

**GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS**

**SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN**

**COMPUTER STUDIES HG
REKENAARSTUDIE HG**

QUESTION 1 / VRAAG 1

```
program calc_percentage;
Uses Crt ;
type
  gr11rec = record
    number : integer ;
    name : string[30] ;
    mark1, mark2, mark3 : integer ;
    perc : real ;
  end ;
var
  gr11 : file of gr11rec ;
  onerec : gr11rec ;
  bestname : string ;
  bestavg : real ;

  procedure display_file ;
  begin
    reset(gr11) ;
    while not eof(gr11) do
    begin
      read(gr11, onerec) ;
      with onerec do
        writeln(number:4, ' ', name, ' ':32-length(name),
              mark1:4, mark2:4, mark3:4, perc:6:2, '%') ;
      end ;
    end ;
  end ;

begin
  clrscr ;
  assign(gr11, 'gr11pasc.dat') ;

  display_file ;

  bestname := '' ;
  bestavg := 0 ;

  reset(gr11) ;
  while not eof(gr11) do
  begin
    read(gr11, onerec) ;
    with onerec do
    begin
      perc := (mark1 + mark2 + mark3) / 3;
      if perc > bestavg then
      begin
        bestavg := perc ;
        bestname := name ;
      end ;
    end ;
  end ;
end ;
```

```

    seek(gr11, filepos(gr11) - 1) ;
    write(gr11, onerec) ;
end ; {while not eof}

writeln ;
writeln('The best candidate was: ',bestname,' with an average of
',bestavg:6:2,'%') ;
writeln ;
writeln('Final values') ;
display_file ;
close(gr11) ;
readln ;
end .

```

Declare file's record type / Verklaar lêer se rekord tipe	2
Declare file variables / Verklaar lêerveranderlikes	1
Assign file	1
call procedure to display content of file	1
Inisialiseer naam en gem van beste leerder	1
Lees alle rekords uit lêer van begin	2
Lees alle rekord	1
Calculate percentage / Bereken persentasie	2
Toets of hierdie persentasie hoogste is en doen toekenning	3
Write changed record to file / Skryf veranderde rekord na lêer	4
Vertoon beste kandidaat se naam en gem	1
Roep weer prosedure om inhoud van lêer te vertoon	1
Close file / Close lêer	1
Prosedure om inhoud op skerm te vertoon	7
TOTAL / TOTAAL	28

QUESTION 2 / VRAAG 2

```
program calculate_wages ;

Uses crt ;

type
  str20 = string[20] ;

  tStudent = record
    name : str20 ;
    salary : real ;
  end ;

var
  tfWages : text ;
  sName : str20 ;
  iAge, iYears, iCount, iTemp : integer ;
  rWages, rSum, rAvg : real ;
  arrStudents : array[1..20] of tStudent ;

BEGIN
  clrscr ;

  assign(tfWages, 'WAGES.TXT') ;
  reset(tfWages) ;
  iCount := 0 ;
  rSum := 0 ;
  writeln('Wages') ;
  while NOT eof(tfWages) do
  begin
    readln(tfWages, sName, iAge, iYears) ;
    rWages := 200 + iAge * iYears ;
    rSum := rSum + rWages ;
    inc(iCount) ;
    arrStudents[iCount].name := sName ;
    arrStudents[iCount].salary := rWages ;
    writeln(sName, ' : R ', rWages:8:2) ;
  end ;

  writeln ;
  rAvg := rSum / iCount ;
  writeln('Average wages : R ', rAvg:6:2) ;
  writeln ;
  writeln('Students who earn more than average') ;
  for iTemp := 1 to iCount do
  begin
    with arrStudents[iTemp] do
      if salary > rAvg then
        writeln(Name) ;
    end ;
  end ;

  close(tfWages) ;
  ReadKey ;
END.
```

Verklaar tekslêer	1
Verklaar array of record OF 2 arrays	2
Assign & reset lêer	1
Inisialiseer veranderlikes om gemiddeld te kan bereken	2
Lees alle stringe in tekslêer	1
Lees (readln) info uit tekslêer	2
Bereken salaris	2
Tel salaris by totaal	1
Inkrementeer teller	1
Stoor info in skikking	2
Skryf naam en salaris op skerm	1
Bereken gemiddeld	1
Vertoon gemiddeld	1
Vertoon studente > gemiddeld	4
Close lêer	1
TOTAL / TOTAAL	23

QUESTION 3/ VRAAG 3

```

program advert_cost ;

var
  sentence, oneword : string ;
  blank,i : integer ;
  width, height, area, cost : real ;

function calculate(letter : char) : real ;
begin
  case UpCase(letter) of
    '0'..'9' : calculate := 0.1 ;
    'A'..'Z':
      begin
        if letter IN ['A','E','I','O'] then
          calculate := 0.2
        else
          calculate := 0.3;
        end
      else calculate := 0.5 ;
    end ; {case}
  end ; {calculate}

begin
  writeln('Enter width of board in m: ') ;
  readln(width) ;
  writeln('Enter height of board in m: ') ;
  readln(height) ;
  area := width * height ;
  cost := area * 10 ;
  writeln('Enter sentence: ') ;
  readln(sentence) ;
  sentence := sentence + ' ' ; {to detect the last word}
  blank := pos(' ', sentence) ;
  while blank <> 0 do
  begin
    oneword:= copy(sentence, 1, blank -1) ;
    delete(sentence, 1, blank) ;
    cost := cost + 1 ;
    for i := 1 to length(oneword) do
    begin
      cost := cost + calculate(oneword[i]) ;
    end ; {for}
    blank := pos(' ',sentence) ;
  end ; {while}
  writeln('Total cost = R',cost:6:2) ;
  readln ;
end.

```

Read width and height / Lees breedte en hoogte	2
Calculate area / Bereken oppervlak	1
Calculate cost per m² / Bereken koste per m²	2
Read sentence / Lees sin	2
Detect all words (first & last included) / Vind alle woorde (eerste en laaste ingesluit)	3
Subtract a word / Onttrek 'n woord	3
Add cost per word / Tel koste per woord by (R 1.00)	1
Calculate cost for each letter / Bereken koste vir elke letter	2
Subprogram parameters / Parameters van subprogram	2
Add cost for digits / Tel koste vir syfers by	1
make provision for upper and lower case / Maak voorsiening vir hoof-enkleinletters	1
Add cost for A E I O / Tel koste vir A E I O by	1
Add cost for other letters / Tel koste vir ander letters by	1
Add cost for other characters / Tel koste vir ander karakters by	1
Display cost / Vertoon koste	2
TOTAL / TOTAAL	25

QUESTION 4 / VRAAG 4

```

program seats_assign;
Uses crt ;
type
  thall = array[1..6,1..5] of string[5];
var
  hall : thall ;
  oneinit : string[5] ;
  col, row, count : integer ;

  procedure display(arrHall : thall) ;
  var
    icol: integer ;
    irow : integer ;
  begin
    clrscr ;
    write(' ') ;
    for icol := 1 to 5 do
      write(icol:5,' ') ;
    writeln ;

    for irow := 1 to 6 do
      begin
        write(irow) ;
        for icol := 1 to 5 do
          write(' ',arrHall[irow,icol]:5) ;
        writeln ;
      end ;
    writeln ;
  end ; {display}

begin
  randomize ;
  clrscr ;
  for row := 1 to 6 do
    for col := 1 to 5 do
      hall[row, col] := ' ' ;
    count := 0 ;
    write('Enter an initial <X> to stop: ') ;
    readln(oneinit) ;
    while (oneinit <> 'X') and (oneinit <> 'x') do
      begin
        if count < 25 then
          begin
            repeat
              row := random(6) + 1 ;
              col := random(5) + 1;
            until hall[row, col] = ' ' ;
            hall[row,col] := oneinit ;
            inc(count) ;
            display(hall) ;
            write('Enter an initial <X> to stop: ') ;
            readln(oneinit) ;
          end {if}
        else begin
          writeln('No more seats available') ;
          oneinit := 'X' ;
        end ;
      end ; {while}
    display(hall) ;
    writeln('Done - press any key to stop') ;
    ReadKey ;
  end.

```

<i>Turbo Pascal</i>		<i>Delphi</i>
Verklaar skiking	2	ColCount=6 RowCount=7
Randomize	1	
Inisialiseer teller	1	
Lees voorletters	1	
Lees herhaaldelik voorletters tot 'X'	2	Label met dekoratiewe skrif
Toets of nog sitplekke beskikbaar	2	
Vertoon boodskap as geen sitplekke beskikbaar	1	
Genereer ry en sitplek nommers	3	
Genereer nommers totdat oop sitplek gekry	2	
Bespreek sitplek	2	
Inkrementeer teller	1	
Roep prosedures om uitleg te vertoon	2	Showmessage waar jy sit
Prosedure om sitplekke te vertoon	4	Skryf ry en sitpleknommers in StrigGrid
TOTAL / TOTAAL	24	