



DAS B.E.C.E. PERFORMANCE BOOSTER

BASIC EDUCATION CERTIFICATE MOCK

MATHEMATICS

2&1

2HRS

NAME _____ INDEX NO _____

SEPT

PAPER 2 1HOUR

Answer four questions only
All questions carry equal marks

All working must be clearly shown. Marks will not be awarded for correct answers without corresponding working.

1. (a) Given that A and B are subsets of U.

$U = \{\text{whole numbers less than } 20\}$

$A = \{\text{multiples of } 3\}$

$B = \{\text{composite numbers}\}$

- List the members of U, A and B
- Find the elements of
 - $A \cup B$
 - $A \cap B$
- Illustrate U, A and B on a Venn diagram

(b) The average side of rectangle is 10cm. If the length of the rectangle is twice the breadth, calculate the area of the rectangle.

- 2 (a) Factorize Given $\frac{1}{c} + \frac{2}{p} = \frac{3}{t}$, express p in terms of c and t. hence find the value of p if $c=10$ and $t=2$

(b) Simplify $3\frac{1}{5}$ of $\left(\frac{3}{7} + \frac{1}{4}\right) \div 2\frac{3}{8}$

(c) Evaluate $\frac{0.0028 \times 0.0084}{0.07 \times 0.0042}$ leaving the answer in standard form

3. Using ruler and a pair of compasses only,

Construct triangle ABC such that, $|AB|=9.5\text{cm}$, $|BC|=8\text{cm}$, $|AC|=8\text{cm}$

- Construct the mediator of $\angle BAC$
 - Construct a line equidistant from A and B
 - Name the intersection of the mediator $\angle BAC$ and the line equidistant from A and B, O
Using radius OA draw a circle. Measure the radius of the circle.
 - Measure $|BC|$ and $\angle BCA$
4. The table below represent marks of 50 students in a test

Marks	2	3	4	5	6	7	8	9	10
Number of students	3	4	5	m+5	8	4	7	6	0

- a. Find the value of m
 - b. Calculate the mean
 - c. Find the mode and median
 - d. Find the fraction of the students who scored at least 4 marks
5. The government of Ghana formulated the daily minimum wage of the workers in the country as $W = \text{GH}\text{¢} P$, where W is daily wage rate, P is price level and GH¢ is Ghana cedi.
- (a) Using a scale of 2cm to 1 unit on the x-axis and 2 cm to 3 units on the y-axis, Mark the x-axis as price level from GH¢0.00 to GH¢10.00 and the y-axis as the wage rate from GH¢3.00 to GH¢30.0
 - (b) Draw a graph of
 - (i) $W = \text{GH}\text{¢} P$
 - (ii) $P = \text{GH}\text{¢} 8$
 - (iii) $P = 0\text{GH}\text{¢} P$
 - (c) (i) Let the graphs intersect and label the intersection as; A, B and C
(ii) Shade the figure formed
(iii) What type of triangle is ABC
6. (a) A man took a loan of GH¢ 24000 from a bank at $2\frac{1}{2}\%$ per annum for 5 years.
- i. Calculate the total amount he will pay to the bank the end of the 5 years
 - ii. Find his yearly installment
- (b) Kofi, Amma and Yaw received GH¢ 2500.00 to share in the ratio 2:3:x. If yaw had GH¢ 900.00
- i. Find the value of x
 - ii. Find the share of Amma and Kofi

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PAPER 1 (40 Marks) 1 HOUR
OBJECTIVE TEST
Answer all questions

Now answer the following questions.

1. $M = \{g, o, q, s\}$ and $W = \{h, p, r, t\}$.
Find $M \cup W$
A. $\{q, r, s, t\}$ B. $\{g, h, o, q, r\}$
C. $\{g, h, o, q, r, t\}$ D. $\{g, h, o, p, q, r, s, t\}$.
2. Which of the following sets is well defined?
A. $\{Man, kofi, red, 14\}$
B. $\{ink, mango, green, nail\}$
C. $\{car, road, glass, book\}$
D. $\{Seth, Mary, Jacob, Evelyn\}$
3. If set B is a subset of set A, then
A. Set A and B have the same number of elements
B. Some members of set B can be found in set A
C. No members of B is in set A
D. All members of set B are in set A
4. Correct 123.485 into the nearest whole number
A. 123 B. 124 C. 125 D. 122
5. Express 480 as the product of prime factors
A. $2^4 \times 3^2$ B. $2^5 \times 3 \times 5$ C. $2^4 \times 3^3$ D. $2^2 \times 3^2$
6. Arrange the following in ascending order of magnitude $\frac{1}{2}, \frac{1}{4}$ and $\frac{2}{5}$
A. $\frac{1}{2}, \frac{1}{4}, \frac{2}{5}$ B. $\frac{2}{5}, \frac{1}{4}, \frac{1}{2}$ C. $\frac{1}{2}, \frac{5}{2}, \frac{1}{4}$ D. $\frac{1}{4}, \frac{2}{5}, \frac{1}{2}$
7. A man spent $\frac{1}{6}$ of his monthly income on household expenses. Find the fraction of the money left
A. $\frac{1}{4}$ B. $\frac{2}{3}$ C. $\frac{1}{3}$ D. $\frac{5}{6}$
8. Round 8,921,465 to the nearest hundred
A. 8,921,000 B. 8,921,400
C. 8,921,460 D. 8,921,500
9. What is the value of four in the number 7073.43?
A. Four tenth B. Four C. Forty D. Four hundred
10. Express 25000km into standard form
A. 2.5×10^4 km B. 2.5×10^{-4} km
C. 2.5×10^3 km D. 2.5×10^5 km

11. If 10 boys took 10 days to weed a piece of land, how long will 5 boys working at the same rate, weed the land?
A. 25 days B. 30 days C. 20 days D. 22 days
12. Simplify $\frac{2^3 \times 4}{32}$
A. 0 B. 3 C. 2^0 D. 2^2
13. Express $\frac{5}{16}$ as a decimal fraction
A. 0.3333 B. 0.3125 C. 0.2667 D. 0.2500
14. Write 0.55 as fraction in its lowest term
A. $\frac{11}{200}$ C. $\frac{11}{20}$ C. $\frac{11}{2}$ D. $\frac{11}{5}$
15. Subtract 125.47 from 203.90
A. 78.57 B. 78.43 C. -121.57 D. -122.38
16. Expand $(2x - y)(2x + y)$
A. $4x^2 - y^2$ B. $4x^2 + y$ C. $4x^2 + 2y$ D. $4x^2 - 2y$
17. A man had GH¢100 as profit on a radio set he sold at GH¢1000.00. Find the cost price of the radio set
A. GH¢1100 B. GH¢900 C. GH¢800 D. GH¢1000
18. A worker was paid GH¢2000.00 per month. What will be the tax paid annually if the tax rate for the period is 10GP in every GH¢
A. GH¢240 B. GH¢2400 C. GH¢24 D. GH¢400
19. Evaluate $\frac{2^3 \times 3^4 \times 3^3}{2^3 \times 2 \times 3^5}$
A. 6 B. 4.5 C. 12 D. 18
20. Find the HCF of $3^3 \times 5^2$ and $3^2 \times 5^4$
A. $3^2 \times 5^2$ B. $3^3 \times 5^2$ C. $3^2 \times 5^4$ D. $3^5 \times 5^6$
21. Find the lowest common multiple (LCM) of $2^2 \times 3 \times 5^2$ and $2^3 \times 3^2 \times 5$
A. $2^2 \times 3 \times 5$ B. $2^2 \times 3^3 \times 5^2$
C. $2^3 \times 3 \times 5$ D. $2^3 \times 3^2$
22. A train travels at a speed of 80km per hour. How long will it take to travel a distance of 320km?
A. 2hours B. 3 hours C. 4 hours D. 5 hours
23. In an examination, 154 out of 175 candidates passed. What percentage failed?
A. 6% B. 12% C. 13% D. 18%
24. In a town of 42,800 inhabitants, 48% are male. The rest are female. How many more females are there than males
A. 22,256 B. 20,544 C. 1712 D. 1,612

25. It takes 6 students 1 hour to sweep their school compound . how long will it take 15 students to sweep the same compound

- A. 24 minutes B . 12 minutes C. 3 hours D. 2 hour

26. A map is drawn to a scale 1:100,000. What will be the distance in kilometers is represented by 5cm on the map.

- A. 0.5km B. 5km C. 50km D. 500km

27. Kofi invested GH¢150,000 at 5% per annum simple interest. How long will it take this amount to yield an interest of GH¢15,000

- A. 2years B. 3years C. 4years D. 5years

28. A housing agent makes a commission of GH¢1,000 when he sells a house for GH¢100,000.00. Calculate the percentage of the commission

- A. 15% B. 1% C. 10% D. 5%

29. Solve the equation

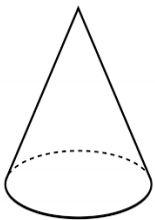
$$\frac{x+2}{3} + 2x = 10$$

- A. 3 B. 4 C. 5 D. 6

30. Find the image of -3 under the mapping $x \rightarrow -2x-4$

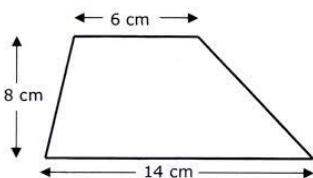
- A. 2 B. -2 C. 1 D. -1

31. Name the geometric figure below



- A. Cuboid B. Cone C. Pyramid D. Sphere

32.



Calculate the area of the trapezium

- A. 60 cm^2 B. 80 cm^2 C. 100 cm^2 D. 50 cm^2

33. A square of side 6cm has the same area as a rectangle of length 9cm. find the breadth of the rectangle

- A. 3cm B. 4cm C. 6cm D. 24cm

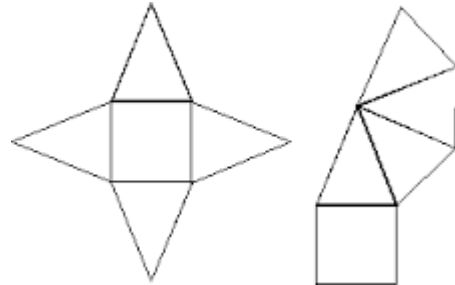
34. The length of a rectangular playing field is 5m longer than its width. If the perimeter of the field is 150m. find the width

- A. 30m B. 35m C. 40m D. 45m

35. How many faces has a triangular pyramid

- A. 3 B. 4 C. 5 D. 6

36. Which solid figure can be made from the net below?



- A. Square prism B. Square pyramid
C. Triangular pyramid D. Cuboid

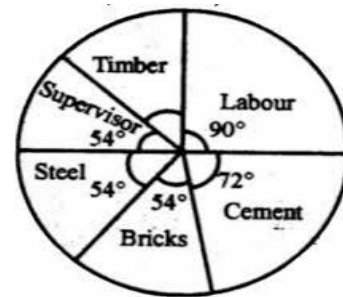
37. The interior angle of regular polygon is 120 degrees. How many sides has this polygon

- A. 3 B. 4 C. 5 D. 6

38. Find the perimeter of circle of diameter 14cm

- A. 22cm B. 44cm C. 154 cm D. 28cm

39. Use the pie chart below to answer the questions that follows



Find the value of angle for timber

- A. 35 B. 36 C. 38 D. 40

40. If $w = 12$, $x = 5$, $y = 6$ and $z = 4$, find the value of $wx - yz$.

- A. 18 B. 27 C. 36 D. 8

