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Question 24.

a).

FRAGMENT 1: Logic paradigm; because facts are stated such as hair(sally,red) which means sally has red hair. A query is also included ?-hair(sally,X) which is querying the colour of sally's hair. Appears to be PROLOG code.

FRAGMENT 2: Functional Paradigm. The code is made up entirely of functions. The brackets indicate functions & the code shows smaller functions combining to make larger functions indicated by the outer brackets. The command setq is an element of LISP which is a functional language.

b) Object orientated languages have increased productivity greatly due to, primarily, the use of re-usable code ~~and~~ and routines from run-time-libraries. This quickens the development process and reduces testing time as the data routine and modules do not need to be rigourously tested as they are known to work.

OOP (object oriented programming) allow for software modelling abilities, as objects can model real-world-functions and features being particularly useful in simulations and games.

OOP also allow encapsulation, where data and methods are encoded in an object, making for secure systems. →

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OOP also allows for independant compilation, where each module is tested independantly before being integrated, allows for greater error detection and isolation.
OOP has also allowed for GUI applications, with objects being outputs on the screen.
Also inheritance has allowed for efficiency and to ~~consistency~~ consistency of objects, ~~and~~ classes and sub-classes, which allow thus better system designs.
Thus OOP has and will continue to increase efficiency and productivity of coding.

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c) The rectangle height is not read before ~~the relative operation~~ Inst.Rectangle.height<>0 is used to terminate the loop ∴ the loop will never execute, ~~if~~ as Inst.Rectangle.height is 0 to start with.

This ~~solution~~ logic error could be solved by:

1. Placing a ~~readln (instRectangle.he~~ readln (instRectangle.height) before the while loop. ~~2. Changing t~~ to read an initial value for height.

2. Changing the while (pre-test loop) to a repeat (post-test loop) with a terminatin

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Condition of:
until InstRectangle.height=0

ii)
```
type
  PTriangle = ^TTriangle;
  TTriangle = object (TObject)
   private
      base, height: integer;
   public
      function area: ~~[illegible]~~ real;
  end;
  function TTriangle.area.real;
  begin
      area:=((base*height)/2)
  end;
```

Question 24

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A logic paradigm would be used to develop the system. The proposed system demands a level of logic from the program. For the program to determine where bottlenecks may occur or when less ~~[illegible]~~ shortcuts can be used, a logic paradigm allows the definition of facts and rules, which can be put ~~[illegible]~~ together to reach a goal, by heuristics. In

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This way, the system will be able to cope intuitively with any of the complexities that may arise, using the 'Compression Rules' that are [illegible] deemed as needing to be used. A logic paradigm is well suited to this task.

If the facts on passenger bookings are updated regularly throughout the day, the program will be able to account for any fluctuations in passenger [illegible] bookings, and adjust the shuttles accordingly.

The fact that the path by which the program follows to solve the problem does not need to be known, the system just needs to work reliably, quickly, and effectively, lends itself to the logic paradigm. Using heuristics it will reach a correct goal without necessarily [illegible] being able to show how the decision was reached or whether it is the absolutely correct solution. Nevertheless, the system, created using a logic paradigm, will reach a goal based on its given facts, and so is a good choice for the development of the [illegible] system.