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TEST SERIES
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SUGGESTED SOLUTION

IPCC NOVEMBER 2016 EXAM

INFORMATION TECHNOLOGY

Test Code - I N J1 1 2 5

BRANCH - (MUMBAI) (Date :07.08.2016)

Answer-1 (a) :

Major reasons for the failure of Business Process Management Systems (BPMS) include the following:

- Inadequate investment in ongoing training for involved personnel; 1/2
- Lack of corporate policy protecting the integrity of the data in the BPM Systems; 1/2
- Superficial or deficient executive involvement; 1/2
- Deficient project management; 1/2
- Breakdown in gap analysis; 1/2
- Limited options for customization of the BPM software are required; 1/2
- Not flexible enough or too complicated to be customized to meet the precise workflow and business process; 1/2
- Failure to identify future business needs; 1/2
- Inadequate assessment of the need for change management; 1/2
- Persistent compatibility problems with the diverse legacy systems of the partners; 1/2
- Resources not available when desirable; 1/2
- Software fails to meet business needs; 1/2
- System may be over-engineered when compared to the actual requirements; and 1/2
- Technological obsolescence. 1/2

(1/2 mark each for any 12 points)

Answer-1 (b) :
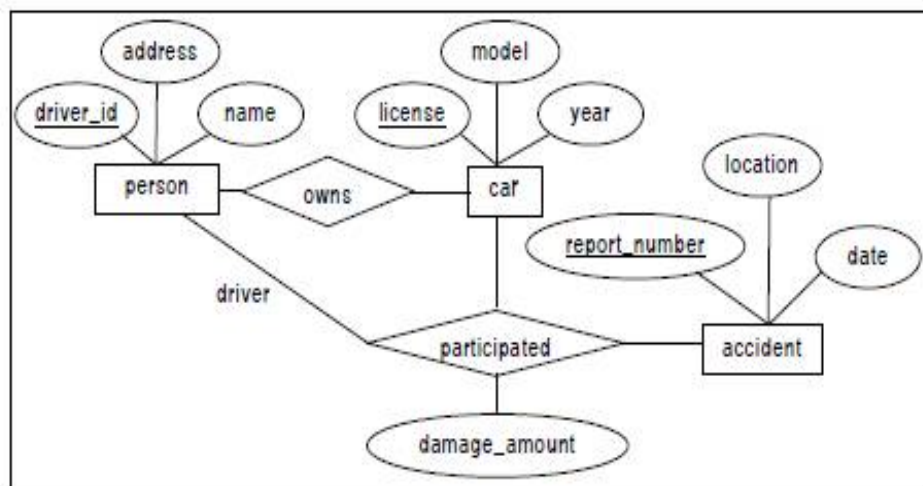
E-R Diagram for Car Insurance Company

(5 Marks)

Answer-2 (a) :

a. <u>Routing</u>: It <u>refers to the process of deciding on how to communicate the data from source to destination</u> in a network. **(1 Mark)**

b. <u>Bandwidth</u>: It <u>refers to the amount of data which can be sent across a network in given time.</u> **(1 Mark)**

c. <u>Resilience</u>: It refers to the <u>ability of a network to recover from any kind of error like connection failure, loss of data etc.</u> **(1 Mark)**

d. <u>Contention</u>: It <u>refers to the situation that arises when there is a conflict for some common resource in a network.</u> For example, network contention could arise when two or more computer systems try to communicate at the same time. **(1 Mark)**

Answer-2 (b) :

- <u>Improving Collaboration and Information Sharing</u>: 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. **(1 Mark)**
- <u>Reducing the Impact of Human Error</u>: BPA removes human participation in the process, which is the source of many errors. **(1 Mark)**
- <u>Transforming Data into Information</u>: BPA can, apart from collecting and storing data also analyze data and make it available in a form that is useful for decision-making. **(1 Mark)**

- <u>Improving performance and process effectiveness</u>: 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. **(1 Mark)**
- <u>Making users more efficient and effective</u>: People can focus their energies on the tasks they do best, allowing the computers to handle those that machines are best suited for. **(1 Mark)**
- <u>Making the business more responsive</u>: Business can easily automate new applications and processes as they are introduced. **(1 Mark)**

Answer-3 (a) :
There are two types of Systems Security.
1. **Physical Security:** A Physical security is implemented to protect the physical systems assets of an organization like the personnel, hardware, facilities, supplies and documentation. **(2 Marks)**
2. **Logical Security:** A Logical security is intended protect data/information and software. Security administrators tend to have responsibility for controls over(i) malicious and non-malicious threats to physical security, and(ii) malicious threats to logical security itself. **(2 Marks)**

Answer-3 (b) :
This <u>dynamic environment presents clear business needs</u>, which can be summarized as the <u>Five Rules of the Extranet which are as follows</u>:

1. <u>Be as flexible as the business</u>: An <u>extranet must be driven by the demands of the market</u>, <u>not the limitations of technology</u>. It must be <u>extremely flexible and allow companies to immediately deploy extranet services</u> that <u>best fit the business need</u>, be it <u>intimate supply chain partners using a wide range of applications</u> or <u>mass e-commerce extranets</u> driven by <u>Web-based applications.</u> **(1 Mark)**
2. <u>Deploy in "Internet time"</u>: To <u>deploy an extranet</u>, <u>companies shouldn't have to roll out a new infrastructure</u> or <u>go through a major re-architecting of their applications</u>. To <u>remain market-driven</u>, enterprises must be <u>able to deploy</u> their extranet <u>quickly, and leverage</u> their <u>existing infrastructure</u> to do so. **(1 Mark)**
3. <u>Protect the interests of the data owner</u>: Extranet services <u>need to be deployed in a fast and flexible way</u>, but with the <u>complete assurance</u> that <u>only the correct users can access the right services.</u> An extranet must <u>ensure that what's supposed to be private stays private.</u> **(1 Mark)**
4. <u>Serve the partner as a customer</u>: An <u>extranet presents a very important </u>and <u>delicate balance</u>: <u>providing customer service to key partners </u>(who might also be customers) in a competitive environment with <u>mission-critical resources at risk.</u> The <u>final solution must be an extranet without compromise</u>. Partners should <u>never be required to change</u> their <u>security policies, networks, applications, and firewalls for the "good" of the extranet community.</u> **(1 Mark)**
5. <u>Drive information to the decision-maker</u>: An <u>extranet must provide a central means to measure progress,performance, and popularity</u>. Business units <u>deploying applications need to understand which extranet content</u> and <u>applications are most successful.</u> **(1 Mark)**

Answer-4 (a) :
Knowledge Management Systems (KMS) refers to any kind of IT system that stores and retrieves knowledge, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge, or in some other way enhances the knowledge management process **(1 Mark)**
KMS treats the knowledge component of any organization's activities as an explicit concern reflected in strategy, policy, and practice at all levels of the organization. **(0.5 Mark)**
<u>Two broad categories of knowledge exist – Explicit and Tacit</u>. Explicit Knowledge is formalized, articulated and written whereas Tacit Knowledge resides in a few often-in-just one person and has not been captured by the organization. **(1 Mark)**
Knowledge base is a special kind of database for knowledge management. It is an<u> information repository</u> that provides a means for information to be collected, organized, shared, searched and utilized. It can be either machine-readable or intended for human use. **(1 Mark)**
A Knowledge Discovery in databases system is a value-added intranet with facilities to search and identify captured knowledge, or identify experts who have the knowledge. The system will also help us establish contact with the expert and have a dialogue with them. It will then capture and make available the transcripts of such discussions, whether they be on chat, e-mail or discussion forums. **(1.5 Marks)**

Answer-4 (b) :

An Expert System (ES) is a <u>computerized information system that allows non-experts to make decisions comparable to those of an expert.</u> The aim of the expert system is to have a team of seasoned specialists holding industry-wide experience who further spread across implementations like in Defense, Government, Finance, Telecom, and Engineering sectors. **(1 Mark)**

Components of an Expert System are as follows:

(a) <u>Knowledge Base</u>: This includes the data, knowledge, relationships, rules of thumb (heuristics), and decision trees used by experts to solve a particular problem. A <u>knowledge base is the computer equivalent of all the knowledge and insight that an expert or group of experts develop through years of experience in their field.</u> The knowledge base of expert system encloses both realistic and heuristic knowledge. Realistic knowledge is that knowledge of the job domain that is extensively shared, characteristically found in textbooks or journals whereas heuristic knowledge is the fewer rigorous, extra empirical, supplementary judgmental knowledge of performance. **(2 Marks)**

(b) <u>Database of Facts</u>: This holds the user's input about the current problem. The user may begin by entering as much as they know about the problem or the inference engine may prompt for details or ask whether certain conditions exist. <u>Gradually a database of facts is built up which the inference engine uses to come to a decision.</u> The quality and quantity of data gained from the user influences the reliability of the decision. **(1 Mark)**

(c) <u>Inference Engine</u>: This program contains the logic and reasoning mechanisms that simulate the expert logic process and deliver advice. It uses data obtained from both the knowledge base and the user to make associations and inferences, form its conclusions, and recommend a course of action. **(1 Mark)**

(d) <u>Explanation facility</u>: This facility provides the user with an explanation of the logic the Expert System used to arrive at its conclusion. **(0.5 Mark)**

(e) <u>User Interface</u>: This program allows the user to design, create, update, use and communicate with the expert system. **(0.5 Mark)**

Answer-5 (a) :

The <u>primary purpose</u> for which an enterprise implements automation may <u>vary from enterprise to enterprise</u>. A list of <u>generic reasons for going for BPA may include any or combination of the following:</u>

1. <u>Errors in manual processes leading to higher costs.</u>
2. <u>Payment processes not streamlined</u>, due to duplicate or late payments, missing early pay discounts, and losing revenue.
3. <u>Paying for goods and services not received.</u>
4. <u>Poor debtor management leading to high invoice aging and poor cash flow.</u>
5. <u>Not being able to find documents quickly</u> during an audit or lawsuit or not being able to find all documents.
6. <u>Lengthy or incomplete new employee or new account on-boarding.</u>
7. <u>Unable to recruit and train new employees, but where employees are urgently required.</u>
8. <u>Lack of management understanding of business processes.</u>
9. <u>Poor customer service.</u> **(5 Marks)**

Answer-5 (b) :

Delivery channels refer to the mode through which information or products are delivered to users. Delivery Channels for Information include the following:

Intranet: Network within the company/enterprise; **(1 Mark)**

E-mail: The most widely used delivery channel for information today; Internal newsletters and magazines; **(1 Mark)**

Staff briefings, meetings and other face-to-face communications methods; Notice boards in communal areas; **(1 Mark)**

Manuals, guides and other printed resources; Hand-held devices (PDAs, etc.); and Social networking sites like Facebook, WhatsApp etc. **(1 Mark)**