

DAS BECE BOOSTER

2018

MATHEMATICS MARKING SCHEME

DAS B.E.C.E PERFORMANCE BOOSTER

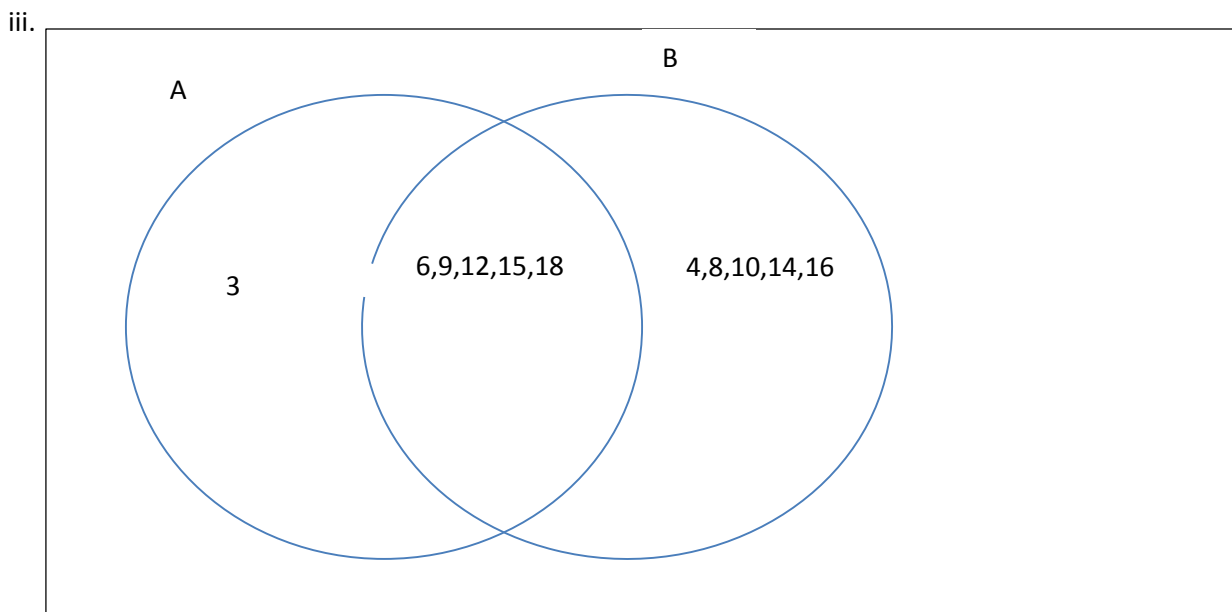
SEPTEMBER 2018

MATHEMATICS MARKING SCHEME

QUESTION 1

(a)

- i. $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19\}$ A1
 $A = \{3, 6, 9, 12, 15, 18\}$ A1
 $B = \{4, 6, 8, 9, 10, 12, 14, 15, 16, 18, \}$ A1
- ii. $\alpha) A \cup B = \{3, 4, 6, 8, 9, 10, 12, 14, 15, 16, 18\}$ A1
 $\beta) A \cap B = \{6, 9, 12, 15, 18\}$ A1



DRAWING RECTANGLE AND CIRCLES TO INTERSECT

1 mark,

INSERTING ANSWERS

2marks

Total marks 8marks

(b) Average side of rectangle = 10cm

Length = 2xbreadth

$$\text{Average side} = \frac{\text{perimeter}}{\text{number of sides of rectangle}}$$

M1

$$10 = \frac{\text{perimeter}}{4}$$

M1

40cm = perimeter of rectangle

$$\text{Perimeter} = 2L + 2B$$

M1

$$\text{But } L=2B$$

$$40 = 2(2B) + 2B$$

$$40 = 4B + 2B$$

B1

$$40 = 6B$$

$$\frac{40}{6} = \frac{6}{6} B$$

$$B = 6.67\text{cm}$$

B1

$$L = 2 \times 6.67 = 13.33\text{cm}$$

$$\text{Area} = L \times B$$

M1

$$\text{Area} = 6.67 \times 13.33 = 88.93\text{cm}^2$$

A1, 7marks

QUESTION 2

$$(a) \frac{1}{c} + \frac{2}{p} = \frac{3}{t}$$

$$\frac{1}{c} \times cpt + \frac{2}{p} \times cpt = \frac{3}{t} \times cpt.$$

B1/2

$$pt + 2ct = 3cp.$$

$$3cp - pt = 2ct.$$

B1/2

$$p(3c - t) = 2ct.$$

B1

$$p = \frac{2ct}{3c-t}$$

A1

$$C = 10, t = 2$$

$$p = \frac{2(10)(2)}{3(10)-2} = \frac{40}{30-2} = \frac{40}{28} = 1\frac{3}{7}$$

1 $\frac{1}{2}$ marks

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

$\frac{16}{5}$ of $\left(\frac{3}{7} + \frac{1}{4}\right) \div \frac{19}{8}$.

M1

$\frac{16}{5}$ of $\frac{3 \times 4 + 7 \times 1}{28} \div \frac{19}{8}$.

B1

$\frac{16}{5}$ of $\frac{12+7}{28} \div \frac{19}{8}$.

B1

$\frac{16}{5}$ of $\frac{19}{28} \div \frac{19}{8}$.

B1/2

$\frac{16}{5} \times \frac{19}{28} \div \frac{19}{8}$.

$\frac{16}{5} \times \frac{19}{28} \times \frac{8}{19}$.

M1/2

$\frac{16 \times 8}{5 \times 28} = \frac{128}{140} = \frac{32}{35}$

A1-----5MARKS

a. $\frac{0.0028 \times 0.0084}{0.07 \times 0.0042}$

$\frac{12 \times 10^{-4} \times 84 \times 10^{-4}}{7 \times 10^{-2} \times 42 \times 10^{-4}}$

M1

$\frac{12 \times 84 \times 10^{-4-4}}{7 \times 42 \times 10^{-2-4}}$

M1

$\frac{1008 \times 10^{-8}}{294 \times 10^{-6}}$

B1

$3.429 \times 10^{-8--6}$

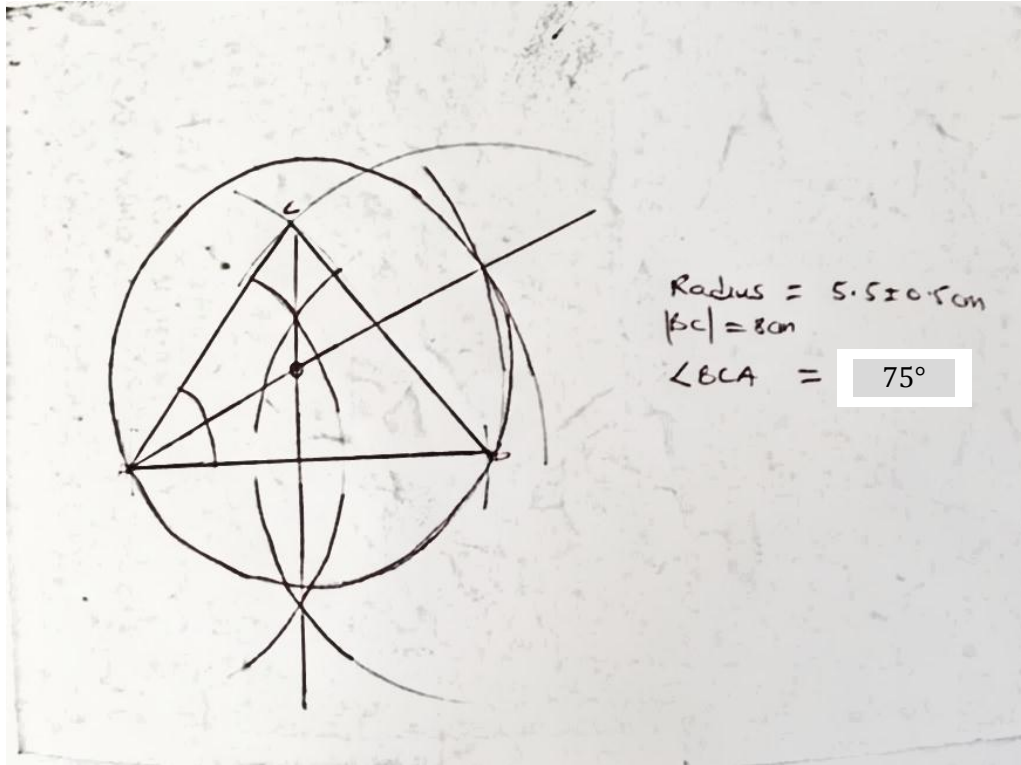
M1

$3.429 \times 10^{-8+6}$

3.429×10^{-2}

A1 5MARKS

QUESTION 3



Marking scheme construction

1. Line AB with correct measurement -----2mark
2. Line AC with correct measurement -----1mark
3. Line BC correct measurement -----1mark
4. Arcs of AB -----1mark
5. Drawing of line through the arc-----1mark
6. Bisection of angle BAC-----2marks
7. Labelling o-----1mark
8. Drawing of circle -----2marks
9. Measure of radius-----1mark
10. Measure of angle -----2mark

QUESTION 4

MARKS	NUMBER OF STUDENTS	FX
2	3	6
3	4	12
4	5	20
5	m+5	5m+25
6	8	48
7	4	28
8	7	56
9	6	54
10	0	0

$\sum f =$	42+m	$\sum fx =$	249+m
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TABLE -----M3,-3MARKS, ANY ERROR AWARD ZERO

a.

$$\sum f = 50 = \text{total students.}$$

M1

$$42 + m = 50.$$

M1

$$m = 50 - 42$$

B1

$$m = 8.$$

A1 4marks

b. Mean = $\frac{\sum fx}{\sum f}$

M1

$$\text{Mean} = \frac{249+m}{50}.$$

M1

$$\text{Mean} = \frac{257}{50} = 5 \frac{7}{50}$$

A1 3marks

c. Mode is 5 marks

A1 1mark

Median = 25th and 26th positions, from the table the median is 5marks

A1 1mark

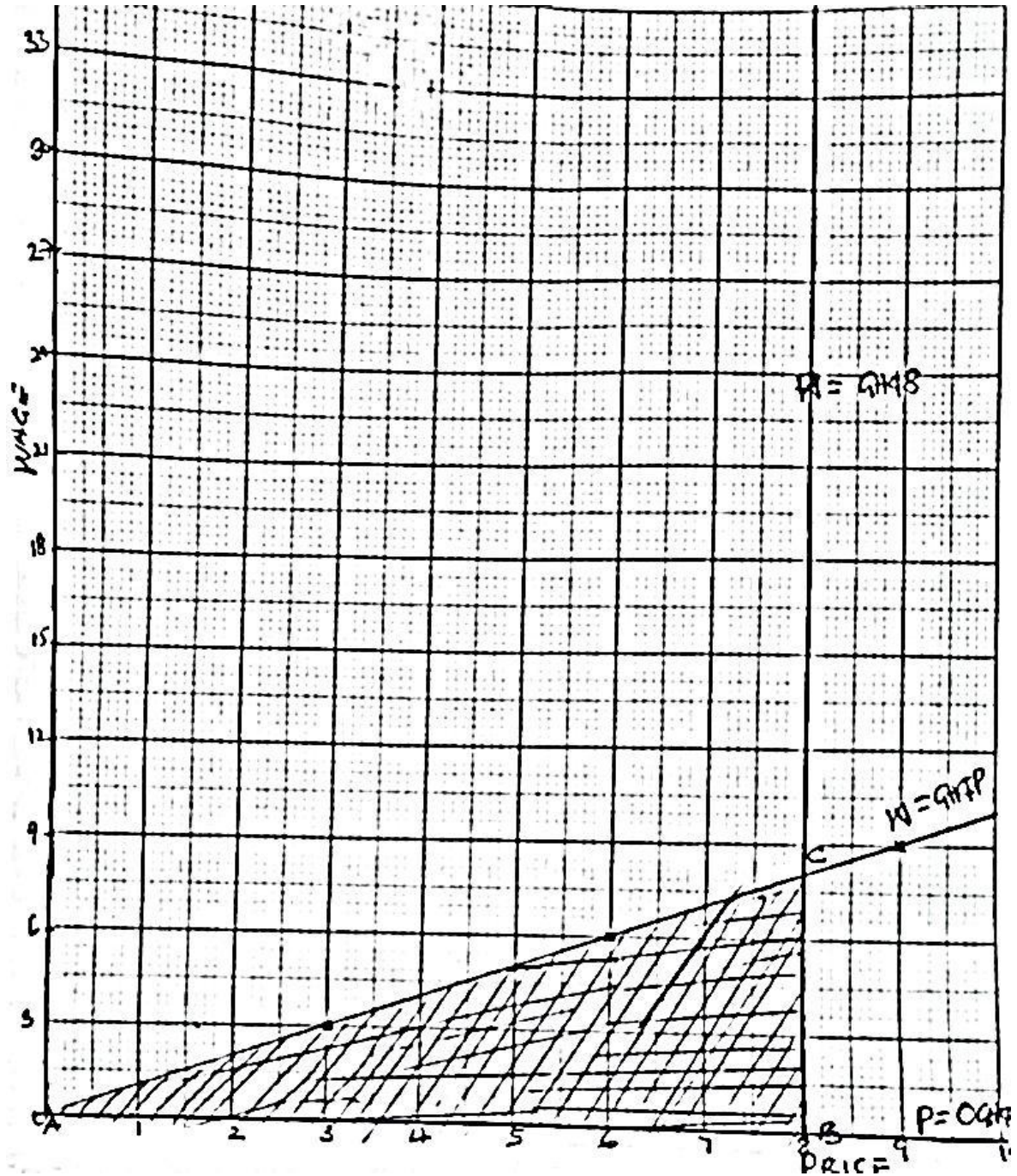
d. Number of at least 4 marks = 5+17+8+7+6 = 43

B1

$$\text{Fraction of at least 4marks} = \frac{43}{50}$$

A1 **3marks**

QUESTION 5



Note:

1. Drawing of x-axis and y-axis
2. Proper scaling and intervals
3. Drawing of (i)
4. Drawing of (ii)
5. Drawing of (iii)
6. Labeling ABC

2marks, 1mark each

2marks, 1mark each

2marks

2marks

2marks

1mark

7. Shading

2marks

8. Type of triangle; right angled-triangle

2marks

QUESTION 6

a. Principal amount = GH¢24000

$$\text{Interest} = 2\frac{1}{2}\%$$

Time (T) = 5years

$$\text{Total amount} = P + \frac{PRT}{100} \quad \text{M1}$$

$$\text{Amount} = 24000 + \frac{24000 \times 2.5 \times 5}{100} \quad \text{B1}$$

$$\text{Amount} = 24000 + \frac{300000}{100} \quad \text{B1}$$

$$\text{Amount} = 24000 + 3000 = \text{GH¢ } 27000 \quad \text{A2, 5marks}$$

iii. Yearly installment = $\frac{A}{T}$ M1

$$\text{Installment} = \frac{27000}{5} = \text{GH¢ } 5400 \quad \text{A2, 3marks}$$

(b)

i. Ratio = 2:3:x

$$\text{Total ratio} = 2+3+x = 5+x \quad \text{B1}$$

Total amount = GH¢2500

Yaw's share = GH¢900

Kofi and Amma will share GH¢2500-900 = GH¢1600

Total ratio of kofi and Amma = 2+3 =5

If 5 = 1600

$$X = 900 \quad \text{M1}$$

$$5 \times 900 = 1600x \quad \text{B1}$$

$$4500 = 1600x$$

$$X = 2.8125 \text{ or } 3 \quad \text{A1, 4marks}$$

TOTAL FOR AMMA AND KOFI = 2500-900 = GH¢1600

Ratio = 2:3, total =5

ii) Amma's share = $\frac{3}{5} \times 16000 = GH\text{¢}640$

1.5 marks

Kofi's share $\frac{3}{5} \times 2500 = GH\text{¢}900$

1.5 marks

PAPER 1

1. D
2. D
3. D
4. A
5. B
6. D
7. D
8. D
9. A
10. A

11. C
12. C
13. B
14. B
15. B
16. A
17. B
18. B
19. B
20. A
21. D
22. C
23. B
24. C
25. A
26. B
27. A
28. B
29. B
30. A
31. C
32. B
33. B
34. B
35. B
36. B
37. D
38. B
39. B
40. C