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GCE AL ICT 2023 **REVISION**
MERIT TEST **PAPER** | PACK 01

1. The smallest unit of storing a data file in a hard disk is
 - i) Sector
 - ii) Track
 - iii) Cylinder
 - iv) Cluster
 - v) Plate

2. Which of the following statement is correct about Flip-Flop?
 - i) Flip-Flop is used in SRAM
 - ii) Latch Flip-Flops are used only for logical circuits
 - iii) When a certain value is given to Flip-Flop, they will not be remembered
 - iv) Flip-Flop is used in Half-Adder
 - v) Temporary memory can be created by using Flip-Flop

3. secures IP addresses to use the internet by activating private IP networks with the use of unregistered IP addresses
 - i) Wi-Fi
 - ii) Router
 - iii) Ethernet
 - iv) NAT
 - v) NIC

4. A memory that provides only sequential access to its data
 - i) Cache Memory
 - ii) RAM
 - iii) CD
 - iv) Registers
 - v) Magnetic Tapes

5. In 1890..... used punch card concepts to invent.....

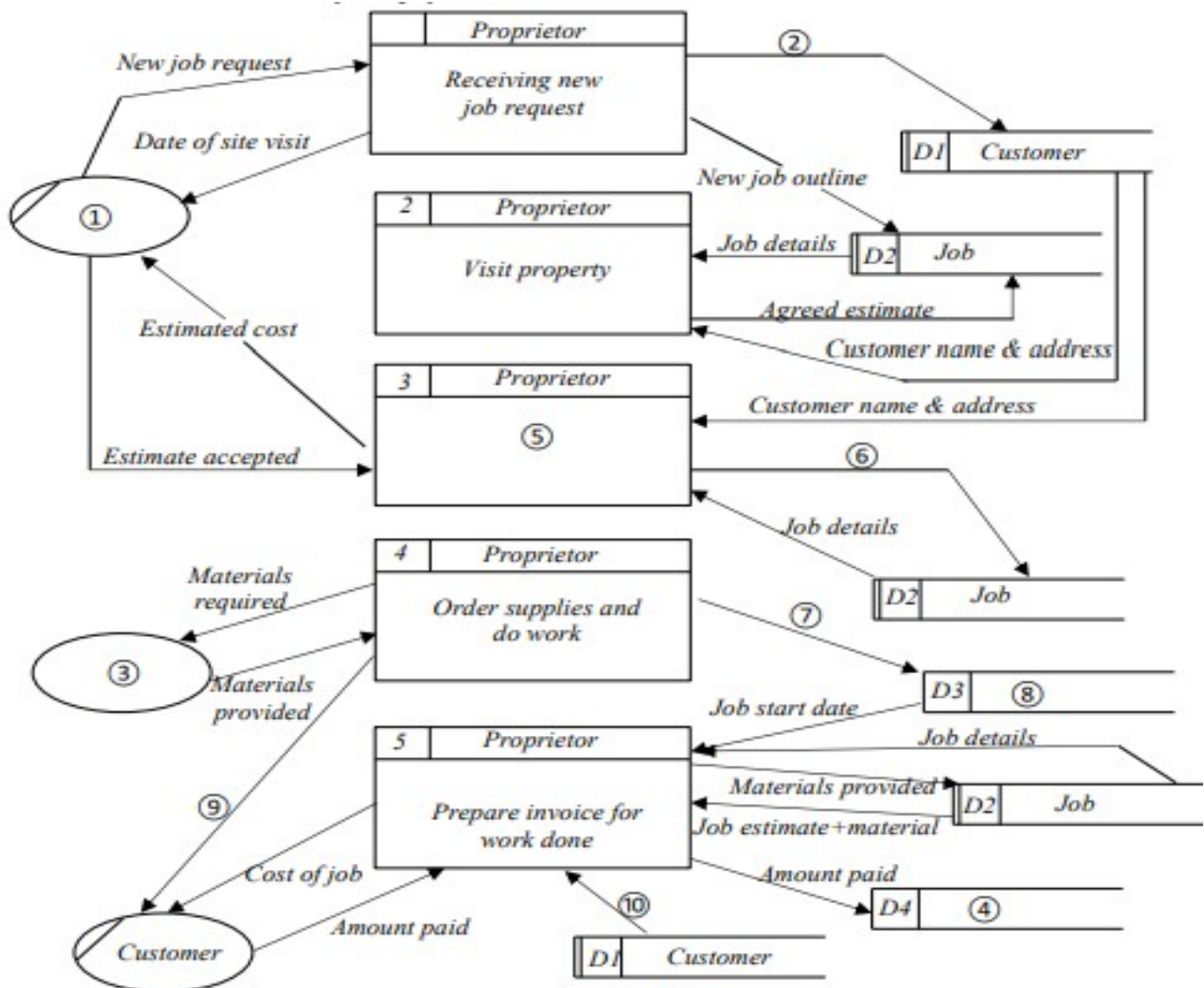
Most suitable words that can be used to fill in the blanks are,

 - i) Joseph Jacquard, Electrical weaving loom
 - ii) Charles Babbage, Analytical Engine
 - iii) Howard Aiken, Mark1
 - iv) Blaise Pascal, Adding Machine
 - v) Herman Hollerith, Electric Mechanical Calculator

6. If any word of size 64 bit in a memory space can be addressed by using 30-bit memory address and each location holds one word, what should be the size of the memory space?
 - i) 2GB
 - ii) 4GB
 - iii) 8GB
 - iv) 16GB
 - v) 32GB

7. Consider the following situation.

RK builders is a company offering house building and property improvement services to the public. The proprietor of the company employs a number of skilled workers such as bricklayers, carpenters and plumbers. The proprietor manages the building projects himself and may occasionally help with construction work. RK builders wants to computerize the management of building work. This includes processing of estimates, job scheduling, and payments as describes below in more detail. When a customer contacts the company to ask for an estimate, the proprietor makes a note of the customer's contact details and an outline of the proposed work. He agrees a date with the customer to view the property in order to give an estimate of the cost for the work. When visiting the property on the agreed date the proprietor adds more detail to the outline of the proposed work. Within 3 days of visiting the property the proprietor produces a fully detailed estimate and sends it to the customer. If the customer agrees the estimate, the proprietor schedules a date to start the job (this is based on the size of the job and other jobs that have already been scheduled). A few days before the agreed start date of a job, the proprietor contacts the customer to confirm the start the date, and then orders the required building materials from suppliers to be delivered on the date the job starts. At the end/completion of the job the proprietor calculates the actual cost of the job to produce an invoice which is sent to the customer. The customer has 30 days to pay the invoice.



8. Draw the Manchester signal encoding when the data **10110001** is transferred

9. i) What is the difference between combinational and sequential circuits?

ii) What will be the output of SR latch using NAND gate, when the input $S=0$ and $R=1$ is given?

10.

a) i) Draw an ER diagram from the information given below.

A medical student has gathered some health related informations, and he wants your help to draw an entity relationship diagram with the informations he has gathered. Here's the informations he has gathered,

- Patients are identified by the patient's id. Moreover, their names and ages must also be recorded.
- The Doctors are identified by doctor's id. For each doctor, the name, specialty, and years of experience must be recorded.
- Every doctor has at least one patient and each patient also take medicines from at least one doctor.
- Each pharmaceutical company is identified by name and has a phone number.
- For each drug, the trade name and formula must be recorded. Each drug is sold by a given pharmaceutical company, and the trade name identifies a drug uniquely from among the products of that company. If a pharmaceutical company is deleted, you need not keep track of its products any longer.
- Each pharmacy has a name, address, and two phone numbers. Each pharmacy sells several drugs and has a price for each, a drug could be sold at several pharmacies, and the price could be vary from one pharmacy to another.
- Doctors prescribe drugs for patients. A doctor could prescribe one or more drugs for several patients, and a patient could obtain prescription from several doctors. Each prescription has a date and a quantity associated with it. You can assume that if a doctor prescribes the same drug for the same patient for more than once, only the last such prescription needs to be stored.
- Pharmaceutical companies has long term contracts with pharmacies. A pharmaceutical company can contract with several pharmacies, and a pharmacy also can contract with several pharmaceutical companies. For each contract you have to store a start date, end date, and the agreement of the contract.
- Pharmacies appoint a supervisor for each contract. There must always be a supervisor for each contract, but the contract supervisor can change over the lifetime of the contract.

ii) How would you design change if each drug must be sold at a fixed price by all pharmacies?

END OF THE **PAPER**