LEVEL 5

Demonstrate Numeracy Skills

July /Aug 2023

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

Time: 3 hours

INSTRUCTIONS TO THE CANDIDATE

1. This paper consists of THREE sections; A, B and C.
2. You are provided with a separate answer booklet.
3. Do not write on the question paper.
4. Marks for each question are indicated in the brackets ()
5. You should have a non-programmable scientific calculator

This paper consists of 8 printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

SECTION A: (20 MARKS)

*Answer **All** the questions. Each question is 1 mark*

1. Ends of the earth axis are

   A. Grid

   B. Meridians

   C. Poles

   D. Equators

2. Which one of the following is not a type of number used in mathematics?

   A. Natural numbers

   B. Integers

   C. Numerator numbers

   D. Real numbers

3. A cuboid has how many edges?

   A. 6

   B. 12

   C. 8

   D. 14

4. The following are basic arithmetic operators except_____

   A. Square root

   B. Multiplication

   C. Addition

   D. Division

5. Simplify 50% as a fraction.

   A. $\frac{1}{2}$

   B. $\frac{1}{3}$

   C. $\frac{5}{10}$

   D. $\frac{1}{10}$

6. Identify the incorrect mathematical statements regarding arithmetic operations below

    A. The square root of 4 is -2 and +2

    B. When two positive numbers are multiplied the result is a positive number

    C. When two negative numbers are added together the result is positive

    D. Division of a negative number and a positive number gives a negative result

7. Find the sum of 27, -74, 84 and -19?

    A. 18

    B. 163

    C. 204

    D. 111

8. To make out an estimate for a work the following data are necessary; drawing, specification and _____

    A. Materials

    B. Rates

    C. Labours

    D. Transportation

9. Which of the following is not a type of a fraction?

    A. Mixed numbers

    B. Improper fraction

    C. Proper fraction

    D. Numerical fraction

10. Which of the numbers below is approximated to four decimal places?

    A. 2154

    B. 21.54

    C. 2154.0012

    D. 215.01

11. Identify the correct list below comprising the measures of central tendencies.

    A. Mean, integral and mode

    B. Mode, mean and median

    C. Mode, derivative and integral

    D. Integral, average and median

12. The title of the map gives us information about

    A. What map shows

    B. The position of north

    C. Physical features

    D. Human features

13. The following are types of graphs except_____

    A. Bar graph

    B. Line graph

    C. Pictograph

    D. Cartesian graph

14. In constructions, the scale factor is used to construct _____ triangles.

    A. Right

    B. Equilateral

    C. Similar

    D. congruent

15. Which of the following are two commonly used axis when plotting a graph?

    A. a and b axis

    B. x and y axis

    C. x and j axis

    D. y and k axis

16. The average value of the lower and upper limit of a class is called

    A. mid-point

    B. class boundary

    C. class interval

    D. class frequency

17. The following are types of angles except which one?

    A. Obtuse angle

    B. Acute angle

    C. Right angle

    D. Corner angle

18. A rough drawing showing only some features of an area drawn without using any scale is called_____

    A. Scale

    B. Conventional drawing

    C. Map

    D. Sketch

19. Which of the following pair consist of types of research data?

    A. Organized data and unorganized data

    B. Qualitative data and quantitative data

    C. Processed data and unprocessed data

    D. Grouped data and ungrouped data

20. What must be added to (6+0.6+0.06+0.006) to obtain number 7?

    A. 0.034

    B. 0.334

    C. 0.340

    D. 0.343

SECTION B: (40 MARKS)

Answer all the questions in this section

21. Subtract -74 from 377 (2 Marks)

22. It takes 50 minutes to perform a certain task. Using a new type of tool, the time can be reduced by 15%. Calculate the new time taken. (4 Marks)

23. A pen has a mass of 15 grams. Calculate in kilograms the mass of 1200 such pens.

(3 Marks)

24. Find the value of $\frac{1}{3} - (\frac{2}{5} + \frac{1}{4}) \div (\frac{3}{8} \times \frac{1}{3})$ (4 Marks)

25. A piece of material 273cm long is cut into three pieces in the ratio of 3 to 7 to 11. Determine the length of the three pieces. (5 Marks)

26. If three people can complete a task in 4 hours, find how long will take 5 people to complete the same task assuming the rate of the work is constant. (4 Marks)

27. The following fractions $(\frac{5}{16} \ and 1\frac{2}{5})$ represent the measurement in meters of pipes of size $2.0mm^2$ and $1.5mm^2$ respectively. Convert the fractions into percentages. (4 Marks)

28. Convert the following angles into degrees and decimal of a degree: $24^042^{'}$ and $78^015^{'}$.

(4 Marks)

29. A rectangular board is 820mm long and 400mm wide. Find its area in mm^2 and cm^2.

(4 Marks)

30. Construct a triangle whose sides are 6cm, 5cm and 3cm. (3 Marks)

31. If the cross-sectional area of an electric conduit pipe is $320mm^2$, find its diameter.

(3 Marks)

SECTION C: (40 Marks)

Answer any TWO questions in this section

32.

a. Data are obtained on the topics given below;

i.   The number of days on which rain falls in a month for each month of the year.

ii.   The mileage travelled by each of a number of salesmen.

iii.   The time that each of a batch of similar batteries lasts.

iv.   The amount of money spent by each of several families on food.

v.   The number of orders received each day during the past 50 days at the office of a mail-order company.

State whether each data on the topics are discrete or continuous data giving reason to each.

(10 Marks)

b. Kathaana village is 74km Northwest of Mbusyani village. Nguluni village is 42km West of Mbusyani. By using scale drawing find the distance between Nguluni and Kathaana.

(10 Marks)

33. The data given below refers to the capacity of 40 containers in litres, expressed correct to the nearest whole number.

    a. Form a frequency distribution table for this data having seven classes.   (10 Marks)

    b. Construct a histogram for the data given.   (10 Marks)

80	90	70	110	90	160	110	80	140	30	90	50
		100	110	60	100	80	90	110	80	100	90
		120	70	130	170	80	120	100	110	40	110
		50	100	110	90	100	70	110	80		

34.

a. A man leaves a point walking at 6.5 km/h in a direction E 20° N (i.e. a bearing of 70°). A cyclist leaves the same point at the same time in a direction E 40° S (i.e. a bearing of 130°) travelling at a constant speed. Find the average speed of the cyclist if the walker and cyclist are 80 km apart after 5 hours.   (10 Marks)

b. Construct a triangle PQR given that QR = 5 cm, ∠Q = 70° and ∠R = 44°   (10 Marks)

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