IMSDB Interview Questions

QUESTIONS AND THEIR EXPLANATION

**Q.     What is the physical nature of a database called?**

**ANS.**    DBD

**Q Is it necessary that all the segments in a Dl/i database have key fields ?**

A It is not necessary that all the segments in the database should have key field, except for the database.

**Q3)     How many key fields and search fields can a segment have?**

A3)     One key field and as many search fields in the segment can be declared.

Q4**)     Is it necessary that the key field in a Dl/I database be unique?**

A4)     No, it is no necessary.

**Q: What is a segment.**

**A:** A segment is a unit of data that DL/I transfers to and from program

   in an I/O operation. Each segment consists of one or more fields.

**Q6)     What is a database record?**

A6)     A single occurrence of the root along with all its dependents is called the database record.

**Q7)     What is a Hierarchy path?**

A7)     A line that starts at the root and passes thru the inter mediate levels in the hierarchy and ends at a segment at the bottom of the hierarchy is called the Hierarchy path.

**Q8)     What is a Root?**

A8)     The segment at the top of the Hierarchy, which is not a child to a segment is called the Root.

**Q9)     What are Twins?**

A9)     Occurrences of all the segment types under a single parent segment occurrence is called a Twin.

**Q10)   Define the terms Parent & Child.**

A10)   Parent-Any segment that has one or more segments directly below it is a Parent. Child-Any segment that has segment directly above it is called the Child.

**Q11)   What is the limitation on the no. of levels in a DL/I database?**

A11)   You can have 15 levels in a DL/I database

**Q12)   How many segment types can u have in a DL/I database?**

A12)   A Dl/I database can have 255 segment types

**001 ALL About IMS DB basic Theory**

**Q. What is an IMS Database?**

ANS A Database is a collection of related data items organized in a way that can be processed by application programs.

**Q. What is DBMS in IMS?**

ANS. A Database Management System is used to define and maintain the structure of the database.

**Q. What are the objectives of DBMS in IMS?**

ANS.

1. Increases data independence
2. Reduces data redundancy
3. Provides data communication facilities
4. Reduces data maintenance
5. Provides data integrity and security
6. Provides indexing capabilities

**Q. What is IMS (DB/DC)?**

ANS.

IMS (Information Management System) is IBM’s hierarchical database management system. It has mainly two components: IMS DB and IMS DC (also known as IMS TM)

**IMS DB -** IMS/Database Manager as the name implies manages the IMS databases. It is used for physical storage, creation and management and data retrieval.

**IMS DC / IMS TM** - IMS/Data Communications or IMS/Transaction Manager handles **online transaction processing system**.

**Q. What do you mean by Hierarchical Database?**

ANS.

Follows inverted tree structure

Data relationship is predefined by its structure

Program accesses the data through predefined paths.

**Q. What are the advantages and disadvantages of Hierarchical databases**

**ANS.**

Advantages:

1.Speed of access is faster due to predefined data paths

Disadvantages

1.Complex implementation

2.predefined tree structure reduces flexibility

3.difficult to manage

**Q. What is a Segment type?**

ANS. Loosely speaking a segment type is a segment in a Dl/I hierarchy chart.

**Q. What is a segment?**

ANS. A segment is the smallest unit of information that Dl/I use when working with information in the database

**Q. What is Hierarchy Chart?**

ANS. A Hierarchy chart is a pictorial representation of the total of a DL/I database starting from the root, giving all the parent child relationships that exist within the database

**Q. Explain IMS Software Environment?**

**ANS**.

IMS Software Environment consists of the below five main components:

1. IMS DB
2. DL/I
3. DL/I Control Blocks
4. IMS DC
5. Application Programs

**Q. What is DL/I?**

**ANS.**

DLI is a command-level language to manipulate IMS databases. DLI forms a bridge between application program and IMS database.

It is used in batch and online programs to access data stored in IMS databases.

Every access to an IMS database is through DL/I. The DL/I interface must be called to update or read a IMS database.

DLI allows both sequential and random processing of a database.

**Q. What are the main control blocks present in IMS DB**

ANS.

1. DBD
2. PSB
3. ACB

**002 ALL About IMS DB DBMS related**

**Q. What is DBD**

ANS. DBD (Database Definition) is used to define physical structure of the database

* One DBD for each database
* Created by a series of control statements – by process called DBDGEN
* Used by the DLI whenever the database is called

**Q. Define DBD?**

ANS DBD: Database Descriptor. IMS Controls the Structure of DB and access to the DB via DBD. The DBD contains information like, Segment types, their location in hierarchy and Sequence keys.

**Q. What are the processing modes available in IMS**

**ANS.**

1. BATCH DLI
2. MPP mode (Message Processing Program)
3. BMP mode (Batch Message Processing)

**Q. What are the control blocks in IMS?**

ANS. There are two control blocks

1. DBD (database descriptor)
2. PSB (program specification block)

**Q. What is PSB, PCB & ACB?**

A35)

**PSB (Program specification block):** Informs about how a specific program is to be access one or more IMS DB. It consists of PCB.

**PCB (Prg Communication Block):** Information to which segment in DB can be accessed, what the program is allowed to do with those segment and how the DB is to be accessed.

**ACB (Access Control Block)**: are generated by IMS as an expansion of information contained in the PSB in order to speed up the access to the applicable DBD's.

**Q. How many PCB’s can be coded within a PSB?**

ANS. As many (more than one)

**003 ALL About IMS DB Implementation**

**Q. Which is the first statement in COBOL-IMS programs?**

ANS. Entry statement is the first statement after procedure division i.e. ENTRY 'DLICBL' USING .... (PCB-MASK)

**Q. What are the parameters used in CBLTDLI call?**

ANS. Function code, PCB mask, Segment I/O Area & SSA(s).

**Q. What are the three essential fields required for DLI call?**

**ANS.**

Function code (GU, GHU, ISRT, REPL)

PCB MASK

IO AREA

**Q. What are common DLI functions?**

ANS. GU, GN, GNP, GHU, GHN, REPL, ISRT, DLET...

**Q. What is the return code you get after a successful IMS call?**

ANS. Spaces.

**Q. What are common status codes that you come across?**

A26)   GE, GB, GD, GK, GP, AI, AB, AC, AK, AJ, AM, AU, DJ, II, IX, QC, QD, H...

GE - segment not found

GB - end of database

**Q. What is GA status code mean?**

ANS. It means hierarchical boundary has been crossed while retrieving next segment.

The next segment can be retrieved and used even if status code is GA.

More precisely GA is raised when a unqualified GN or GNP call moves up a level on Database hierarchy to retrieve a segment.

**Q. What are qualified and unqualified SSA's.**

ANS. A Qualified SSA contains Key field as well as search field and parenthesis. An unqualified SSA does not contain key field and parenthesis

**Q. What are the command codes and their purposes?**

ANS.

Command codes extends the function of a SSA call. It simplifies programming and it improves performance.

\*C - Concatenated key,

D-path call,

F- first occurrence,

L- last occurrence,

N- path call ignored,

P-set parentage.

**Q. What for procopt is used? List some of them?**

ANS.

Procopt parameter specifies PROCESSING OPTIONS that define the type of processing that can be performed on a segment. ex: K, G, L, LS, A, AS, I, IS.

procopt=k---means, the segment is key sensitive

procopt=g-          the segment is data sensitive (like read only)

L- Load mode, means we can load data base from scratch

A- Get, Insert, Delete, Replace- means it allows the program to issue all those calls

I-insert mode.  That means only insert calls with insert mode can be issued

**Q. What is multi positioning?**

ANS. Multi positioning is an option where by IMS maintains a separate position on each hierarchical path. when more than one PCBs refer to the same DBD, it is called Multi positioning.

**Q. How can we distinguish between an online and batch program in IMS environment?**

ANS. By seeing the IO-PCB in the application program.

**Q. Which is the DL/I function used in CICS-IMS program?**

ANS. PCB (PROGRAM COMMUNICATION BLOCK)

**Q. How does one reorg an HDAM IMS database when changing RAPS (Root Anchor Points)?**

ANS.

1. Unload data using current DBD.
2. Delete/define the underlying VSAM dataset(s).
3. Re-load data using newly-defined DBD with new RAPs.
4. Re-build any secondary indexes.

**Q24)   What do you know about DBD gen?**

A24)   used to generate DBDs. The statements in DBDGEN process are PRINT NOGEN, DBD, DATASET, SEGM, FIELD, DBDGEN, FINISH, END

**Q. What is Key Field in a IMS Database**

ANS. A Field that DLI uses to maintain the segments in ascending order is called key field

**Q. What is secondary indexing?**

ANS. Secondary indexing is a feature which allows the program to sequentially retrieve segments or search for segments in a sequence other than key sequence.

**Q. What is check pointing, sync point?**

**ANS.**

**Q. How do you write a PSB code?**

**ANS.**

**Q. What do you know about MFS?**

ANS. Message Format service, used to format messages that will be transmitted to and from display screens.

**Q. What are Four control blocks of Message Format Service**

ANS.

Message input Data(MID):  Describes the input messages as the application program sees it.

Message output Data(MOD):  Describes the output messages as the application program formats it.

Data Input Format(DIF):  Describes the Screen format for accepting input from user.

Data Output Format(DOF):  Describes the screen format as the user sees it.