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GCE AL ICT 2023 **REVISION**
MERIT TEST **PAPER** | PACK 02

1. Which of the following provide a software interface for hardware devices.

i) Device Driver	iii) CMOS	v) EPROM
ii) BIOS	iv) IRQ	

2. Consider the IP address 192.16.5.133/29. How many bits are needed to identify the IP addresses and the Host number respectively.

i) 29,3	iii) 30,2	v) 28,4
ii) 28,3	iv) 29,4	

3. The primary keys of relational database do not have a null value. What kind of integrity constraint is this?
 - i) Entity integrity constraint
 - ii) Referential integrity constraint
 - iii) Domain integrity constraint
 - iv) Data integrity constraint
 - v) Attribute integrity constraint

4. Which of the following Software processing models have the given characteristics?
 - *Software operations are divided into parts with time for every output
 - *It is a recycling method
 - *It can be both static and dynamic

i) Waterfall model	iii) Spiral model	v) Agile model
ii) Original model	iv) RAD model	

5. In OSI reference model, HUB comes under

i) Data-Link layer	iii) Transport layer	v) Presentation layer
ii) Physical layer	iv) Network layer	

6. (a) Fill in the blanks in the following statements with the suitable words from the given list of words
 - i) discrete time periods that are used to divide up the shared channel, so that there will not be any collisions when transmitting data.
 - ii) Multiple processors or multiple processing cores in a single computer work together to complete a single job more quickly.
 - iii) ROM, is a type of computer storage containing non-volatile, permanent data that, normally, can only be read not written but..... can be programmed and erased electrically to update BIOS.
 - iv) is made up of a collection of wires connecting the cpu with the main memory that is used to identify particular locations in the main memory.

LIST

{ EEPROM, Pure Aloha, Grid computing, Address bus, parallel computing, EPROM, Slotted Aloha, Control bus }

7. Sandeepa is a project manager assigned to deliver software application to a telecommunication company. After the initial discussion they had with the telecommunication company. Sandeepa's project team realized that there are many requirements, some of which are complex. The company needs working software, which includes its main requirements, within a few weeks. Based on the requirements of the company, Sandeepa and the team decided to use Agile scrum as the software development methodology
- i) By considering above scenario, do you agree with the decision that was made by Sandeepa and the team? Justify your answer.
 - ii) At each sprint (cycle) a new software component is developed and merged with the existing system. Sandeepa has assigned a team member to test the merged version of the software. What type of software testing type is carried out by the team member?
 - iii) After the completion of the software, the product was deployed to the telecommunication company. A few weeks later, the software application has an error that prevent employees from updating critical customer data. What is the deployment method that should have been used by Sandeepa and the team to prevent this fault?
 - iv) The company has found out when using the software, the employees are reluctant to use the new system due to the lack of knowledge about softwares. What is the feasibility method that was missed by Sandeepa and the team during the feasibility study in the SDLC
8. (a) Suppose that the ABC company has received the IP address block 192.248.154.0/25 to be distributed among its four departments

It is required to subnet the above IP address block to satisfy the following requirements. Assume that each department is located in a separate building

Subnet Number	Dep Name	Number of hosts
S01	Accounts	30
S02	Sales	28
S03	Service	18
S04	Administration	24

- i) Write the first address and the last address in the given address block?
- ii) Write the subnet mask of the given address block in dotted decimal notation?
- iii) How many host bits are needed to create the required number of subnets?

iv) Once subnetting is done fill the following table

Subnet Number	Network Address	Subnet Mask	First Usable IP Address	Last Usable IP Address	Broadcast Address
S01					
S02					
S03					
S04					

(b) A web user complaint to the network administrator that he finds difficulty in sharing files remotely. So, the administrator checks and finds out the connection can be made using IP address and URL as well. What can be the possible issue here?

9. Consider the following table of relational database.

BranchNo	BranchAddress	TelNo
B001	Jaffna	021 222 2221, 021 222 2222, 021 222 2223
B002	Chankanai	021 222 22254, 021 222 2276
B003	Chavakacheri	021 222 2200
B004	Chunnakam	021 222 2201, 021 222 2209
B005	Kandy	081 237 5854, 081 287 7867

i) Explain that this table is not in 1st NF

ii) Convert this table to 3rd NF

iii) Write the Primary key and foreign key with their table names respectively after converting the given table into 3NF

iv) After converting the given table above into 3NF, write the SQL command to obtain BranchAddress and TelNo of BranchNo B001

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END OF THE PAPER