**1. Explore the DVM instructions and prepare a summary of the same atleast for 5 instructions in a detailed format**

**i) instruction name:**

**ii) syntax**

**iii)example**

**Dalvik is the process virtual machine (VM) in Google's Android operating system. It is the software that runs the apps on Android devices. Dalvik is thus an integral part of Android, which is typically used on mobile devices such as mobile phones and tablet computers as well as more recently on embedded devices such as smart TVs and media streamers. Programs are commonly written in Java and compiled to bytecode. They are then converted from Java Virtual Machine-compatible .class files to Dalvik-compatible .dex (Dalvik Executable) files before installation on a device. The compact Dalvik Executable format is designed to be suitable for systems that are constrained in terms of memory and processor speed.Dalvik has some specific characteristics that differentiate it from other standard VMs The VM was slimmed down to use less space.The constant pool has been modified to use only 32-bit indices to simplify the interpreter.Standard Java byte code executes 8-bit stack instructions. Local variables must be copied to or from the operand stack by separate instructions.**

**Dalvik instead uses its own 16-bit instruction set that works directly on local variables. The local variable is commonly picked by a 4-bit 'virtual register' field. This lowers Dalvik's instruction count and raises its interpreter speed.Moreover, according to Google, the design of Dalvik permits a device to run multiple instances of the VM efficiently.**

1. **i) instruction name:08 22x**

**ii) syntax: move-object/from16 vAA, vBBBB**

**A: destination register (8 bits)**

**B: source register (16 bits)**

**iii)example:0801 1500 - move-object/from16 v1, v21**

**Move the object reference in v21 to v1.**

1. **i) instruction name:01 12x**

**ii) syntax:move vA,vB**

**A: destination register (4 bits)**

**B: source register (4 bits)**

**iii)example:0110 - move v0, v1**

**Moves v1 into v0.**

1. **i) instruction name:02 22x**

**ii) syntax:move/from16 vAA, vBBBB**

**A: destination register (8 bits)**

**B: source register (16 bits)**

**iii)example:0200 1900 - move/from16 v0, v25**

**Moves v25 into v0.**

1. **i) instruction name:05 22x**

**ii) syntax: move-wide/from16 vAA, vBBBB**

**A: destination register pair (8 bits)**

**B: source register pair (16 bits)**

**iii)example:0516 0000 - move-wide/from16 v22, v0**

**Moves v0 into v22.**

1. **i) instruction name:07 12x**

**ii) syntax: move-object vA, vB**

**A: destination register (4 bits)**

**B: source register (4 bits)**

**iii)example:0781 - move-object v1, v8**

**Moves the object reference in v8 to v1**

**2. Differentiate between mobile and cloud computing**

**->Mobile computing:**

**1.Mobile computing is taking a physical device with you.This could be a laptop or a mobile phone or some device which enables you to telework – working wherever you go because of the small size of the device you’re using.**

**2.Mobile computing is human–computer interaction by which a computer is expected to be transported during normal usage.**

**3.Mobile computing involves mobile communication, mobile hardware, and mobile software. Communication issues include ad hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies. Hardware includes mobile devices or device components.Mobile software deals with the characteristics and requirements of mobile applications.**

**4.Portability is one aspect of mobile computing.**

**5.Devices:Personal digital assistant/enterprise digital assistant,Smartphone,Tablet computer and Ultra-Mobile PC.**

**6.Security issues involved in mobile computing:Different security counter-measures are being developed and applied to smartphones, from security in different layers of software to the dissemination of information to end users. There are good practices to be observed at all levels, from design to use, through the development of operating systems, software layers, and downloadable apps.**

**Cloud computing:**

**1.Cloud computing, one of the new buzz words of 2008, allows you to store your files and folders in a “cloud” area on the Internet,allowing you access to all of your files and folders wherever you are in the world – but you do need a physical device with Internetaccess to access it.**

**2.Cloud computing is an expression used to describe a variety of computing concepts that involve a large number of computers connected through a real-time communication network such as the Internet.[1] In science, cloud computing is a synonym for distributed computing over a network, and means the ability to run a program or application on many connected computers at the same time.**

**3.The phrase also more commonly refers to network-based services, which appear to be provided by real server hardware,and are in fact served up by virtual hardware, simulated by software running on one or more real machines. Such virtual servers do not physically exist and can therefore be moved around and scaled up (or down) on the fly without affecting the end user - arguably, rather like a cloud.**

**4.At the foundation of cloud computing is the broader concept of converged infrastructure and shared services.**

**5.Privacy:The increased use of cloud computing services such as Gmail and Google Docs has pressed the issue of privacy concerns of cloud computing services to the utmost importance. The provider of such services lie in a position such that with the greater use of cloud computing services has given access to a plethora of data. This access has the immense risk of data being disclosedeither accidentally or deliberately.Privacy advocates have criticized the cloud model for giving hosting companies' greater ease to control—and thus, to monitor at will—communication between host company and end user, and access user data (with or without permission)**

**3.Give an example of an application simulating an environment of context aware computing and justify.**

**->Apllication is: BUMP**

**Justification:\*Bump two phones together to share**

**-photos**

**-contacts**

**-apps**

**\*without knowing email id/ip address.**

**\*Bump makes sharing very simple as bumping two phones together.**

**\*context collected via**

**-vibration/motion sensor**

**-location detectors**