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CPA POST ADVANCED LEVEL

BUSINESS DATA ANALYTICS (PRACTICAL PAPER)

THURSDAY: 24 August 2023. Morning Paper.   **Time allowed: 3 hours.**

Answer ALL questions in SECTION I and SECTION II. Answer any one (1) question out of the three (3) questions in section III. SECTION I has twenty (20) Multiple Choice Questions each carrying one (1) mark. SECTION II has two (2) practical questions each carrying thirty (30) marks. SECTION III has three (3) practical questions each carrying twenty (20) marks.

Under SECTION II and SECTION III, you are required to create Ms Excel Worksheets with the name of the entity in each question and input your workings and solutions. You may use the Excel template within the question.

RATES OF TAX (Including wife's employment, self-employment and professional income rates of tax).

Year of income 2022.

Monthly taxable pay (Sh.)			Annual taxable pay (Sh.)			Rate of tax % in each Sh.
1	-	24,000	1	-	288,000	10%
24,001	-	32,333	288,001	-	388,000	25%
Excess over	-	32,333	Excess over	-	388,000	30%

Personal relief Sh.2,400 per month (Sh.28,800 per annum).

Investment allowance: Capital expenditure incurred on:	Rate of investment allowance	Residual value (25% per year on equal instalments)	Prescribed benefit rates of motor vehicles provided by employer (i) Saloons, Hatch Backs and Estates
(a) Buildings:			

Prescribed benefit rates of motor vehicles provided by employer
(i) Saloons, Hatch Backs and Estates

			Monthly rates (Sh.)	Annual rates (Sh.)
Up to		1200 cc	3,600	43,200
1201	-	1500 cc	4,200	50,400
1501	-	1750 cc	5,800	69,600
1751	-	2000 cc	7,200	86,400
2001	-	3000 cc	8,600	103,200
Over	-	3000 cc	14,400	172,800

(a) Buildings:

Capital expenditure	Rate of investment allowance	Residual value
• Hotel building	50% in the first year of use	25%
• Building used for manufacture	50% in the first year of use	25%
• Hospital buildings	50% in the first year of use	25%
• Petroleum or gas storage facilities	50% in the first year of use	25%
• Educational/hostels building	10% per year on straight line basis	
• Commercial building	10% per year on straight line basis	

(b) Machinery:

Capital expenditure	Rate of investment allowance	Residual value
• Machinery used for manufacture	50% in the first year of use	25%
• Hospital equipment	50% in the first year of use	25%
• Ships or aircraft	50% in the first year of use	25%
• Motor vehicles and heavy earth moving equipment	25% per year on straight line basis	
• Computer software, calculators, copiers and duplicating machines	25% per year on straight line basis	
• Furniture and fittings	10% per year on straight line basis	
• Telecommunication equipment	10% per year on straight line basis	
• Film equipment by a local producer	25% per year on straight line basis	
• Machinery used to undertake operations under prospecting rights and exploration under mining rights	50% in the first year of use	25%
• Other machinery	10% per year on straight line basis	
(c) Purchase/acquisition of right to use fibre optic cable by telecommunication operation	10% per year on straight line basis	
(d) Farm works	50% in the first year of use	25%

(ii) Pick-ups, Panel Vans (unconverted)

			Monthly rates	Annual rates
Up to	-	1750 cc	3,600	43,200
Over	-	1750 cc	4,200	50,400

(iii) Land Rovers/Cruisers

	Monthly	Annual
Land Rovers/Cruisers	7,200	86,400

Commissioner's prescribed benefit rates: Services	Monthly rates (Sh.)	Annual rates (Sh.)
(i) Electricity (Communal or from a generator)	1,500	18,000
(ii) Water (Communal or from a borehole)	500	6,000
Agriculture employees: Reduced rates of benefits		
(i) Water	200	2,400
(ii) Electricity	900	10,800

SECTION I (20 MARKS)

Answer ALL questions in this section.

QUESTION ONE

How fast data is processed and accessed is represented by which of the following V's of Big Data?

A.   Velocity
B.   Validity
C.   Virality
D.   Veracity

QUESTION TWO

Data modelling is a process that helps one to understand the structures, form, and relationships of information. It requires one to first think of the model, then identify the model details and then how the model will be implemented. Which of the following is the correct name of data model implementation?

A.   Conceptual
B.   Logical
C.   Physical
D.   Rational

QUESTION THREE

The following activities are included in the Cross-Industry Standard Process for data mining:

1.   Data Preparation
2.   Data Understanding
3.   Data Deployment
4.   Business Understanding
5.   Data Evaluation
6.   Data modelling

Which of the following is the proper sequence of these activities?

A.   2,1,3,5,6,4
B.   1,3,5,6,4,2
C.   1,6,5,2,3,4
D.   4,2,1,6,5,3

QUESTION FOUR

Which of the following is **NOT** an activity in the modeling stage in the Cross-Industry Standard Process for Data Mining?

A.   Build
B.   Select
C.   Design
D.   Evaluate

QUESTION FIVE

For data visualisation, a bar chart will likely be classified as a_____.

A.   Distribution
B.   Relationship
C.   Comparison
D.   Composition

QUESTION SIX

A data analyst would like to present data in the form of a distribution. He will likely use all the following **EXCEPT**?

A.   Line chart
B.   Histogram
C.   Scatter graph
D.   Pie Chart

QUESTION SEVEN

Data Ethics are the norms of behaviour that promote appropriate judgements and accountability when acquiring, managing, or using data, with the goals of protecting civil liberties, minimising risks to individuals and society, and maximising the public good. All the following promote data ethics **EXCEPT**?

A. Complying with the law
B. Promoting transparency
C. Respecting privacy and confidentiality
D. Fairness

QUESTION EIGHT

Which of the following is **NOT** a concept of data integrity?

A. Data availability
B. Data currency
C. Data accuracy
D. Data validity

QUESTION NINE

With the high volume of data available for businesses, collecting meaningful data is a big challenge. To enable handling large volumes of data, data collection tools are critical. Which of the following will likely be a data collection software?

A. Excel
B. Python
C. R
D. Zoho

QUESTION TEN

A data analyst makes the following comments about functions in excel:
1. To determine the variance of a list of 10 numbers we use =VAR.P(A1:A10)
2. To determine the standard deviation of 10 numbers we use = VAR.P(A1:A10)
3. To determine the variance of a list of 10 numbers we use = VAR.S(A1:A10)

Which of the following statements is **TRUE**?

A. Only statement 1 is correct
B. Only statement 2 is correct
C. Only statement 3 is correct
D. All the statements are correct

QUESTION ELEVEN

The following are the various phases of data models:
1. Physical
2. Logical
3. Conceptual

Which of the following represents the correct order of the models?

A. 1,2,3
B. 2,3,1
C. 3,1,2
D. 3,2,1

QUESTION TWELVE

Which of the following techniques is **LEAST** effective in obtaining data for easy storage and analysis?

A. Interviews
B. Self-administered email questionnaire
C. Online questionnaire such as on google forms
D. Recorded interviews

QUESTION THIRTEEN

According to cross-industry standard process for data mining, data preparation involves:

A.   Obtaining data and information from different sources, processing and storing for future reference.

B.   Fixing or removing incorrect, corrupted, incorrectly formatted data and information.

C.   Collecting data and information about business requirements from stakeholders and end users.

D.   Creating a visual representation of either a whole information system or parts of it to communicate connections between data points and structures.

QUESTION FOURTEEN

The following statements are associated with big data:

(i)   Big data is a collection of data that is huge in volume, yet growing exponentially with time.

(ii)   Big data that can be stored, accessed and processed in the form of fixed format is termed as structured data.

(iii)   Big data that is heterogeneous and contains a combination of simple text files and images is semi structured.

Which of the following choices is correct?

A.   Statements (i) and (ii) are correct

B.   Statements (i) and (iii) are correct

C.   Statements (ii) and (iii) are correct

D.   All the statements are correct

QUESTION FIFTEEN

Which of the following is **NOT** the correct definition of one of the 'V's of Big Data?

A.   Velocity: The speed at which big data is collected and processed

B.   Value: The usefulness of the information obtained from analysing big data

C.   Veracity: Multifactor, unstructured and dynamic nature of big data

D.   Volume: The size of big data

QUESTION SIXTEEN

The following are the different categories of data analytics:

1.   Diagnostic

2.   Predictive

3.   Descriptive

4.   Prescriptive

Which of the following is the correct order of value?

A.   3,1,4,2

B.   3,4,2,1

C.   2,3,4,1

D.   1,3,2,4

QUESTION SEVENTEEN

David Mongare is the audit manager of Mkaguzi Auditors. He is carrying out analytical reviews at two stages: at planning and at substantive testing. Which type of analytics relates to the two stages?

A.   Predictive analytics for planning and diagnostic analytics for substantive testing

B.   Diagnostic analytics for planning and predictive analytics for substantive testing

C.   Descriptive analytics for planning and diagnostic analytics for substantive testing

D.   Predictive analytics for planning and descriptive analytics for substantive testing

QUESTION EIGHTEEN

Which of the following is **NOT** a strategy that the data analyst will use in handling missing data to enable data analysis:

A.   Drop observations that have missing values

B.   Estimate the missing value using other observations

C.   Assign an integer that will enable the values to be processed as null values

D.   Highlighting the observation with a tag

QUESTION NINETEEN

You are given the following categories of data visualisation:

1. Composition
2. Distribution
3. Comparison
4. Relationship
5. Trends

Which of the following choices represents the order from simple to complex in terms of analysing data for visualisation?

A. 5,3,2,4,1
B. 4,3,2,1,5
C. 2,3,1,4,5
D. 1,5,4,3,2

QUESTION TWENTY

Which of the following data visualisation charts will likely present more than two variables over time effectively?

A. Scatter Graph
B. Bubble Chart
C. Column Chart
D. Line Chart

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