

The following suggested answers are provided as a guide. It is suggested that teachers allocate 5, 4, 3, 2, 1 or 0 marks to each question. The completed paper would then be marked out of a total of 50. Points could then be allocated for grading from A+ to E to indicate the level of that student.

*The answers given are suggested answers only. It is not suggested that students would make all of the points given nor that the points made within the answer are inclusive of all points which could be made.*

### **Question 1**

#### *Input*

Under the present system, the past publications are in printed form. Some of these from more recent years will have been produced using word processing software on a computer. The others will simply exist in hard copy. The hard copy past publications will have to be scanned and, thereby, put into electronic form. The word processed documents already exist in this form.

#### *Manipulation*

Under the proposed **ELECTRONIC** system, data (both image and text) would be manipulated electronically using an appropriate software package and also possibly using the scanner software. An electronic index of some kind will have to be established so that the files can be accessed easily.

#### *Output*

At present, each past publication exists in a manual file. Under the proposed **ELECTRONIC** system, past publications would be organised in files held electronically on CD-ROM. Once this is done, the reduced time for electronic retrieval may mean that there is an increase in efficiency. The procedures of the employees at Nayman Enterprises will change - employees will need to develop procedures to retrieve publications quickly from the CD-ROM rather than from the manual file.

**Question 2**

The organisational goals of Nayman Enterprises which are likely to improve by putting all of the past publications onto CD-ROM for 1998, are:

*Improved customer service*

The new system will be more efficient and effective for customers who wish to locate a past publication. For a very reasonable price, all customers will have access to all past publications. If a customer wants a single printed copy of a particular past publication, Nayman Enterprises could also respond to this request if it decides to invest in a high speed colour laser printer.

*Improved staff morale, efficiency and profit*

The new system will mean that, instead of having to access hundreds of individual past publications for particular customers, only one stock item, the CD-ROM, will have to be provided. This should mean improved staff morale and efficiency. Staff can then be employed to update the CD-ROM throughout the year or work creatively on the Internet Site. This more focussed approach to the business should increase the profitability of Nayman Enterprises.

**Question 3**

The proposed **ELECTRONIC** system would require staff to learn new skills and procedures.

New procedures will be needed for both the past publications CD-ROM and the current publications Disks and/or CD-ROMs.

- electronic production of each of the three publications for the month.
- validation of the data contained in each publication.
- creation of the master 1.4MB Disk or CD-ROM (on hard disk).
- validation of data contained on the master Disk or CD-ROM.
- duplication of 1.4MB Disks in the appropriate format required by the customer.
- duplication of the CD-ROMs using a recordable drive in the appropriate format required by the customer.
- mailing of Disks and CD-ROMs to customers.
- assistance offered to customers to use the **ELECTRONIC** system.

**Question 4**

**Economic Implications**

**Added Costs**

- setup costs: additional phone lines, modems, computers, scanners, recordable CD drives, software.
- running costs for the Internet Site (\$8,000 p.a.)
- higher electronic media costs (Disks and CD-ROMs)

**Improved Efficiency**

- lower printing costs
- staff being able to retrieve publications faster
- customers able to browse publication details for themselves
- catalogue able to be browsed around the world by potential customers
- publications list updated regularly

**Training Costs**

- It may be an option to train a staff member to be responsible for the regular updating of the Internet Site. This would reduce the running costs.
- Other training will be required in the use of hardware and software.

**Social Implications**

- some jobs may be outdated or re-defined e.g. employees who do filing may now have to use a recordable CD Writer.
- new skills required: employees will need to learn how to connect computers to the Internet and how to operate Web browser software and email.
- will the reaction of staff and customers to the new system be positive or negative?
- customers using the Internet may now be situated anywhere in the world and the personal contact may not be as great as before

**Question 5**

Some of the factors Nayman Enterprises should consider when purchasing hardware and software, are:

**Hardware**

- are the scanners, modems and CD-ROM recordable drives reliable?
- are they compatible with existing computer equipment?
- how many more computers will be required for staff?
- how much RAM and disk space are needed to use the recordable drives?
- is the CPU speed of the computer significant when using the recordable drive?
- are service and spare-parts readily available for the CD-ROM recordable drives?
- is the speed of the CD-ROM recordable drive adequate for its purpose (minutes per CD)?

**Software**

- does the scanner software provide a quality output?
- how easy is it to learn and use the scanner software?
- how easy is it to learn and use the software required to convert the text and images to a format that can be used by customers irrespective of their computer platform?
- what features are contained within the software?
- what is the compatibility of the software with the hardware of Nayman Enterprises?
- are manuals and documentation readily available?
- do the software suppliers provide any telephone support for problem-solving?
- is the scanner and conversion software stable or does it frequently crash?
- will the customer Disks and/or CD-ROMs that are produced need any additional hardware or software installed on client computers?

**Question 6**

The following tests should be carried out before implementing the system.

**Past Publications CD-ROM**

How long will the master CD of 30 years of publications take to produce?

- what is the time taken to create a typical output file using the scanner software and conversion software.
- is data validation fast and easy to use with the conversion software?
- is the conversion software easy to use both for the creator of the publication and the customer or staff end user?
- what is the time taken to input data into the conversion software?
- what is the time taken to recover after a software or hardware crash?
- do existing files recover properly after a crash or is it necessary to revert to a previous file generation?

**Current Publications Disk and/or CD-ROM**

- how many Disks or CD-ROMs will be required each month?
- will this duplication be most efficiently done in-house or out-sourced to a specialist organisation?
- do the Disks have the capacity to carry the free software required by the customer to access the publications or will this software have to be supplied independently?
- how many different types of formatted disks will have to be carried in stock to satisfy customer demand?
- is this free “reader” software available for download from the Internet?
- how do Disk and CD-ROM production schedules compare with Print hard copy schedules?

**Internet Updates**

- can the Internet Site be updated directly by staff or is a third party required to do this?
- what are the competing costs for a permanent Internet link versus a dial-up link?
- does the Internet Service Provider (ISP) have sufficient capacity and reliability so that customers will have easy access to <http://www.stamps.com.au>?
- can the ISP provide a secure direct ordering service so that customers can place orders using their credit cards?

**Question 7**

The staff at Nayman Enterprises would need to be trained in the following activities before any changeover occurred. (If it is found that present staff cannot be trained adequately, it will be necessary to employ at least one new skilled staff member)

- creation procedures for monthly publications
- use of scanner and CD-ROM software.
- creation of CD-ROMs , CD-ROM duplication and Disk duplication.
- procedures for distribution of Disks and CD-ROMs to customers.
- assisting customers using the Disks and CD-ROMs that they receive.
- documentation of new procedures
- monitoring of procedures during implementation in order to detect any problems

**Question 8**

The following documentation would be needed for staff.

- The scanner software operating manual for changing Print hard copy into electronic form. This would also include the documentation for using the OCR software and the Photographic software.
- The conversion software operating manual for changing electronic publication data into CD-ROM format.
- The CD-ROM Writer software operating manual for “burning” CD-ROMs from the master copy on the hard disk of the computer.
- The Internet Browser software operating manual for accessing the Internet Site and updating the files.

These manuals should contain detailed instructions on how staff would operate the hardware together with the scanner software, conversion software and Writer software, including

- starting and stopping the computer
- use of templates for inputting data
- what do in case of a specific problem
- security procedures
- **In summary, the manuals must contain detailed instructions for the production and maintenance of the output required.**

In general, information system manuals should contain the following design elements.

They should be

- clearly written in plain English
- written by someone with expertise in the area
- logically organised, easy to understand and contain an index.
- trialed to check that the steps described within the documentation are clearly expressed and work.



**Question 9**

It is recommended that the system be evaluated at the end of March 1998 and then again at the end of June 1998. The new system would have to be compared with the system in use in the previous years.

Elements to be considered in the evaluation would be:

- profit produced by the new system
- projected profit in 1999 by the new system (to allow for initial difficulties in the first year)
- running costs
- ease of use
- time taken
- staff reaction to the new system
- customer reaction to the new system
- CD-ROM reliability
- change in the number of Internet “Hits”
- orders received through the Internet

**Question 10**

Both the advantages and disadvantages of the proposed **ELECTRONIC** and **PRINT** systems should be discussed and a conclusion should be reached and justified.

**ELECTRONIC - Advantages**

- a single unit of stock replacing hundreds of previous units
- the potential for multimedia presentation containing text and pictures (also sound and video if needed)
- easily copied and distributed
- enhances the technological profile of the Company
- lower production costs compared to printing
- CD-ROM retains an up-to-date character by direct links to the Internet Site containing current material.
- Internet Site able to be read by potential customers around the world, contains timely information, updated after each publication

**ELECTRONIC -Disadvantages**

- CD-ROM creation uses software that probably needs a trained and skilled operator
- lack of computers and CD-ROM technology among the current customers
- Nayman Enterprises would rely partly on an external organisation over which they had no control (the Internet Service Provider)
- relatively high on-going costs for the maintenance of the Internet Site - future sales?

**Question 10 (continued)**

Both the advantages and disadvantages of the proposed **ELECTRONIC** and **PRINT** systems should be discussed and a conclusion should be reached and justified.

**PRINT - Advantages**

- loyal customers are getting what they have expected from the company for many years
- a current customer is worth more than a potential customer
- valuable information is not being given away free on the Internet
- staff are secure in the same things they have doing for years
- a more measured change from the print medium to the electronic medium

**PRINT - Disadvantages**

- change to the electronic medium is inevitable so it is best to move quickly so that rival companies will not take the current customers away from Nayman Enterprises
- this is the less politically (ecologically) correct medium since most people believe that not using paper conserves trees - but where does that plastic CD-ROM come from and where does it go eventually?

Nayman Enterprises should possibly accept the **ELECTRONIC** alternative with the modification that customers who want to stay with the old system be allowed to do so.

**The customer, after all, is always right!**

**END OF SUGGESTED SOLUTIONS**  
**1997 IPM TRIAL CAT 3**

**CHEMISTRY ASSOCIATES**

**PO BOX 2227**

**KEW**

**VICTORIA 3101**

**AUSTRALIA**

**TEL: (03) 9817 5374**

**FAX: (03) 9817 4334**

**email: chemas@vicnet.net.au**

**Internet: <http://www.vicnet.net.au/~chemas/education.htm>**