S.J (GOVT) POLYTECHNIC - BANGALORE

I Semester Diploma 1ST CIE [Theory Test 1]

IT SKILLS

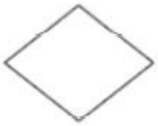
MODEL ANSWERS

Course Coordinator: Bhaskar M

1a. What is scratch?

- ✓ Scratch is a visual programming language that can be used to create Customized interactive stories, Games, Animations

1b. Describe different symbols used to represent the flow chart

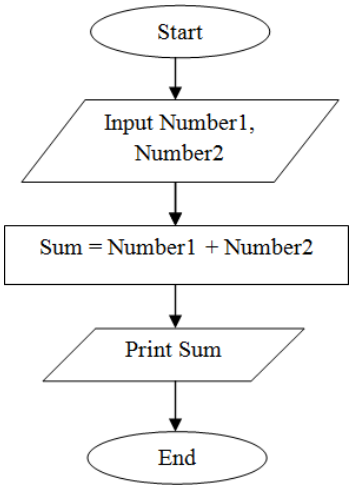
Symbols	Functions
1. 	Start/stop
2. 	Input/output
3. 	Processing
4. 	Decision Box
5.	Flow of control
6. 	Connector

2a. Define Algorithm and Flowchart

- An algorithm is a sequence of unambiguous instructions to solve a problem.
- Flow chart is a diagrammatical or pictorial representation of an algorithm and it is represented using symbols

2b. Explain the algorithm and flowchart for addition of two numbers

Step 1: Start.
Step 2: Read two numbers Number1 and Number2
Step 3: Sum = Number1 + Number2
Step 4: Display Sum.
Step 5: Stop



3a. Define the term URL

- URL stands for **U**niform **R**esource **L**ocator. It is used to specify addresses on the internet. A URL will have the following format - **protocol://hostname/other_information**

3b. Implement a simple web page to display poem

```
<html>
<head>
<title>poem</title>
</head>
<body>
 <h1 align="center">TWINKLE TWINKLE LITTLE STAR </h1>
 <h2> jane taylor 1806 </h2>
 <p> Twinkle Twinkle little star!<br/> how i wonder what you are <br/>
 up above the world so high! <br/> like a diamod in the sky </p>
<hr color="blue">
<image src="C:\ENV\star.png" width ="300" height="300" >
<br>
</body>
</html>
```

3c. Differentiate between Static web page and dynamic web page

- Static web pages are generally simple HTML written pages which serve as response from browser to server in which all the information and data is static in nature and it does not get changed until someone changed it manually.
- Static web pages due to static data take less time to get load.
- While Dynamic web pages due to dynamic data take comparatively more time as compare to static web pages.
- Dynamic web pages on other hand does the interpretation process which make data dynamic in nature and due to which dynamic web pages become complex in complexity as compare to static web pages.
- Example static web page SJP college History webpage cannot be changed
- Example dynamic web page is Cricket score in crickinfo.com / espn.com

4a. Define the term Variable & Constants

- Variable is a value which changes during the execution of the program
- Constant is a value which does not changes during the execution of the program

4b. Implement a simple web page to create Wish List using Html tags

```
<html>
<head>
 <title>WISH LIST </title>
</head>
<body>
 <h1 align="center"> MY WISH LIST </h1>
 <br> <br> <br>
 <table border="10">
 <tr>
 <th>wish list</th>
 <th>Image </th>
 <th>Brand name </th>
 </tr>
 <tr>
 <td><ol><li>LAPTOP</li></td>
 <td> <li> <image src="C:\ENV\laptop.jpeg" width="100" height="100"> </li></td>
 <td> <ul> <li> LENEVO </li>
 <li> Hp </li>
 <li> DELL </li> </td> </ul>
 </tr>
 <tr>
 <td><ol start="2"><li>SMART PHONE</li></td>
 <td> <li> <image src="C:\ENV\phone.jfif" width="100" height="100"> </li></td>
 <td> <ul> <li> SAMSUNG </li>
 <li> OPPO </li>
 <li> ONE PLUS </li>
 <li> APPLE </li></td> </ul>
 </tr>
 </table>
<br>
</body>
</html>
```

4c. Compare Client & Server model [web browser or web server]

- A client is a computer hardware device or software that accesses a service made available by a server. The server is often (but not always) located on a separate physical computer.
- A client can be a device or a machine.
- Server receives and responds to requests made over a network. Server receives the request from the client for a web document, and it sends the requested information to the client's computer.
- The client systems can be switch off without any fear.
- Switching off servers may be disastrous

S.J (GOVT) POLYTECHNIC - BANGALORE

I Semester Diploma 2nd CIE [Theory Test 2]

IT SKILLS

MODEL ANSWERS

Course Coordinator: Bhaskar M

1a. what is ERP?

Enterprise resource planning is modular software designed to integrate the main functional areas of an organizations business process into unified system. ERP is software designed to manages and integrate the functions of process like finance, HR, Sales in a single system.

1b. List different Cloud Service models

Service Model Types:
1. Infrastructure as a Service (IaaS)
2. Platform as a Service (PaaS)
3. Software as a Service (SaaS)

1c. Explain the advantage and disadvantages of Cloud computing

Advantages:

- Back-up and restoring data is easy
- Low maintenance cost
- Pay-per-use model - pay the charges as per usage of the service.
- High availability and reliability - chance of infrastructure failure is minimum.
- Multi sharing -Multiple users and applications can work efficiently by sharing common infrastructure.
- Device and location independence – CC enables the users to access systems using browser regardless of their location and device.

Disadvantages:

- Internet connectivity is required
- Limited control – users have less control over the function and execution of services within a cloud infrastructure.
- Security – While sending the data on the cloud, there may be a chance that your data is hacked by Hackers

2a. Define Business Process Automation

Business Process Automation also known as business automation or digital transformation is the technology enabled automation of complex business process. It is use of technology to execute difficult tasks or processes in a business manual effort can be replaced.

2b. List different cloud deployment models

Deployment Model Types:

- Public Cloud:
- Private Cloud
- Hybrid Cloud:
- Community Cloud

2c. Describe the components of IoT

Components of IOT System:

1. Device/Sensors
2. Connectivity to Cloud
3. Data Processing
4. User Interface

1. Device/Sensors: Device or Sensors help in collecting very minute data from the surrounding environment.
   Ex: Mobile is device that has sensors such as GPS, Camera etc.
2. Connectivity to Cloud: The sensors are connected to the cloud through various medium like cellular network, satellite network, wifi etc.
3. Data Processing: Once the data is collected and it gets to the cloud, the software performs processing on the acquired data.
4. User Interface: the information available to the end user I the form of triggering alarms on their phones, notifying through text or emails.

3a. Demonstrate the common security threats

1. Phishing: Phishing is a type of social engineering attack used to steal user data including login details and credit card details. It occurs when an attacker as a trusted entity, dupes a victim into opening an email, instant message or text message. The recipient is then tricked into clicking a malicious link or the revealing of sensitive information.

2. DOS (Denial of Service) attack: A denial-of-service attack is an attack to shut down a machine or network, making it inaccessible to its intended users. DOS attacks accomplish by flooding the target with traffic or sending the target with traffic or sending it information that triggers a crash.

3. Man in the middle attack: Man in the middle attack allows attackers to securely intercept communications or alter them. Man in the middle attack finds a way between user and an entity and attempts to hack information Ex: Email Hijacking.

4. Eavesdropping: Eavesdropping is a theft of information as it is transmitted over a network by a computer, Smartphone or another connected device. This attack takes advantages of unsecured network communications to access data as it is being sent or received by its user.

5. Spamming: Spamming is the use of messaging system to send a spam to large number of recipients. Sending an unwanted email or message to another spam includes adverting, instant messaging etc. A person who creates spam is called a spammer.

6. Virus: A computer virus is a type of malicious code or program written to alter the way a computer operator and is designed to spread from one computer to another computer. A virus causes unexpected or damaging effects such as harming the system software by corrupting data.

3b. Give comparative analysis of different firewall

Here are the five types of firewalls

1. Packet filtering firewall

Packet filtering firewalls operate inline at junction points where devices such as routers and switches do their work. However, these firewalls don't route packets; rather they compare each packet received to a set of established criteria, such as the allowed IP addresses, packet type, port number and other aspects of the packet protocol headers. Packets that are flagged as troublesome are, generally speaking, unceremoniously dropped -- that is, they are not forwarded and, thus, cease to exist.

2. Circuit-level gateway

Using another relatively quick way to identify malicious content, circuit-level gateways monitor TCP handshakes and other network protocol session initiation messages across the network as they are established between the local and remote hosts to determine whether the session being initiated is legitimate -- whether the remote system is considered trusted. They don't inspect the packets themselves, however.

3. Application-level gateway

This kind of device -- technically a proxy and sometimes referred to as a proxy firewall -- functions as the only entry point to and exit point from the network. Application-level gateways filter packets not only according to the service for which they are intended -- as specified by the destination port -- but also by other characteristics, such as the HTTP request string.

4. Stateful inspection firewall

State-aware devices not only examine each packet, but also keep track of whether or not that packet is part of an established TCP or other network session. This offers more security than either packet filtering or circuit monitoring alone but exacts a greater toll on network performance.

5. Next-generation firewall

A typical NGFW combines packet inspection with stateful inspection and also includes some variety of deep packet inspection (DPI), as well as other network security systems, such as an IDS/IPS, malware filtering and antivirus.

4a. illustrate different cyber safety measure

Brief Awareness on cyber–Safety Measures:

- Keep personal information professional and limited
- Keeps the privacy setting on.
- Practice safe browsing.
- Make sure your internet connection is secure.
- Be careful what you download.
- Choose strong Passwords
- Make online purchases from secure sites.
- Keep your Antivirus program up to date
- Block third party website.

4b. Analyse the best practices for password policy

Privacy setting and Password Policy.

1. Password Protect for Everything: The entire digital device like computer, tablets, smart phones or any other gadget with personal data on them should be password protected for increased security.

2. Keep the Computer Virus free: The operating system is up to date with latest security patches, run an antivirus program to watch for virus.

3. Secure you're Browser: Browser is the one to interact with digital world, so it is necessary to do all security setting to keep browser safe.

4. Use only trusted software: Make sure that new software to install in system or mobile device should be licensed.

5. Use only secure Wi-Fi Connection: Make sure to use secured internet connection so that data should be safe.

S.J (GOVT) POLYTECHNIC - BANGALORE

I Semester Diploma 1st Skill Test

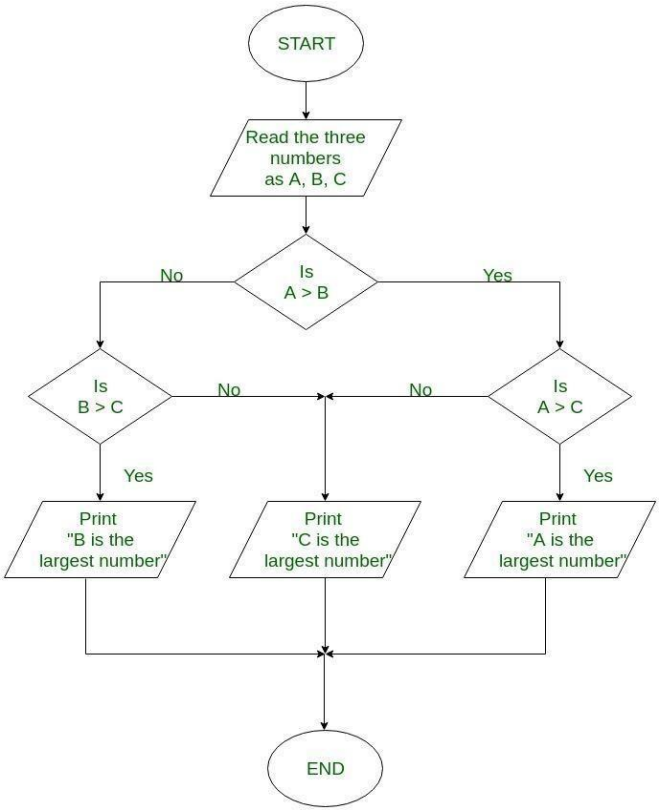
IT SKILLS

MODEL ANSWERS

Course Coordinator: Bhaskar M

1. **Write an algorithm & Flowchart for finding largest of 3 numbers**

Step 1: Start
Step 2: Input a, b, c
Step 3: Let max=a
Step 4: is b> max? then max=b
Step 5: is c> max? then max=c
Step 6: Print max
Step 7: Stop



2. **Develop Android application to convert "Text to Speech"**

1. Go to the App Inventor home page: www.appinventor.mit.edu

2. Click the orange "Create Apps" button in the menu bar.

3. Log in to App Inventor with your Gmail username and password.

4. Start a new project by clicking the "Start new project" button.

5. Type in the project name (underscores are allowed, spaces are not) and click OK. App Inventor opens the Designer window. The "Designer" is where you create the Graphical User Interface (GUI) or the look and feel of your app.

6. Add a TextBox - Click and hold on the word "TextBox" in the Palette. Drag your mouse over to the Viewer. Release the mouse. A new TextBox will appear on the Viewer.

7. Add a button - Click and hold on the word "Button" in the Palette. Drag your mouse over to the Viewer. Release the mouse. A new button will appear on the Viewer.

8. Change the Text on the Button- In the properties panel, change the text for the Button. Under the Text property, select "Text for Button 1", delete it and type in "TEXT-TO-SPEECH".

9. Add a Text-to-Speech component to your app- Go to the Media drawer in the Palette and drag out a“TextToSpeech” component. Drag and drop it on to the Viewer.Notice that it is present under "Non-visible components". It's more like a tool that is available to the app.

10. Switch over to the Blocks Editor- It's time to tell your app what to do. The Blocks Editor is where you program the behaviour of your app.

11. Click and hold the when Button1.Click do event block. Drag it over to the Viewer and drop it there. It is called an "Event Handler".

12. Click and hold the call TextToSpeech1.Speak block. Drag it over to the Viewer and drop it there. This is the block that will make the phone speak. Because it is inside the Button. Click, it will run when the button on your app is clicked.

13. Click and hold TextBox1.Text and plug it into the socket labeled “message”

14. The app is now ready for testing – Download the MIT AI2 Companion app from play store and install it. Click on Connect in the menu bar and select AI Companion and scan the QR code. Be sure your both devices are connected to the same Wi-Fi network. You can also test by clicking on Build and selecting App(save .apk to my computer)

OR

Develop the Simple Game using MIT Scratch application [jumping Girl]

Make your character jump [JUMPING GAME]

- Open scratch.mit.edu website, Go to create.
- Open panel and select a character (your choice) and select background (your choice).
- Go to motion and select change by 10 and go to control, select repeat 10 to give motion.
- Go to motion and select change by -10 and go to control, select repeat 10 and join both.
- Go to events and select when space key pressed. And place it on the top.
- Go to sound and select start sound and place in between space key press and repeat 10.

Create 2 backdrops

- Click on the stage icon and click on backdrop
- Rename the 1st backdrop as LOST in costume section
- Type the text T as You LOST!!!
- Duplicate the lost backdrop and rename as WON
- Type the text T as You WON!!!

Make a moving obstacle

- Select any obstacle (egg) change size into smaller by changing size into 80. Place the egg at the x axis line and go to motion and select go to x& y and drag the egg to –x position and go to motion and select glide x sec to x & y.
- Go to control and select forever and place on the go to x.
- Go to events and select when clicked, change the glide into 3 sec.
- Stop the game when it runs on to the egg.
- Go to control and select stop all and wait until, go to sensing and select touching mouse
- pointer and change mouse pointer into chick.
- Go to events, select when clicked and place at the top of wait until.
- Go to chick panel and go to motion, select go to x and y and go to events, select when clicked.
- Once the egg touches the chick before the score is 5 then change the backdrop to LOST
- Keep Score
- Go to chick panel and go to variable, select make variable and give score as variable and select
- change score by 1 and place at the end of code and set score to 0 and place after go to x & y.
- Once the Score becomes 5 then change the backdrop to WON and stop the game

S.J (GOVT) POLYTECHNIC - BANGALORE

I Semester Diploma 2nd Skill Test

IT SKILLS

MODEL ANSWERS

Course Coordinator: Bhaskar M

1. **What is CSS? what are different ways of implementing CSS?**

Cascading Style Sheets (CSS) is used to format the layout of a webpage.

With CSS, you can control the color, font, the size of text, the spacing between elements, how elements are positioned and laid out, what background images or background colors are to be used, different displays for different devices and screen sizes, and much more!

CSS can be added to HTML documents in 3 ways:

- **Inline** - by using the **style** attribute inside HTML elements
- **Internal** - by using a **<style>** element in the **<head>** section
- **External** - by using a **<link>** element to link to an external CSS file

2. **Design and create webpage for demonstrating hyperlink (link poem/wishlist/CSS)**

Step1. Open notepad and write the below program and save as hyperlink.html

```
<html>
<head>
<title>HYPERLINK</title>
</head>
<body>
<h1> HYPERLINK DEMO </h1>
<br><br>
<a href="wish.html">WISH LIST LINK </a> <br> <br>
<a href="css.html">TIGER CSS LINK </a><br> <br>
<a href="poem.html">POEM LINK </a> <br> <br>
</body>
</html>
```

Step2. Open all 3 webpages poem.html, wishlist.html and CSS.html before the end of body tag add this
tag.

```
<a href="hyperlink.html">back</a
```

OR

Design and create dynamic web page for calculator program using Java Script

```
<html>
<head>
<title>CALCULATOR</title>
<script type="text/javascript">
var a,b,r;
```

```
function add()
{
a=document.myform.n1.value;
b=document.myform.n2.value;
a=parseFloat(a);
b=parseFloat(b);
r=a+b;
document.myform.result.value=r;
}
function sub()
{
a=document.myform.n1.value;
b=document.myform.n2.value;
a=parseFloat(a);
b=parseFloat(b);
r=a-b;
document.myform.result.value=r;
}
function mul()
{
a=document.myform.n1.value;
b=document.myform.n2.value;
a=parseFloat(a);
b=parseFloat(b);
r=a*b;
document.myform.result.value=r;
}
function div()
{
a=document.myform.n1.value;
b=document.myform.n2.value;
a=parseFloat(a);
b=parseFloat(b);
r=a/b;
document.myform.result.value=r;
}
</script>
</head>
<body>
<form name="myform">
<center>
<h1>ARITHMETIC OPERATIONS </h1>
<h2><u>Enter a number in each text box</u></h2><br/><br/>
NUMBER 1: <input type="text" name="n1" value=""><br/>
NUMBER 2: <input type="text" name="n2" value=""><br/><br/>
<input type="button" value= "ADDITION" onclick="add()">
<input type="button" value= "SUBTRACTION" onclick="sub()">
<input type="button" value= "MULTIPLICATION" onclick="mul()">
<input type="button" value= "DIVISION" onclick="div()">
<br><br>
<br><br>
<font color="red">RESULT</font>
<input type="text" name="result" value="">
</center>
</form>
</body>
</html>
```

S.J (GOVT) POLYTECHNIC - BANGALORE

I Semester Diploma 3rd Skill Test

IT SKILLS

MODEL ANSWERS

Course Coordinator: Bhaskar M

1. **What is Malware? Explain its types and write steps to install anti-virus**

   Malware means malicious software. One of the most common cyber threats, malware is software that a cybercriminal or hacker has created to disrupt or damage a legitimate user's computer. Often spread via an unsolicited email attachment or legitimate-looking download, malware may be used by cybercriminals to make money or in politically motivated cyber-attacks.
   There are a number of different types of malware, including:
   - Virus: A self-replicating program that attaches itself to clean file and spreads throughout a computer system, infecting files with malicious code.
   - Trojans: A type of malware that is disguised as legitimate software. Cybercriminals trick users into uploading Trojans onto their computer where they cause damage or collect data.
   - Spyware: A program that secretly records what a user does, so that cybercriminals can make use of this information. For example, spyware could capture credit card details.
   - Ransomware: Malware which locks down a user's files and data, with the threat of erasing it unless a ransom is paid.
   - Adware: Advertising software which can be used to spread malware.
   - Botnets: Networks of malware infected computers which cybercriminals use to perform tasks online without the user's permission.

2. **Create user account and demonstrate use of Google drive, Google docs, Google Co-lab**

   Google drive:
   - Go to drive.google.com on your computer, go to drive.google.com. You‟ll see "My Drive," which has: Files and folders you upload or sync
   - Upload files and folders to Google Drive Can upload files from your computer using File Upload option or create files in Google Drive.
   - Share and organize files Can share files or folders, so other people can view, edit, or comment on them.
   - To see files that other people have shared with you, go to the "Shared with me" section

   Google Docs
   - Open the Docs home screen at docs.google.com.
   - Click on "Start a new document," click Blank New.
   - Formatting Text Using Google Docs toolbar, you can change the text, the font style and even assign specific font style for particular sections of the text. Along with this, Google Docs provides editing options like paragraph spacing and alignment.
   - Share & work with others Can share files and folders with people and choose whether they can view, edit, or comment.

   Google Colabs (Google Co-laboratory)
   - Open https://colab.research.google.com to open your Google colab.
   - Click on the NEW PYTHON 3 NOTEBOOK link at the bottom of the screen. A

new notebook would open up as shown in the screen below.

- To rename the notebook, click on this name and type in the desired name in the edit box.
- Enter a trivial Python code in the code window and execute it.

OR

Demonstrate workflow concept using suitable tool [Trello tool]

Login to trello using Gmail account using the link www.trello.com.

• A Homepage of trello will be displayed on page.

• Click on create new board.

• Give a board name as Diploma Admission Process and select visibility option as team.

• Create a List by click on add list button. Here we have created four list as follows.

1. Admission Verification
2. Document verification
3. Verified by DTE.
4. Approved by DTE.

• Click on add card for each list created and explain the steps involved in each process.

• Click on labels to add labels for each list.

Green colour-> Completed.

Yellow colour->under process.

Red colour-> Rejected.

• Go to menu and change background

• Save workflow and Logout from trello.

OR

Demonstrate ERP concept using suitable tool [ODOO tool]

Open up your web browser and go to the www.odoo.com website, login with your email id. Then Home page of odoo will display.

Odoo Manufacturing Flow:

1. Creating a manufacturing order click on Manufacturing->operation-> Manufacturing Order, click on Create button.

2. Enter the details in the form

• Product: Select product to manufacture in odoo manufacturing.

• Quantity to Produce: Add the total quantity to produce.

• Bill of material: add bill of material.

• Deadline: Add deadline for production of the order.

• Plan form: add planned date for production of the order.

• Components: Raw material for production the product.

3. After adding all the details click on mark as to-do button for processing the order.

4. Click on Check availability->Produce.

Odoo Sales Flow:

1. Fill the details of customer field.

2.Click on Menu Item->configuration ->settings. Click on Quotation & Sales section -> Quotation template and save it.

3. To create your quotation->menu->Configuration tab-> Quotation template->click on create then template will create.

4. Add items under Lines section as per your requirement by click on Add an Item.

5.Optional Products, select add a line.

6.Click on Confirmation to choose the Confirmation Mode and Confirmation Mail.

7. Confirmation mode, you can choose the various options like Online signature, Online Payment

8. Online Payment: Now a customer can make an online payment and confirm the order automatically.

9. Confirmation Mail: This email will be sent on Confirmation.

OR

Demonstrate Browser setting for safe browsing using any browser

Here the following steps involves browser setting for Google chrome for secure browsing.

1. Setting the default browser: Go to Setting and click the make Google chrome My Default Browser button.

2. Auto download updates: Google chrome automatically updates whenever it detects the latest new version of browser is available.

3. Enable phishing and malware protection: Go to Advanced Settings-> Privacy-> enable phishing and malware protection.

4. Don’t sync: Disconnect your email account from your browser under the “Personal Stuff” tab.

Syncing your email account with your Chrome browser means that personal information such as passwords, auto fill data, preferences, and more is stored on Google’s servers.

5. Do not Save Passwords: Go to setting-> Passwords and turnoff offer to save passwords.

6. Automatic Downloads: Go to Setting-> Advanced-> content setting->Automatic downloads and turn on Ask when a site tries to download files after the first file (recommended)