

## Open Source Concepts

### Type A: Very Short Answer Questions

<b>1</b>	<b>What is OSS?</b>
<b>Ans:</b>	✓ Open Source Software is a software available with source code and free to change/edit/redistribute and imposed no further restrictions on product or its usage.
<b>2</b>	<b>Expand the terms: OSI, FLOSS, FSF, GNU, GPL W3C, and OSS.</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>1. <b>OSI</b> –Open source Initiative</li> <li>2. <b>FLOSS</b> –Free Libre and Open Source Software</li> <li>3. <b>FSF</b> –Free Software Foundation</li> <li>4. <b>GNU</b> –GNU is Not Unix</li> <li>5. <b>GPL</b> –General Public License</li> <li>6. <b>W3C</b> –World Wide WEB Consortium</li> <li>7. <b>OSS</b> –Open Source Software</li> </ol>
<b>3</b>	<b>Define Freeware and Shareware.</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>1. <b>Freeware:</b> Freeware is the software available free of cost and allows copying and further distribution but does not allows modification as its source code is not available.</li> <li>2. <b>Shareware:</b> Shareware is as software which is available for redistribution for stipulated time but after some time some license free is required to be paid.</li> </ol>
<b>4</b>	<b>What for are these software used?</b>
	<ol style="list-style-type: none"> <li>(i) <b>Linux</b></li> <li>(ii) <b>Mozilla Firefox</b></li> <li>(iii) <b>PHP</b></li> <li>(iv) <b>Python</b></li> <li>(v) <b>Apache</b></li> <li>(vi) <b>MySQL.</b></li> </ol>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>(i) <b>Linux:</b> Linux is used as an operating system.</li> <li>(ii) <b>Mozilla Firefox:</b> Mozilla is a free, cross-platform, Internet software suite that includes a web browser, an email client, an html editor and an IRC client.</li> <li>(iii) <b>PHP:</b> PHP is widely used open source programming language primarily for server side applications and developing dynamic web content.</li> <li>(iv) <b>Python:</b> Python is a programming language. This language has syntactic simplicity, flexible typing and interactive interpreter. It is used in both industry and academic for a wide variety of purposes.</li> <li>(v) <b>Apache:</b> Apache is an open source web server available for many platforms such as Microsoft Windows, UNIX, Linux, BSD etc.</li> <li>(vi) <b>MySQL:</b> MySQL is an open source, multithreaded, multiuser, SQL relational database server.</li> </ol>
<b>5</b>	<b>What is openoffice.org?</b>
<b>Ans:</b>	It is office an application suite which is free software and directly competes with Microsoft Office. It is compatible with MS Operating System, UNIX, and MAC OS.
<b>6</b>	<b>What is standard?</b>
<b>Ans:</b>	A standard is an established set of rules by are cognized body and are widely used across various platforms.
<b>7</b>	<b>Name two categories of standards.</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>1. <b>Proprietary Standard:</b> Is a standard for which the user has to buy a license.</li> <li>2. <b>Open Standard:</b> Is a standard that is publicly and freely available without any restrictions.</li> </ol>
<b>8</b>	<b>Which of the following are open standards?</b> .orgg .DOC .SVG .TTF .JPEG
<b>Ans:</b>	.SVG .JPEG
<b>9</b>	<b>Name an open standards for the following:</b>
	<ol style="list-style-type: none"> <li>(i) <b>Web page</b></li> <li>(ii) <b>Office document</b></li> </ol>

	<p>(iii) <b>Vector images</b></p> <p>(iv) <b>Audio compression</b></p> <p>(v) <b>Any image type.</b></p>
<b>Ans:</b>	<p>(i) Web page –HTML (Hyper Text Markup Language)</p> <p>(ii) Office document –ODF (Open Document Format)</p> <p>(iii) Vector images –SVG (Scalable Vector Graphics)</p> <p>(iv) Audio compression –OGG (Ogg Vorbis)</p> <p>(v) Any Image Type –JPEG (Joint Photographic Expert Group)</p>
<b>10</b>	<b>What is font? What is OTF?</b>
<b>Ans:</b>	<p>✓ <b>A font</b> is a set of displayable or printable text characters having specific style and size.</p> <p>✓ <b>Open Type Font:</b> It is the extension of the True Type Font Format which is 16 bits font and support 65536 characters (Unicode characters).</p>
<b>11</b>	<b>What are different font categories?</b>
<b>Ans:</b>	<p>There are two categories of font:</p> <ol style="list-style-type: none"> <li><b>True Type Font:</b> it is developed by Apple and licensed to Microsoft. T is 8 bit font which is compatible with Microsoft Windows and MAC OS.</li> <li><b>Open Type Font:</b> it is the extension of the True Type Font Format which is 16 bits font and support 65536 characters (Unicode characters).</li> </ol>
<b>12</b>	<p><b>Define:</b></p> <p>(i) <b>ODF</b></p> <p>(ii) <b>Ogg Vorbis</b></p> <p>(iii) <b>TTF</b></p> <p>(iv) <b>OTF</b></p>
<b>Ans:</b>	<p>(i) <b>ODF:</b> Open Document Format (ODF) is an open, XML-based file format for office documents (text documents, spreadsheets, drawings, presentations and many more). It is an open standard, supported by OASIS, IEC and ISO.</p> <p>(ii) <b>Ogg Vorbis:</b> Ogg Vorbis is an audio compression format which is completely open, patent free, professional audio encoding and streaming technology with all the benefits of Open Source.</p> <p>(iii) <b>TTF:</b> True Type Font is a digital font technology designed by Apple computer and licensed to Microsoft. It is the native Operating System Font Format for Windows and Mac OS. It offers the highest possible quality on computer screens and printers and are normally 8-bit fonts.</p> <p>(iv) <b>OTF:</b> Open Type Font is an extension of Apple's true type font format. It is developed by Microsoft and Adobe. Open Type Fonts allow handling of large glyph sets using Unicode encoding and are normally 16-bit fonts.</p>
<b>13</b>	<b>What is key map based text entry?</b>
<b>Ans:</b>	When you type text from a keyboard having key mapping of Indian Languages characters is known as key map based text entry.
<b>14</b>	<b>What is Unicode? What is ISCII?</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li><b>Unicode:</b> Unicode provides a unique number for every character, no matter what the platforms, no matter what the program, no matter what the language. Unicode can represent 94140 characters.</li> <li><b>ISCII:</b> Indian Standard Code for Information Interchange (ISCII) is a coding scheme for representing various writing systems of India. It encodes the main Indic scripts and a Roman transliteration. When we type Indian Language words Phonetically in English script and tool will automatically convert them into corresponding language words called as transliteration.</li> </ol>
<b>15</b>	<b>What is Indian Script key map known as?</b>
<b>Ans:</b>	<b>Key map based text entry:</b> When you type text from a keyboard having key mapping of Indian Languages characters is known as key map based text entry.

### **Type B: Short Answer Questions**

<b>1</b>	<b>What are open source based software?</b>
<b>Ans:</b>	Open source software (OSS) is computer software that is available in source code from for which the source code and certain other rights normally reserved for copyright holders are provided under a software license that permits

users to study, change, and improve the software.

- 2**
- Compare and Contrast**
- (i) **Free software and Open source software**
  - (ii) **OSS and FLOSS**
  - (iii) **Proprietary software and Free software**
  - (iv) **Freeware and Shareware**
  - (v) **Freeware and Free software**

**Ans:**

(i) **Free software and Open software**

compare	contrast
<ul style="list-style-type: none"> <li>✓ Have the source code available, to see how it works and change it.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Free software allows you to modify and release the change to the program.</li> <li>✓ Whereas, Open source software restricts you to release source code commercially, or release modified copies of the binaries/source.</li> </ul>

(ii) **OSS and FLOSS**

compare	contrast
<ul style="list-style-type: none"> <li>✓ In Both OSS and FLOSS source code is available to customers and it can be modified and redistributed without any limitation.</li> </ul>	<ul style="list-style-type: none"> <li>✓ An OSS may come free of cost or with a payment of nominal charges that its developers may charge in the name of development and support of software.</li> <li>✓ Whereas, FLOSS (Free Libre and OSS) is both free software as well as OSS.</li> </ul>

(iii) **Proprietary software and free software**

compare	contrast
<ul style="list-style-type: none"> <li>✓ Both have owners but they have different conditions for distributing their software.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Proprietary software is the software that is neither open nor free available.</li> <li>✓ Whereas, free software is free to use, modified and distribute etc as its source code is available free.</li> </ul>

(iv) **Freeware and Shareware**

compare	contrast
<ul style="list-style-type: none"> <li>✓ Both cannot be modified.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Freeware Software that are available at no cost but cannot be modified.</li> <li>✓ Whereas, shareware software for which license fee is payable after some time limit.</li> </ul>

(v) **Freeware and Free software**

compare	contrast
<ul style="list-style-type: none"> <li>✓ Both the type s of software are freely available.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Freeware Software that are available but cannot be modified.</li> <li>✓ Whereas, free software can be modified due to availability of source code</li> </ul>

**3**

**Write short note on:**

- (i) **GNU**
- (ii) **Linux**
- (iii) **Mozilla**
- (iv) **Apache**
- (v) **PostgreSQL**
- (vi) **Python**
- (vii) **PHP**

	<p>(viii) <b>Open Office</b></p> <p>(ix) <b>OSI</b></p> <p>(x) <b>Tomcat</b></p>
<b>Ans:</b>	<p>(i) <b>GNU:</b> The acronym for GNU is GNU is Not Unix. GNU’s design is Unix-like, but differs from UNIX by being free software and containing no UNIX code. It includes wide range of software, including applications apart from operating systems. This is developed by Free Software Foundation (FSF).</p> <p>(ii) <b>Linux:</b> It is popular operating system and originally was used to refer to the kernel of O/S. it is the most common example of free software because it is freely available with source code. so that anyone can use it, modify it and redistribute it. Linux can be downloaded from <a href="http://www.linux.org">www.linux.org</a>. Linux is a part of popular Web server set of program-LAMP (Linux, Apache, MySQL and PHP). Linux was originally developed for Intel 386 microprocessors and now support all popular computer architectures.</p> <p>(iii) <b>Mozilla:</b> The Mozilla Application Suite (originally Known as Mozilla, marketed as the Mozilla Suit, and code named SeaMonkey) is a free, cross-platform internet suite, whose components include a web browser, an e-mail and news client, an HTML editor, and an IRC client. Its development was initiated by Netscape Communications Corporation, before their acquisition by AOL. It is based on the source code of Netscape communicator. The development was spearheaded by the Mozilla Organization from 1998 to 2003, and by the Mozilla Foundation since 2003.</p> <p>(iv) <b>Apache:</b> Apache web server or Apache HTTP server is an open source web server available for many platforms such as BSD, Linux, Unit System, Microsoft Windows and other platforms. Apache web server is developed and maintained by an open community of developers under the auspices of Apache Software Foundation. Apache is the web server component of the popular web server set of programs – LAMP (Linux, Apache, MySQL, and PHP). It can be downloaded from <a href="http://www.apache.org">www.apache.org</a>.</p> <p>(v) <b>PostgreSQL:</b> PostgreSQL is a free software object-relational database server (database management system), released under the flexible BSD-style license. It offers an alternative to other open-source database systems (such as MySQL and Firebird), as well as to proprietary systems such as oracle, Sybase, IBM’s DB2 and Microsoft SQL Server.</p> <p>(vi) <b>Python:</b> Python is a programming language. This language has syntactic simplicity, flexible typing and interactive interpreter. It is used in both industry and academic for a wide variety of purposes. Python uses far fewer symbols than languages like Java and C. for example, blocks inside loops and IF statements are indicated by indentation rather than curly braces ({}), and the end of a line does not have a semicolon.</p> <p>(vii) <b>PHP:</b> PHP stands for “PHP: Hypertext Preprocessor”. PHP is a server-side scripting language for creating dynamic Web pages. It is an open-source programming language which helps to develop server-side application and dynamic web content. PHP allows easy interaction with a large number of relational database systems, such as MySQL, Oracle, DB2, and PostgreSQL, while maintaining a simple and straightforward syntax. PHP runs on most major operating systems, including UNIX, Linux, Windows, and Mac OS X, and can interact with many major web servers.</p> <p>(viii) <b>Open Office:</b> Open office is a free and open source office suite. OOo was developed to create a leading international office suite which will run on all major platforms and provide access to all functionality and data through open-component based APIs and an XML-based file format. It includes a word processor, spreadsheet, presentation, vector drawing and database components.</p> <p>(ix) <b>OSI:</b> OSI stands for Open Source Initiative. This is an organization which is dedicated to promote open source software. OSI is founded by Bruce Perens and Eric Raymond in Feb 1998. OSI defined the term and specification of open source software.</p> <p>(x) <b>Tomcat:</b> Tomcat is a web server that supports servlets and JSPs. Tomcat comes with the jasper compiler that compiles JSPs into servlets. Tomcat started off as a servlet specification implementation by James Duncan Davidson who worked as a software architect at sun. The initial Tomcat release appeared with versions 3.0.x. tomcat 5.5.x, the latest production quality release as of 2005, implements the Servlet 2.4 and JSPO 2.0 specifications.</p>
<b>4</b>	<b>Discuss different categories of technological standard?</b>
<b>Ans:</b>	<p>The technical standards can be broadly categorized into:</p> <p><b>1. Proprietary standards:</b></p>

	<ul style="list-style-type: none"> <li>✓ The proprietary standards are those for which users have to buy license to use them. In other words, their specifications are available to users under restrictive contract terms. Their specification is not publicly available.</li> <li>✓ Proprietary standards are owned by a single company/person/vendor or a group of vendors.</li> <li>✓ Proprietary standards are also known as closed standards or exclusive standard</li> </ul> <p><b>2. Open standards:</b></p> <ul style="list-style-type: none"> <li>✓ Open standards are internationally accepted technical standards that guarantee that data can be exchanged/is accessible across platforms and applications, even as technologies change.</li> <li>✓ In simple words, the specification of open standards is open to all i.e., is publicly and freely available without any restrictions.</li> </ul>
<b>5</b>	<b>What characteristics make a standard an open standard?</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>1. Internationally accepted technical standard that guaranty that data can be exchanged across platform and application, even as technology changed.</li> <li>2. Open standard are free for all to implement, with no royalty or fee.</li> </ol>
<b>6</b>	<b>What are the dangers associated with proprietary standards?</b>
<b>Ans:</b>	<p>The dangers of proprietary standards are as follows:</p> <ul style="list-style-type: none"> <li>✓ Recipient may not be able to read the file: If a student creates a document in MS Word 2007 and sends it to his classmate. Then the classmate will not be able to open and read the file if he/she does not have Word 2007.</li> <li>✓ Transmission of confidential information: Since the specification of a file is not known, a person may end up transmitting confidential information.</li> <li>✓ Single supplier or vendor has total control over the functionality and usefulness of the product: Other users cannot add or modify the functionality because the specification is not known.</li> </ul>
<b>7</b>	<b>Mention some advantages of open standards.</b>
<b>Ans:</b>	<p>The advantages of Open Standards are:</p> <ul style="list-style-type: none"> <li>✓ Making the data accessible to all open standards remove the restrictions so that the people can open the files of their choice.</li> <li>✓ Application and platform independence ensure access to resources independent of any application or platform.</li> <li>✓ No hidden information content of the file is completely transparent.</li> <li>✓ Diversity and interoperability in the industry enables businesses and people to opt for any technology of their choice as per their needs.</li> <li>✓ Offers diverse choices for user's developers can choose the fastest and most capable hardware systems to execute their applications and services.</li> </ul>
<b>8</b>	<b>Name and discuss briefly some common open standard formats.</b>
<b>Ans:</b>	<ol style="list-style-type: none"> <li>(i) <b>Plain text (ASCII):</b> Text without any formatting.</li> <li>(ii) <b>Hyper Text Markup Language (HTML):</b> HTML format is the standard language for the web; HTML is a flexible universal format, rich and compact. Native HTML can carry no virus and can be read on any platform.</li> <li>(iii) <b>Open Document Format for Office Application (ODF):</b> Open Document is an open, XML-based file format. It is an open standard, supported by the OASIS (IBM, SUN, and Openoffice.org team) and ISO standards groups.</li> <li>(iv) <b>Joint Photographic Expert Group (JPEG):</b> JPEG is one of the most efficient picture compression formats currently available. This open format is very light and allows you to determine the rate of data compression.</li> <li>(v) <b>Scalable Vector Graphics (SVG):</b> This is an open format based on other public standards (XML, CSS, HTML) which allows for the creation of vectorial images which are re-scale able, perfect to save bandwidth, to optimize layout and to allow zooming without losing the quality of the image.</li> </ol>
<b>9</b>	<b>What is ODF? Discuss briefly.</b>
<b>Ans:</b>	<ul style="list-style-type: none"> <li>✓ <b>Open Document Format (ODF)</b> is an open, XML-based file format for representing electronic documents such as formatted text documents, spreadsheets, drawings, presentations and many more.</li> </ul>

	<ul style="list-style-type: none"> <li>✓ The ODF standards was developed by OASIS (Organization for the Advancement of Structured Information Standards) and approved by ISO (International Standards Organization) and by IEC (International Electrotechnical Commission).</li> <li>✓ The open Document format is vender-neutral and can be used on different platforms, on free, open software as well as on proprietary software.</li> <li>✓ ODF was originally implemented by OpenOffice.org office suite and with Office 2007 SP2, Microsoft has also extended its support for ODF.</li> </ul>								
<b>10</b>	<p><b>What are the following ODF file extensions meant for?</b></p> <p>(i) odt  (ii) ods  (iii) odp  (iv) odg  (v) odb.</p>								
<b>Ans:</b>	<p>(i) <b>odt:</b> For word processing (text documents) e.g., textfile.odt  (ii) <b>ods:</b> For spreadsheet files e.g., spreadsheetfile.ods  (iii) <b>odp:</b> For electronic presentation files e.g., presentation.odp  (iv) <b>odg:</b> For graphics file e.g., graphicfile.odg  (v) <b>odb:</b> For database files e.g., database.odb</p>								
<b>11</b>	<p><b>What is the significance of Unicode in terms of Indian Language Computing?</b></p>								
<b>Ans:</b>	<p>Indian language computing refers to ability to interact in diverse Indian Language on electronic system. Unicode provides a unique number for every character, no matter what the platforms, no matter what the program, no matter what the language. Unicode can represent 94140 characters. Unicode standard has incorporated Indian Script under the group named Asian scripts. Indian scripts included as Devnagari, Bengali, Gurumukhi, Gujarati, Oriya, Tamil, Telgu, Kannada, and Malayalam.</p>								
<b>12</b>	<p><b>Compare and contrast:</b></p> <p>(i) TTF and OTF  (ii) Static and dynamic fonts</p>								
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<b>13</b>	<p><b>How phonetic text entry is different from key map based text entry?</b></p>								
<b>Ans:</b>	<p>There are two types of text entries:</p> <ol style="list-style-type: none"> <li>1. <b>Phonetic Text Entry:</b> Words typed as per their pronunciation in English script and later on converted to Corresponding (Hindi/Gujarati) language work is known as phonetic text entry.</li> <li>2. <b>Key map based text entry:</b> When you type text from a keyboard having key mapping of Indian language characters, is known as key map based text entry.</li> </ol>								