

STRICTLY CONFIDENTIAL



2015 EXAMINATIONS

CERTIFICATE IN FINANCIAL ACCOUNTING PROGRAMME

PAPER FA 2 : PRACTICAL MATHEMATICS & COMPUTING

WEDNESDAY 2 DECEMBER 2015

TIME ALLOWED: 3 HOURS

SUGGESTED SOLUTIONS

SECTION A

Answer ALL questions in this section

1. (a) (i) 23345 = 23000 tons
(ii) 23 months = 30 months
(iii) 3.245 = 3.2

- (b) (i)
$$\begin{array}{r|l} 2 & 78 \\ & 39 \text{ r } 0 \text{ lower} \\ & 19 \text{ r } 1 \\ & 9 \text{ r } 1 \\ & 4 \text{ r } 1 \\ & 2 \text{ r } 0 \\ & 1 \text{ r } 0 \\ & 0 \text{ r } 1 \text{ higher} \end{array}$$

$$78_{10} = 1001110_2$$

- (ii)
$$\begin{array}{l} 8 \text{ B} = \\ \begin{array}{l} \longleftarrow 11 \times 1 = 11 \\ \longleftarrow 8 \times 16 = \underline{128} \\ 139 \end{array} \end{array}$$

- (c) (i) false
(ii) false
(iii) true
(iv) false
(v) true

2. (a) Mode
Median
Range

- (b) Graphs are important because:

- They provide a visual representation of data.
- They clarify information effectively.

- Make important trends easily recognizable.
- Allow users to perceive information quickly.
- They can be easily incorporated into reports, web pages, posters, word processing documents.

(c) (i) $P(\text{type B}) = \frac{2}{12} = \frac{1}{6}$

(ii) $P(\text{not C}) = \frac{3}{12} + \frac{2}{12} = \frac{5}{12}$

(iii) $P(A \text{ or } C) = \frac{3}{12} + \frac{7}{12} = \frac{10}{12} = \frac{5}{6}$

- (d)
- Data can only be read
 - It is non-volatile
 - It is permanent
 - It is supplied only by the computer manufacturer
 - It cannot be upgraded
 - It is not used by application programs

3. (a) Let the length of the short piece be x and long piece is $21-x$
 \therefore short : long = 2:5 = $x : 21-x$

$$\frac{2}{5} = \frac{x}{21-x}$$

$$2(21-x) = 5x$$

$$42 - 2x = 5x$$

$$42 = 7x$$

$$6 = x$$

Long piece $21 - 6 = 15$

The lengths are 6m and 15m

- (b)
- (i) File management: allows you to create, delete, move and search for files.
 - (ii) Spell checker : allows you to check spelling of words. It highlights any word it does not recognize.
 - (iii) Thesaurus : allows you to check for synonyms without leaving the word processor.

4. (a)

Method x commission: $\frac{3.5}{100} \times 2000000 = \text{K}70,000$

Method y: $25,000 + \left(\frac{1.5}{100} \times 2000000\right) = \text{K}55,000$

The salesperson should choose method x

(b) (i) The three basic classification of printers:

(1) Character printer: Prints one character at a time e.g. dot matrix printer.

(2) Line printer: Prints whole page at a time.

(3) Page printer/Image printer: Prints whole page at a time e.g. laser printer, ink jet printer.

(ii) Impact printer: The print head hits the inked ribbon against the paper. It is generally noisy e.g. dot matrix printer, drum printer.

Non impact printer: There is no direct contact between the print head and the paper. It uses light or thermal to produce image to the paper or sprays ionized ink on paper. It is generally quiet e.g. laser printer.

SECTION B

Answer any TWO Questions from this section

5. (a) Advantages of using off-the-shelf packages

- It is written by software specialists
- Other users would have used the package already
- It is well documented
- The computer user does not need to employ his/her own specialist staff
- It is well tested
- It saves time as it is ready for use

- The package is continually updated therefore latest version can be on the market
- Some packages can be tailor made to the user's specific needs

- (b) (i) Server Computer: It is part of the client – server method of local network. A server is a machine which is dedicated to providing a particular service or function requested by the client machine. It may be a powerful Personal Computer (PC) serving a network.
- (ii) A network computer is one of a series that are linked together either in LAN or WAN. It does not have a hard disk because its applications are downloaded from server when needed.
- (iii) A mainframe computer has a very powerful central computer, linked by cable or telecommunications to hundred or even thousands of terminals. It is capable of accepting simultaneous input from each of them. It has more processing power than a PC. It offers extensive data storage facilities.

(c)

New meter reading	-	425714	
Old meter reading	-	<u>420434</u>	
Consumption		5280	
Charge 1 st 5000 units	=	5000 x 45	= 225,000
Charge next 280 units	=	280 x 38	= 10,640
Fixed charge			<u>5,000</u>
Current bill	=		240,640
Balance b/f	=		<u>3,475</u>
			<u>244,115</u>

6. (a) (i) Population is a set of all units (usually people objects events transactions) that we are interested in studying.
- (ii) Variable is the characteristic of an individual population unit.
- (iii) Sample: a subset or portion of the units of a population.
- (iv) Statistical inference: an estimate or prediction or some other generalization about a population based on the information from a sample.
- (v) Frequency: number of observations or items or data values that belong to each category or class of data.
- (vi) Table: an array of numbers arranged in rows and columns.

(b)	Day	Output	$(x - \bar{x})^2$
	1	120	492.84
	2	130	148.84
	3	145	7.84
	4	123	368.64
	5	167	615.04
	6	134	67.24
	7	132	104.04
	8	162	392.04
	9	157	219.04
	10	<u>152</u>	<u>96.04</u>
	Total	<u>1422</u>	<u>2511.60</u>

(i) $\bar{x} = \frac{1422}{10} = 142.2$

(ii) Range $167 - 120 = 147$

(c) Standard deviation of the production output:

$$\begin{aligned}
 \text{SD} &= \sqrt{\frac{(x - \bar{x})^2}{n}} \\
 &= \sqrt{\frac{2511.6}{10}} \\
 &= \sqrt{251.16} \\
 &= \underline{\underline{15.85}}
 \end{aligned}$$

7. (a) $6x^2 + 5x - 4 = 0$
 $6x^2 + 8x - 3x - 4$
 $(6x^2 + 8x) + (3x - 4)$
 $2x(3x + 4) - 1(3x + 4)$
 $(3x + 4)(2x - 1)$

(b) $A = P(1 + i)^n$

A $A = 100,000(1.045)^5 = 124618.93$

B Yr 1 $100,000(1.035) = 103500$

$Yr\ 2\ 103,500(1.04) = 107640$
 $Yr\ 3\ 107,640(1.045) = 112483.8$
 $Yr\ 4\ 112,483.8(1.05) = 118107.99$
 $Yr\ 5\ 118,107.99(1.055) = 124603.93$

Option A is better than the second

- (c) (i) Limit check: This checks that data is not below or above a certain value. There is either the upper or lower bound and not both.
- (ii) Completeness: This checks that all records have been processed or checks that all fields have been input.
- (iii) Format: This checks that the record has required fields and each field has required size. It also checks that the fields are all numeric, all alphabetic or alphanumeric.
- (iv) Existence: This checks on fields to ensure that the data is valid for that field e.g. it checks that the stock code or customer number or student number exists by looking up in the referee file.

E N D