SUGGESTED SOLUTION

IPCC November-17 EXAM

INFORMATION TECHNOLOGY

Test Code – I N J 7005

BRANCH - (MULTIPLE) (Date :21.05.2017)

Answer-1 (A) :

Some benefits of using Business Process Automation include:

♦ **Reducing the Impact of Human Error:** BPA removes human participation in the process, which is the source of many errors.

♦ **Transforming Data into Information:** BPA can, apart from collecting and storing data also analyze data and make it available in a form that is useful for decision-making.

♦ **Improving performance and process effectiveness:** In many cases, tasks that must be done manually are the bottleneck in the process. Automating those manual tasks speeds up the effective throughput of the application.

♦ **Making users more efficient and effective:** People can focus their energies on the tasks they do best, allowing the computers to handle those that machines are best suited for.

♦ **Making the business more responsive:** Business can easily automate new applications and processes as they are introduced.

♦ **Improving Collaboration and Information Sharing:** Business processes designed through a collaborative interface mean Information Technology can integrate its processes with the business-side logic that drives day-to-day operations.

(5 Marks)

Answer-1 (B)

Cloud Computing architecture refers to the components and subcomponents that typically consist of a front end platform (fat client, thin client, mobile device), back end platform (servers, storage), a cloud based delivery, and a network (Internet, Intranet, Intercloud). Cloud architecture typically involves multiple cloud components communicating with each other over a tight or loose coupling of cloud resources, services, middleware, and software components.

A cloud computing architecture consists of two parts - **Front End** and a **Back End** that connect to each other through a network, usually the Internet. The front end is the side the computer user or client, sees. The back end is the "cloud" section of the system.

♦ **Front End:** The front end of the cloud computing system comprises of the client's devices (or it may be a computer network) and some applications are needed for accessing the cloud computing system. All the cloud computing systems do not give the same interface to users. For example - Web services like electronic mail programs use some existing web browsers such as Firefox, Microsoft's Internet Explorer or Apple's Safari. Other types of systems have some unique applications which provide network access to its clients.

♦ **Back End:** Back end refers to some physical peripherals. In cloud computing, the back end is cloud itself which may encompass various computer machines, data storage systems and servers. Groups of these clouds make a whole cloud computing system. Theoretically, a cloud computing system can include practically any type of web application program such as video games to applications for data processing, software development and entertainment residing on its individual dedicated server for services. There are some set of rules, generally called as **Protocols** which are followed by this server and it uses a special type of software termed as **Middleware** that allow computers that are connected on networks to communicate with each other. If any cloud computing service provider has many customers, then there's likely to be very high demand for huge storage space. Many companies that are service providers need hundreds of storage devices.

(5 Marks)

Answer: 2

An **Operating System (OS)** is a set of computer programs that manages computer hardware resources and acts as an interface with computer applications programs. The operating system is a vital component of the system software in a computer system. Application programs usually require an operating system to function that provides a convenient environment to users for executing their programs. Computer hardware with operating system can thus be viewed as an extended machine which is more powerful and easy to use. Some prominent Operating systems used nowadays are Windows 7, Windows 8, Linux, UNIX, etc.

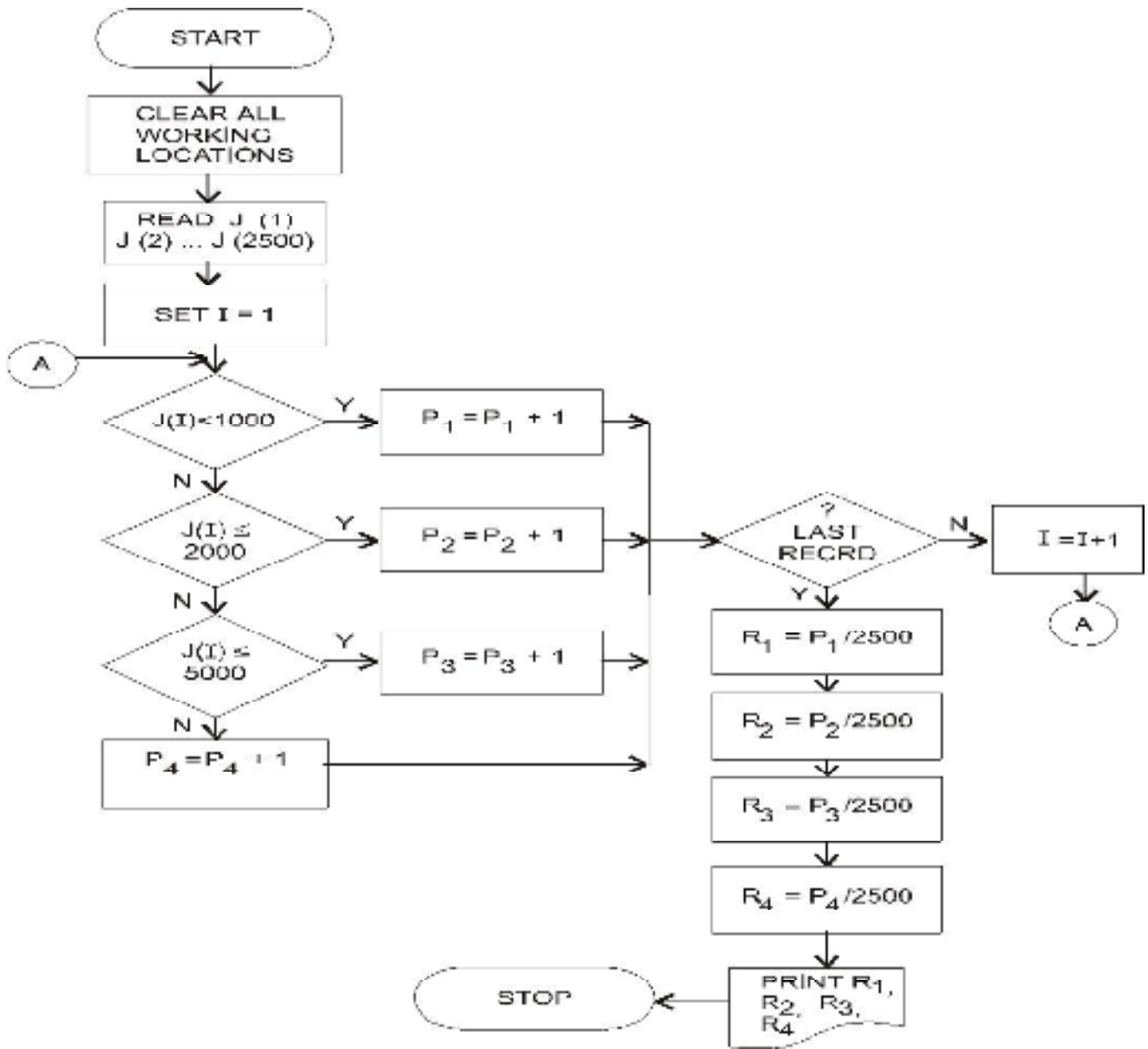A variety of activities are executed by Operating systems which include:

♦ **Performing hardware functions:** Application programs to perform tasks have to obtain input from keyboards, retrieve data from disk & display output on monitors. Achieving all this is facilitated by operating system that acts as an intermediary between the application program and the hardware.

♦ **User Interfaces:** An important function of any operating system is to provide user interface. DOS has a **Command based User Interface (UI)** i.e. text commands were given to computer to execute any command, whereas Windows has **Graphic User Interface (GUI)** which uses icons & menus.

♦ **Hardware Independence:** Every computer could have different specifications and configurations of hardware. Operating system provides **Application Program Interfaces (API)** which can be used by application developers to create application software, thus obviating the need to understand the inner workings of OS and hardware. Thus, OS gives us hardware independence.

♦ **Memory Management:** Memory Management features of Operating System control how memory is accessed and maximizes available memory & storage. Operating systems also provides Virtual Memory by carving an area of hard disk to supplement the functional memory capacity of RAM.

♦ **Task Management:** Task Management feature of Operating system helps in allocating resources to make optimum utilization of resources. This facilitates a user to work with more than one application at a time i.e. multitasking and also allows more than one user to use the system i.e. timesharing.

♦ **Networking Capability:** Operating systems can provide systems with features & capabilities to help connect computer networks. Like Linux & Windows 8 give us an excellent capability to connect to internet.

♦ **Logical Access Security:** Operating systems provide logical security by establishing a procedure for identification & authentication using a User ID and Password. It can log the user access thereby providing security control.

♦ **File Management:** The Operating System keeps a track of where each file is stored and who can access it, based on which it provides the file retrieval.

(8 Marks)

Answer :3

(i) Less than Rs. 1,000
(ii) Rs. 1,000 to Rs. 2,000
(iii) Rs. 2,001 to Rs. 5,000
(iv)Above Rs. 5,000.
Draw a flow chart for finding the percentage of the employees in each category.

START

CLEAR ALL WORKING LOCATIONS

READ J (1) J (2) ... J (2500)

SET I = 1

A

$J(I) < 1000$ → Y → $P_1 = P_1 + 1$

N

$J(I) \le 2000$ → Y → $P_2 = P_2 + 1$

N

$J(I) \le 5000$ → Y → $P_3 = P_3 + 1$

N

$P_4 = P_4 + 1$

? LAST RECRD → N → $I = I+1$ → A

Y

$R_1 = P_1/2500$

$R_2 = P_2/2500$

$R_3 = P_3/2500$

$R_4 = P_4/2500$

PRINT R_1, R_2, R_3, R_4

STOP

(8 Marks)

Answer:4 (A)

Some of the benefits of Business Process Management Systems (BPMS) are as follows:

(a) Automating repetitive business processes: Processes such as report creation and distribution or the monitoring of or reporting on company's Key Performance Indicators (KPI) reduces the manual operational costs and helps employees to concentrate on activities that are important to the success of business.

(b) BPMS works by 'loosely coupling' with a company's existing applications: This enables it to monitor, extract, format and distribute information to systems and people; in line with business events or rules.

(c) Operational Savings: BPM focuses on optimization of processes. The processes that are repetitive are optimized and lead to reduced expenses which translate to immediate cost savings. By automating a task, ROI of BPM that requires six hours

of manual intervention, one can expect to cut that time to half. Thus, three hours multiplied by the number of times the process is completed in a cycle will yield significant cost saving.

(d) <u>Reduction in the administration involved in Compliance and ISO Activities</u>: Be it a quality assurance initiative such as the ISO standards, a financial audit law, or an IT systems best-practice implementation, companies worldwide are seeing the need to manage compliance as part of their everyday business activities. The BPM is ideally suited to help support companies in their quest for process improvement and compliance/governance certification. It gives full control over process and document change, clarity of inherent risks, and ease with which process knowledge is communicated across the company.

(e) <u>Freeing-up of employee time</u>: While the euphuism "time is money" is often over-used, it is very relevant to this topic, because in business, for each additional hour it takes to complete a manual business process, there is a hard cost associated with employee time as well as soft costs associated with losing business or lowered productivity. Another area where time comes into play is in opportunity costs.

<div align="right">(5 Marks)</div>

Answer:4(B)

The key benefits of Business Process Automation are as follows:

Saving on costs: Automation leads to saving in time and labor costs through higher efficiency and better management of the people involved.

- Staying ahead in competition: Today, in order to survive, businesses need to adopt automation.

- Fast service to customers: Automation shortens cycle times in the execution of processes through improved and refined business workflows and help enterprises to serve their customers faster and better.

- Reducing the impact of human error: BPA removes human participation in the process, which is the source of many errors.

- Transforming data into information: BPA can, apart from collecting and storing data also analyze data and make it available in a form that is useful for decision-making.

- Improving performance and process effectiveness: In many cases, tasks that must be done manually are the bottlenecks in the process. Automating those manual tasks, speeds up the effective throughput of the application.

- Making users more efficient and effective: People can focus their energies on the tasks they do best, allowing the computers to handle those that machines are best suited for.

- Making the business more responsive: Enterprises can easily automate new applications and processes as they are introduced that provide greater control over business and IT processes.

- Improving collaboration and information sharing: Business processes designed through a collaborative mean IT can integrate its processes with the business-side logic that drives day-to-day operations.

<div align="right">**(5 Marks)**</div>

Answer:5 (A)

Information System Life Cycle is commonly referred as **Software/System Development Life Cycle (SDLC)** which is a methodology used to describe the process of building information systems. SDLC framework provides a sequence of activities for system designers and developers to follow. It consists of a set of steps or phases in which each phase of the SDLC
uses the results of the previous one. Various phases for developing an Information System are given as follows:

Phase 1: System Investigation: This phase examines that 'What is the problem and is it worth solving'? A feasibility study is done under the dimensions – Technical, Economical, Legal, Operational etc.

Phase 2: System Analysis: This phase examines that 'What must the Information System do to solve the problem'? System analyst would be gathering details about the current system and will involve interviewing staff; examining current business; sending out questionnaires and observation of current procedures.

The Systems Analyst will examine data and information flows in the enterprise using data flow diagrams; establish what the proposed system will actually do (not how it will do it); analyze costs and benefits; outline system implementation options. (For example: in-house or using consultants); consider possible hardware configurations; and make recommendations.

Phase 3: System Designing: This phase examines that 'How will the Information System do what it must do to obtain the solution to the problem'? This phase specifies the technical aspects of a proposed system in terms of Hardware platform; Software; Outputs; Inputs; User interface; Modular design; Test plan; Conversion plan and Documentation.

Phase 4: System Implementation: This phase examines that 'How will the solution be put into effect'? This phase involves coding and testing of the system; acquisition of hardware and software; and either installation of the new system or conversion of the old system to the new one.

Phase 5: System Maintenance and Review: This phase evaluates results of solution and modifies the system to meet the changing needs. Post implementation review would be done to address Programming amendments; Adjustment of clerical procedures; Modification of Reports, and Request for new programs.

(6 Marks)

Answer:5(B)

(i)   It includes a complete software offering on the cloud. Users can access a software application hosted by the cloud vendor on pay-per-use basis. SaaS is a model of software deployment where an application is hosted as a service provided to customers across the Internet by removing the need to install and run an application on a user's own computer. SaaS can alleviate the burden of software maintenance and support but users relinquish control over software versions and   requirements

(ii)   Cache Memory (pronounced as cash) is a smaller, faster memory which stores copies of the data from the most frequently used main memory locations so that Processor/Registers can access it more rapidly than main memory. It is the property of locality of reference, which

allows improving substantially the effective memory access time in a computer system.

(iii) <u>Android</u>: Android is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers. Android is an open source and the permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. Android provides access to a wide range of useful libraries and tools that can be used to build rich applications.

(iv) <u>WhatsApp Messenger</u>: It is a cross-platform mobile messaging application which allows us to exchange messages without having to pay for SMS. It is available for iPhone, BlackBerry, Android, Windows phone, Nokia and these phones can message each other. Because WhatsApp Messenger uses the same internet data plan that we use for e-mail and web browsing, there is no cost to message and stay in touch with friends.

(2 X 4=8 Marks)