

Question 23 (20 marks) Use a SEPARATE writing booklet.

Use the information below and the algorithm on page 16 to answer Question 23.

An event ticket agency sells tickets for theatre, cinema and pop concerts. You have been employed to rectify errors in their ticketing system.

The goal of the ticketing system is to accept messages from remote terminals that include transaction details relating to events and ticket sales. The system collects the transactions and stores the relevant data in TICKET and EVENT files.

Following a ticket sale, tickets are printed at the remote terminal with a unique ticket number and the date and time of printing.

At the end of the day a supervisor concludes the processing by entering SystemStatus equals 'OFF'.

Question 23 continues on page 16

Question 23 (continued)

The algorithm for the ticketing system is:

```
1   BEGIN TicketSystem
2     SystemStatus = 'ON'
3     READ LastEventNumber
4     READ SystemDate, SystemTime
5     WHILE SystemStatus = 'ON'
6       READ MessageHeader
7       IF MessageHeader = 'EVENT' THEN
8         ProcessEvent
9       ENDIF
10      IF MessageHeader = 'TICKET' THEN
11        ProcessTicket
12      ELSE
13        SystemStatus = 'OFF'
14      ENDIF
15      READ SystemDate, SystemTime
16    END WHILE
17  END TicketSystem

18  BEGIN ProcessEvent
19    EventNumber = LastEventNumber + 1
20    LastEventNumber = EventNumber
21    STORE LastEventNumber
22    OPEN EVENT
23    STORE (EventName, EventDate, EventTime, EventLocation,
24          EventTicketsAvailable, EventNumber)
25    CLOSE EVENT
26  END ProcessEvent

27  BEGIN ProcessTicket
28    OPEN EVENT
29    IF EventTicketsAvailable < > 0 THEN
30      EventTicketsAvailable = EventTicketsAvailable – NumberTicketsSold
31    ENDIF
32    CLOSE EVENT
33    OPEN TICKET
34    STORE (TicketEventNumber, TicketEventName, NumberTicketsSold,
35          TicketEventDate, TicketEventTime)
36    FOR PrintTicket = 1 to NumberTicketsSold
37      PRINT (TicketCurrentTicketNumber, TicketEventName,
38            TicketEventDate, TicketEventTime, SystemDate, SystemTime)
39    ENDFOR
40    CLOSE TICKET
41  END ProcessTicket
```

Question 23 continues on page 17

Question 23 (Continued)

- (a) There are a number of errors in this algorithm. One error is as follows:

If the program reads an unrecognisable message, then the program does not perform as expected. This error occurs between lines 7 and 16 of the algorithm.

- (i) Identify this error in the algorithm. **2**
 - (ii) Modify the appropriate line(s) of the algorithm to solve this error. **3**
 - (iii) There are three classes of messages involved with the operation of this ticketing system. These messages are passed from the remote terminals to the main module. **2**

What is the data type of each message class?
 - (iv) Using a desk check, identify TWO further errors in the algorithm. **3**
- (b) The users of the remote terminals produce end-of-day reports listing the number of tickets sold for each event. The TICKET and EVENT files will be numerically sorted by ticket number and event number prior to processing. **6**

Write an algorithm to produce a report. The algorithm must:

- create an array of records (TicketArray) and insert the number of tickets sold, and the name and number of each event;
- sort the array by event number; and
- calculate and print the number of tickets sold and the event name for each event for the day.

- (c) The ticket agency is currently reviewing the manner in which it provides documentation for the users of the remote terminals. **4**

After a study of the users it has been determined that they need support to:

- learn the application;
- learn specific functions in the application; and
- understand the application and its function and purpose.

The ticket agency wants to ensure that its user documentation meets these needs and is considering three alternative formats: paper, online documentation and video documentation.

Briefly describe TWO of these user documentation formats and evaluate the suitability of ONE of the formats described for the ticket agency.

End of Question 23