    |
|   |   | 00    | 01 | 11 | 10 |
| A | 0 | 0     | 1  | 0  | 1  |
| 1 | 1 | 0     | 1  | 0  | 0  |

(13). Convert the following SOP expression to an equivalent POS expression

$$AB'C + A'B'C + A'B'C' + AB'C'$$

- 1)  $(A' + B + C') + (A + B' + C) + (A' + B' + C') + (AB'C')$
- 2)  $(A' + B + C) \cdot (A + B + C) \cdot (A' + B' + C') \cdot (A + B' + C')$
- 3)  $(A + B' + C) \cdot (A' + B' + C) \cdot (A' + B' + C') \cdot (A + B' + C')$
- 4)  $(A' + B + C') \cdot (A + B + C') \cdot (A + B + C) \cdot (A' + B + C)$
- 5) None of the above

(14). Simplify the Boolean expression

$$\overline{(AB \cdot C)} \cdot \overline{(AB + C)}$$

- 1) 0
- 2) AB
- 3) AB
- 4) AB+C
- 5) 1

(15). Consider the following statements regarding the usage of virtual memory

- A. Virtual memory is a storage allocation scheme in which secondary memory can be addressed as through it were part of the main memory.
- B. Virtual memory is much slower than RAM
- C. Swaps programs and data between the hard-disk and RAM as the CPU requires them for processing

- 1) A Only                      2) C Only                      3) A & B Only
- 4) A & C Only              5) All A,B,C

(16). Consider the following features

- A - Easy Access
  - B - File size is not known at the time of creation.
  - C - Extending file size is difficult
- A, B and C are the features of

- 1). Indexed Allocation      2). Contiguous Allocation      3). Linked Allocation
- 4). FAT file system          5). NTFS file system

(17). Which of the following operating system is suitable for a traffic control System.

- 1) Real time
- 2) Multi Threading
- 3) Single user-Single tasking
- 4) Single user-Multi tasking
- 5) Multi user-Multi tasking

(18). Consider the following statements about scheduling

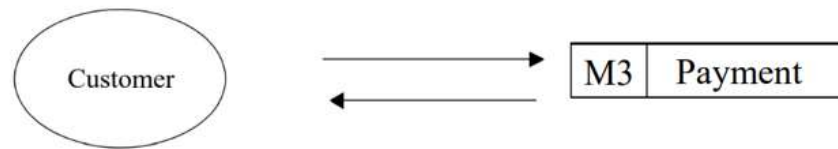
- A – It determines which programs are admitted to the system for processing
- B – In charge of swapping processes between the main memory and the secondary storage
- C – Determines which ready process will be assigned the CPU

Which of the following is correct with respect to A, B and C respectively?

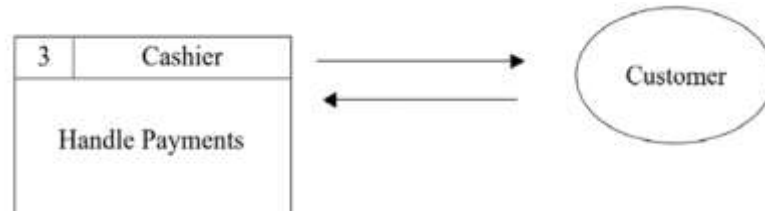
- 1). Long-term scheduling, Medium-term scheduling and Short-term scheduling
- 2). Long-term scheduling, Short-term scheduling and Medium-term scheduling
- 3). Long-term scheduling, Medium-term scheduling and Short-term scheduling
- 4). Short-term scheduling, Long-term scheduling and Medium-term scheduling
- 5). Medium-term scheduling, Long-term scheduling and Short-term scheduling

(19). Identify the diagrams which have fundamental error in the following Data Flow Diagrams (DFD)

A)



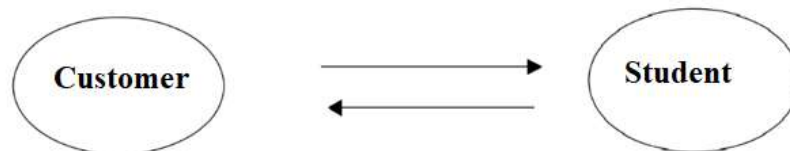
B)



C)



D)



- 1) A and B only      2) A and C only      3) A,B,C Only      4) B,D only  
5) A,B,D only

(20). Which of the following type of HTML tag is used to define an internal style sheet?

- 1) <script>      2) <link>      3) <class>      4) <style>  
5) <id>

(21). What will be the output of following CSS code?

```
h1 {color: red text-align: centre; font-style: italic;}
```

- 1) color: red, text-align: center works  
2) only font-style: italic works  
3) color: red, text-align: justify and font-style: italic all works  
4) text-align: center and font-style: italic works  
5) only font-family: italic works

(22). Which of the following anchor elements can be used to open a link in a new tab or window?

- 1) <a href="url" target="\_blank">  
2) <a href="url" new="tab">  
3) <a href="url" open="tab">  
4) <a href="url" target="tab">  
5) <a href="url" target="\_self">

(23). Consider the following table and find the correct html code?

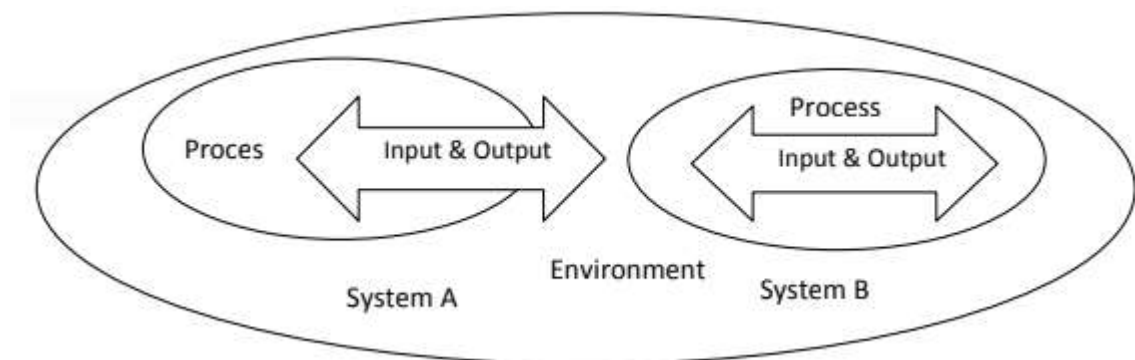

- 1). `<tr><td colspan="2"></td><td rowspan="2"></td></tr><tr><td></td><td></td></tr>`
- 2). `<tr><td rowspan="2"></td><td colspan="2"></td></tr><tr><td></td><td></td></tr>`
- 3). `<td><tr rowspan="2"></tr><tr colspan="2"></tr></td><td><tr></tr><tr></tr></td>`
- 4). `<td><tr merge="2"></tr><tr merge="2"></tr></td><td><tr></tr><tr></tr></td>`
- 5). `<th><td rowspan="2"></td><td colspan="2"></td></th><th><td></td><td></td></th>`

(24). Each statement in column A has to be matched with the most appropriate one from column

Column A		Column B	
A	Expert Systems	1	This studies cost and benefits to evaluate.
B	Acceptance Testing	2	this evaluates whether the developers have ability to construct the proposed system.
C	Unit Testing	3	carried out by test teams independent of the programmers and/or users who developed the system, black box techniques are used)
D	Feasibility study	4	computer applications that use artificial intelligence.
E	Economic feasibility:	5	usually carried out by programmers, white box techniques are used

- 1) A -4, B -3, C-5, D-2, E-1
- 2) A -5, B -3, C-4, D-2, E-1
- 3) A -3, B -4, C-5, D-2, E-1
- 4) A -1, B -3, C-5, D-2, E-4
- 5) A -2, B -3, C-5, D-4, E-1

(25). Select the most suitable answer by looking at the following two diagram



- 1) System A is natural and System B is artificial
- 2) System A is Artificial and system B is natural
- 3) System A is open an System B is close
- 4) System A is close an System B is Open
- 5) Both system are closed an artificial

(26). Which of the following are types of information systems that help employees create and share documents that support day-to-day workplace activities.

- 1) Transaction processing system
- 2) Executive information system
- 3) Expert system
- 4) Communication collaboration system
- 5) Office automation system

(27). Digital signatures allow us to verify the author, date and time of signatures, authenticate the message contents. In the digital signature which of the following is used to encrypt the message.

- 1). Sender private key    2). Sender public key    3). Receiver private key
- 4). Receiver public key    5). Sender Private key and public key

(28). When devices send and receive data over a network, which of the following addresses enable the unique identification of the device interface and the correct delivery of the data to the receiver's interface.

- 1). MAC addresses                      2). IP addresses                      3). Port Number
- 4). Network addresses                5). Web addresses

(29). The reduction of the signal energy as it travels through the given medium is called

- 1). Latency    2). Distortion    3). Attenuation    4). Bandwidth    5). Noise

(30). During data transmission, sometimes data bits may get flipped due to various reasons. In such situations the data bit received is an error. To correct the errors, additional bits are added to the data bits at the time of transmission. The additional bits are called

- 1). Error bits    2). Detection bits    3). Correction bits    4). Parity bits    5). Binary bits

(31). You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classfull subnet mask would you use?

- 1)        255.255.255.192
- 2)        255.255.255.224
- 3)        255.255.255.240
- 4)        255.255.255.248
- 5)        255.255.255.255

(32). You have an IP address of 172.16.13.5 with a 255.255.255.128 subnet mask. What is your class of address, subnet address, and broadcast address?

- 1) Class A, Subnet 172.16.13.0, Broadcast address 172.16.13.127
- 2) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.127
- 3) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.255
- 4) Class B, Subnet 172.16.0.0, Broadcast address 172.16.255.255
- 5) Class C, Subnet 172.16.0.0, Broadcast address 172.16.255.255

(33). Communication between a computer and a keyboard involves \_\_\_\_\_ transmission

- 1) Automatic
- 2) Half-duplex
- 3) Full-duplex
- 4) Simplex
- 5) Half -duplex and Full\_duplex

(34). Which of the following is incorrect?

- (1) B2C e-commerce is the online selling of goods and services to final consumers
- (2) A product that has a strong brand identity is easier to sell over the web than an unbranded item.
- (3) One of the major challenges facing online marketers is the inability to ensure privacy
- (4) E-markets have physical marketplaces just like traditional commerce
- (5) Extranets are networks that connect a company with its suppliers and distributors

(35). Hirushan renews his revenue license online. He can do it anytime at home. What kind of business is this?

- 1) B2B
- 2) B2C
- 3) G2C
- 4). G2B
- 5) G2E

(36). How to Delete records from studentinfo table with name of student 'Hirushan Perera'?

- 1) DELETE FROM TABLE studentinfo WHERE sname='Hirushan Perera';
- 2) DELETE FROM studentinfo WHERE sname ='Hirushan Perera';
- 3) DELETE FROM studentinfo WHERE COLUMN sname='Hirushan Perera';
- 4) DELETE FROM studentinfo WHERE sname LIKE 'Hirushan Perera';
- 5) Drop FROM studentinfo WHERE sname='Hirushan Perera';

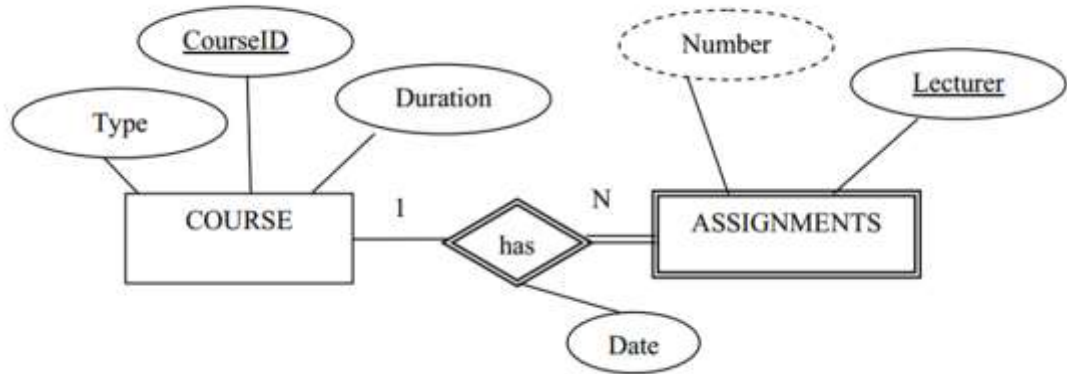
(37). The descending order of data hierarchy is

- 1). Database-> Files ->Records -> Fields -> Bytes -> Bits
- 2). Database-> File ->Record -> Fields -> Bits-> Bytes
- 3). Database-> Record ->File -> Fields -> Bytes -> Bits
- 4). Database-> Record->Fields-> File-> Bytes -> Bits
- 5). Bit-> Bytes ->Fields -> File -> Records -> Database



(38). Consider the following Entity Relationship Diagram (ERD).

Which of the following is/are the most suited relation(s) if the above diagram is mapped into a relational model?



- 1) COURSE(CourseID, Duration, Type, Number, Lecture)
- 2) ASSIGNMENTS(CourseID, Date, Lecturer)
- 3) COURSE\_ASSIGNMENTS(CourseID, Lecturer, Date, Number)
- 4) COURSE(CourseID, Duration, Type, Date)
- 5) ASSIGNMENTS(Lecturer, CourseID, Date, Number)

(39) When would a software piracy occur from the following statements?

- 1) Hirushan buys a computer and also purchases Windows 7 operating system for his computer.
- 2) Hirushan downloads an e-book about computing and shares it with his friends to improve knowledge.
- 3) A class teacher asks students to buy “Adobe Photoshop” which is needed for their studies.
- 4) Harshan makes copies of Microsoft Office package and he sells it to his friends for a very cheap, reasonable amount.
- 5) A teacher gives away Ubuntu operating system for the students in the class to complete an assignment.

(40). What is the output when you execute the following Python code?

```

x=[34,7,12,17,21,4,51]
t=0
for i in range(len(x)):
    if not(x[i]%2!=0):
        t=t+x[i]
print(t)
    
```

- 1) 96
- 2) 146
- 3) Syntax error
- 4) 50
- 5) Runtime error

(41). What is the output of the following Python statement? `print(6+28%3//2**3*6 |3)`

- 1) 7                      2) 7.0                      3) 2                      4) 0                      5) 5.0

(42). For any given input, outputs of which of the following Pseudo codes will be the same as the output produced by the algorithm in the above flowchart?

A.

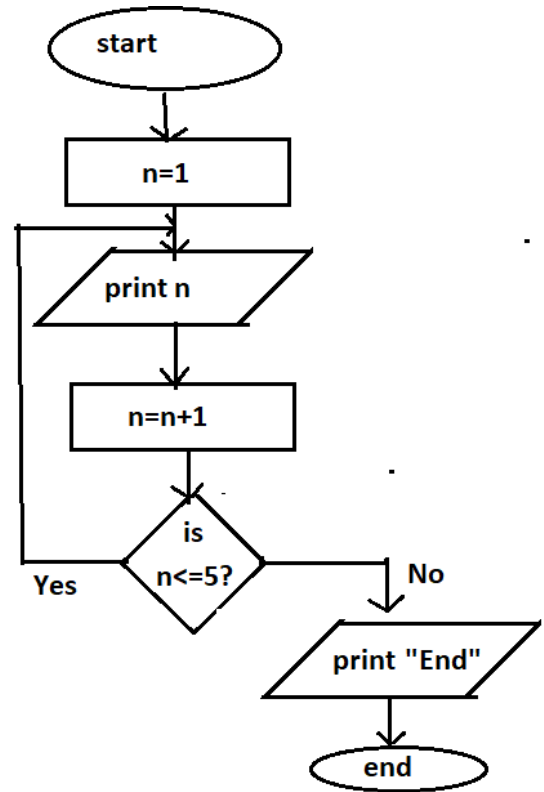
```
Begin
n=1
REPEAT
  Print n
  n=n+1
UNTIL n>5
Print "The End"
End
```

B.

```
Begin
n=1
WHILE n<=5
  Print n
  n=n+1
END while
print("End")
End
```

C.

```
Begin
n=1
Do
  Print n
  n=n+1
LOOP WHILE n<=5
print("End")
```



- 1) A only                      2) B only                      3) A,B Only                      4) B,C Only                      5) All A,B,C

(43). What is the output of the following python code ?

```
for i in range (5,0,-2):  
    print(i)
```

- |      |      |      |      |      |
|------|------|------|------|------|
| 1) 5 | 2) 1 | 3) 1 | 4) 0 | 5) 0 |
| 3    | 3    | 2    | 1    | -1   |
| 1    | 5    | 3    | 2    | -2   |

(44). What is the output of the following python code?

```
x=0
a=5
b=5
if a>0:
    if b<0:
        x=x+5
    elif a>5:
        x=x+4
    else:
        x=x+2
print(x)
```

1) x=4

2) x= 6

3) x=2

4) x=0

5) 5

(45). What will be the output of the following python statements?

```
d={"hirushan":40,"pramod":45}
print(list(d.keys()))
```

1) ["Hirushan", "Pramod"]

2) [{"Hirushan":40, "Pramod":45}]

3) ("Hirushan", "Pramod")

4) ("Hirushan":40, "Pramod":45)

5) [40,45]

(46). What is the output of the following?

```
i = 2
while True:
    if i%3 == 0:
        break
    print(i,end=" ")
    i += 2
```

1) 2 4 6 8 10 ...

2) 2 4

3) 2 3

4) 2,4,6

5)Error

(47). What will be the output of the following Python code?

```
for i in [1,2,3,4][::-1]:  
    print(i, end = " ")
```

- 1) 4 3 2 1                      2) 1 2 3 4                      3) 1 3                      4) 1,2,3,4  
5) 1,4

(48). What will be the output of the following PHP code?

```
<?php  
$bx = 40000;  
$dis= 0;  
if ($bx>=50000){  
    $dis=$bx*50/100;  
  
    echo "50% Discount is :$dis<br>";  
} else  
{  
    $dis=$bx*10/100;  
    echo "10% Discount is:$dis<br>";  
}  
?>
```

- 1) 50% Discount is:4000                      2) 50% Discount is :400000  
3) 10% Discount is :2000                      4) 10% Discount is:4000  
5) Error

(49). Which of the following include characteristics of a software Agent?

- A. Autonomy and being situated in an environment  
B. Autonomy, and proactiveness  
C. Reactiveness and reactivity

- 1) A and B only                      2) A and C only                      3) B and C only  
4) All are correct.                      5) All are incorrect.

(50). Microcontrollers are used in automatically controlled product and devices. The heart of the Arduino is a microcontroller originally intended for industrial automation systems.

Contents of an Arduino board can be.

- P- Rest Button  
Q- I/O unit for analog and digital signals  
R-Modem  
S- USB Jack  
T- Wi-Fi Module



- 1).P and T only                      2). Q and R Only                      3). P, Q and S only  
4). Q, S and T only                      5). P,Q,R,S and T All