# U.N.E.B ASSESSMENT

## P.7 TERM ONE EXAMINATION

### MATHEMATICS

**NEW CURRICULUM**

### TIME Allowed: 2 Hours 30 Minutes.

| | EMIS NO. | | | | | PERSONAL NO. | |
|---|---|---|---|---|---|---|---|
| **INDEX NO.** | | | | | | | |

Name:................................................................

Signature:..........................................................

Emis No..............................................................

District name:.....................................................

**Read the following Instructions Carefully.**

1. The paper has two sections: A and B

2. Section A, has 40 short answer questions (40 marks)

3. Section B has 15 questions (60 marks)

4. Answer all questions. All answers to both sections A and B must be written in the space provided.

5. All answers must be written using a blue or black Ball point pen ink. Diagrams should be drawn in pencil.

6. Unnecessary alteration of work may lead to loss of marks

7. Any handwriting that cannot be easily read may lead to loss of marks.

8. Do not fill anything in the box indicated for examiners' use only.

**FOR EXAMINER'S USE ONLY**

**FOR EXAMINER'S USE ONLY**

| QN No. | MARK | SIGN |
|---|---|---|
| 1-5 | | |
| 6-10 | | |
| 11-15 | | |
| 16-20 | | |
| 21-22 | | |
| 23-24 | | |
| 25-26 | | |
| 27-28 | | |
| 29-30 | | |
| 31-32 | | |
| TOTAL | | |

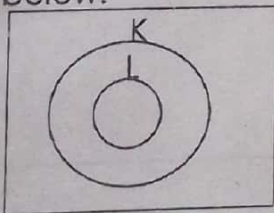| | |
|---|---|
| 11. Bisect the angle ABC below.<br><br>        A<br><br>B<br><br>        C | 12. Write the prime factors of 56 in set notation. |
| 13. The cost of 6 books in sh. 4800. Calculate the cost of $1\frac{1}{2}$ dozens of similar books. | 14. Find the probability of pupils doing their mid-term exams on a day of the week with six letters only. |
| 15. Shade (KnL)' on the venn diagram below.<br><br>K<br>L | 16. Convert CMXXXV to Hindu-Arabic numerals. |
| 17. Solve for p: $p - 3 + 2p = 9$ | 18. Work out the value of 4 in $1423_{five}$ |
| 19. Represent the numeral 18 using tally marks. | 20. Find the range of $^+4, ^-5, 0, 8$ and $^-10$. |
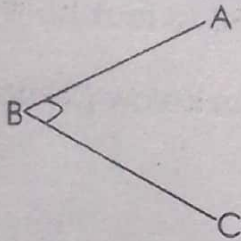
21. In a class, 22 pupils took pepsi (P), (2n-1) took Fanta(F) only, 13 took both and (n+1) took neither drinks.

(a) Represent the above information on the venn diagram below (02marks)

n(p)=22    n(F)=____

( ____ ( 13 ) 2n-1 )

n+1
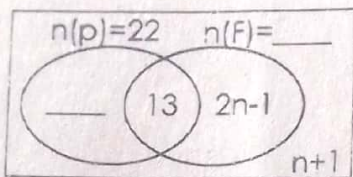
(b) If 20 pupils took only one type of soda, find the value of n     (02marks)

(c) Calculate the total number of pupils in class.     (02marks)

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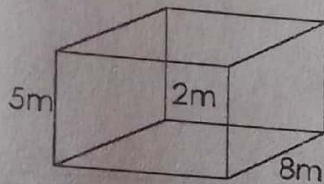22. (a) Simplify:     $\dfrac{12.8 \times 0.75}{0.32}$     (03marks)

(b) Workout: $5\frac{1}{4} - 5\frac{1}{2} \div 4\frac{2}{5}$     (02marks)

23. Wataka covers a distance of 180km at a speed of 60km/hr. Calculate the minutes she will save if she travels at 80km/hr. (04mark

24. The figure below is of a cuboid. Use it to answer questions that follow



5m  2m  8m

a) Find the total length of all the edges. (02marks)

b) Calculate the volume of the figure above (03marks)

25. Change $130_{six}$ to base four. (04marks)

TWe

26. Mr. Amatu went to the market and bought the items as given in the table below.

(a) Complete the table (04marks)

| Item | Quantity | Unit cost | Amount |
|------|----------|-----------|--------|
| Rice | 3kg | Sh. ...................... | Sh. 7200 |
| Meat | 1½ kg | Sh. 13,500 | Sh. .................. |
| Cooking oil | ½ litre | Sh.............. @ litre | Sh. ............... |
| Total | | | Sh. 32,450 |

(b) Calculate his change if he went to shop with sh. 35,000. (02marks)

27. The venn diagram below show the prime factors of two numbers. Study and use it to answer questions that follow.
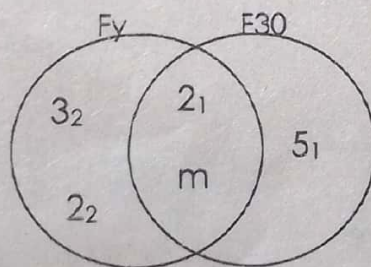


(a) Find the value of;
   (i)     m (02marks)                    (ii) y                    (02marks)

(b) Calculate the H.C.F of y and 30.                               (02marks)

28. (a) Using a sharp pencil, a ruler and a pair of compasses only, construct a rectangle EFGH where EF = HG= 8cm, ∠EFG = 90⁰ and FH= 10cm. (04marks)

(b) Measure the length of side EH. (01mark)

29. (a) Find the sum of the value of 2 and value of 5 in 23,568 (03marks)

(b) Round off 39.78 to the nearest tenths. (02marks)

30. (a) A man divided his money among three sons and each got sh. 550. How much money did he have? (02marks)
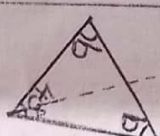
Two

(b) Solve for p: $p^2 + 2 = 38$

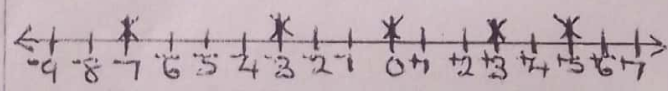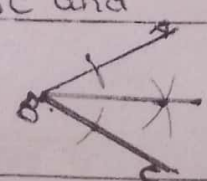31. (a) P.7 candidates hope to have their visitation after $2\frac{3}{7}$ weeks from now. What day of the week will it be if today is Sunday. (03marks)

(b) Express 86 in finite 12. (02marks)

32. In the year 2023, a total of 72 candidates Sat for PLE of which 24 passed in division 1, 30 passed in division 3 and the rest in division 2. Represent the above information in a circle graph of radius 3.5cm. (05marks)
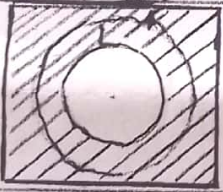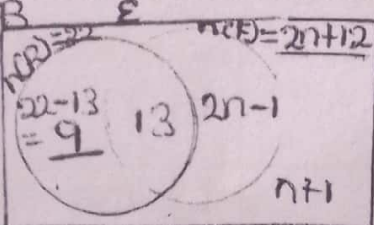
**END**

| N | LEVEL | SOLUTION | MARKS | COMMENTS |
|---|---|---|---|---|
| | | SECTION A | | |
| 1 | P.2 | $\begin{array}{r} 83 \\ -50 \\ \hline 33 \end{array}$ | $B_2$ | For 33. |
| 2 | P.4 | Sixty four thousand = 64 000 <br> nine hundred nine = $\underline{+\ \ \ 909}$ <br> $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 64,909$ | $M_1$ <br><br> $A_1$ | For correct method <br><br> For 64,909 |
| 3 | P.5 | $2P - 5p + 5P = 2p + 5p - 5p$ <br> $= 7p - 5p$ <br> $= 2p$ | $M_1$ <br><br> $A_1$ | For correct method <br><br> For 2p |
| 4 | P.6 | 0 , 1 , 5 , 14 , 30 , 55 <br> +1  +4  +9  +16  +25 | $B_1$ <br><br> $B_1$ | For formation of correct pattern. <br> For correct answer. |
| 5 | | Twenty minutes to one o'clock <br> = 12:40 am <br><br> 12:40 am = 0040hrs | $B_1$ <br><br> $B_1$ | For 12:40 am <br><br> For 0040 hrs |
| 6 | P.7 | $(200 \div 10) - (50 \div 10) = (200 - 50) \div 10$ <br> $= 150 \div 10$ <br> $= 15$ | $M_1$ <br><br> $A_1$ | For correct method shown <br><br> For final correct answer |
| 7 | P.5 |  <br> The figure has one line of folding symmetry. | $B_1$ <br><br> $B_1$ | For showing the lines of folding symmetry <br><br> For correct number of lines of folding symmetry |
| 8 | P.6 | $\frac{2}{3} \div \frac{12}{5} = \frac{2}{3} \times \frac{5}{12} = \frac{5}{18}$ <br> $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \frac{6}{}$ | $M_1$ <br><br> $A_1$ | For correct working steps shown <br> For final correct answer |
| 9 | P.7 | Old   New <br> 5     7 <br> . <br> Sh.56,000 <br> 7parts = Sh. 56000 <br> 1part = $\frac{Sh. 56000}{7}$ <br><br> 5 parts = $\frac{8000}{56000 \times 5}$ <br> $\ \ \ \ \ \ \ \ \ \ \ \frac{7}{}$ <br> 5parts = Sh.40,000 | $M_1$ <br><br><br> $A_1$ | For any correct method that leads to correct answer. <br><br> For Sh.40,000 |
| 10 | P.5 |  <br> Descending order: 5°c , 3°c , 0°c , <br> -3°c and -7°c | $M_1$ <br><br> $A_1$ | For correct method <br><br> For final correct answer |
| | P.6 |  | $B_1$ <br><br> $B_1$ | For showing bisecting arcs <br> For showing bisecting line |

| No | P. | SOLUTION | | MARKS | COMMENTS |
|---|---|---|---|---|---|
| 12 | P.6 | $\begin{array}{c\|c} 2 & 56 \\ 2 & 28 \\ 2 & 14 \\ 7 & 7 \\ & 1 \end{array}$ $F_{56}=\{2_1, 2_2, 2_3, 7\}$ | | $M_1$ | For any correct method that leads to correct answer |
| | | | | $A_1$ | For final correct answer |
| 13 | P.5 | 1 dozen = 12 <br> $1\frac{1}{2}$ dozens $= \frac{3}{2} \times \overset{6}{\cancel{12}}$ <br> = 18 books <br> 6 books = Sh. 4800 | 1 book = $\frac{Sh. 4800}{6}$ <br> 18 books = $\frac{\cancel{4800} \times \overset{3}{\cancel{18}}}{\cancel{6}}$ <br> $1\frac{1}{2}$ dozens = 14,400 | $M_1$ | For correct working steps shown |
| | | | | $A_1$ | For final correct answer |
| 14 | P.7 | Possible outcomes = (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday) <br> Number of total outcomes = 7 <br> Expected outcomes = (Sunday, Monday, Friday) <br> Number of expected outcomes = 3 <br> Probability = $\frac{n(\text{expected outcomes})}{n(\text{total outcomes})}$ <br> Probability = $\frac{3}{7}$ | | $B_1$ | For correct working steps shown |
| | | | | $B_1$ | For $\frac{3}{7}$ |
| 15 | P.7 |  (K∩L)' | | $B_2$ | For shading the correct region on the venn diagram. |
| 16 | P.6 | CM = 900 <br> XXX = 30 <br> V = + 5 <br> CMXXXV = 935 | | $M_1$ | For correct method |
| | | | | $A_1$ | For final correct answer |
| 7 | P. | $P+2P-3 = 9$ <br> $3P-3 = 9$ <br> $3P-3+3 = 9+3$ <br> $3P = 12$ | $\frac{\cancel{3} \times P}{\cancel{3}} = \frac{\overset{4}{\cancel{12}}}{\cancel{3}}$ <br> $P = 4$ | $M_1$ | For correct working steps shown |
| | | | | $A_1$ | For final correct value of P. |
| 18 | P.5 | $1\,4\,2\,3_{\text{five}}$ <br> $\downarrow$ <br> $4 \times 5 \times 5 = 100$ | | $M_1$ | For correct method |
| | | | | $A_1$ | For 100 |
| 9 | P.4 | $18 = $ ✚✚✚✚ ✚✚✚✚ ✚✚✚✚ /// | | $B_2$ | For final correct answer |
| 20 | P.6 | Range = Highest Value − Lowest Value <br> Range = 8 − ⁻10 <br> Range = 18 | | $M_1$ | For correct method shown |
| | | | | $A_1$ | For final correct answer |

2

| | | | |
|---|---|---|---|
| **SECTION B** | | | |
| a) |  $n(\varepsilon) = 22$, $n(F) = 2n+12$, $22-13 = 9$, $13$, $2n-1$, $n+1$ | $B_1$ | For correct representation in $(R-F)$ |
| | | $B_1$ | For correct representation of $n(F)$. |
| b) $2n-1+9 = 20$ $2n+8 = 20$ $2n+8-8 = 20-8$ $2n = 12$ | $\dfrac{2 \times n}{2} = \dfrac{12}{2}$ $n = 6$ | $B_1$ | For correct working steps shown |
| | | $B_1$ | For final correct value of $n$. |
| c) $\varepsilon = 22 + 2n-1+n+1$ $\varepsilon = 22+2n+n$ $\varepsilon = 22+3n$ $\varepsilon = 22+(3\times6)$ $\varepsilon = 22+18$ $\varepsilon = 40$ pupils | | $B_1$ | For correct method shown |
| | | $B_1$ | For final correct answer |

**22 P.6**

| | | | |
|---|---|---|---|
| a) $\left[\dfrac{128}{10} \times \dfrac{75}{100}\right] \div \dfrac{32}{100}$ $\dfrac{128}{10} \times \dfrac{75}{100} \times \dfrac{100}{32}$ | $\dfrac{4 \times 75}{16}$ $\dfrac{2}{8}$ $= 30$ | $B_1$ | For changing to common fractions |
| | | $B_1$ | For introducing the reciprocal |
| | | $B_1$ | For final correct answer |
| b) $\dfrac{21}{4} - \left[\dfrac{11}{2} \div \dfrac{22}{5}\right]$ $= \dfrac{21}{4} - \left[\dfrac{11}{2} \times \dfrac{5}{22}\right]$ $= \dfrac{21}{4} - \dfrac{5}{4}$ | $= \dfrac{21-5}{4}$ $= \dfrac{16}{4}$ $= \dfrac{16}{4} = 4$ | $M_1$ | For correct working steps shown |
| | | $A_1$ | For final correct answer |

**23**

| | | | |
|---|---|---|---|
| $T = \dfrac{D}{S}$ $T = \dfrac{180 \times km}{60 \times km/hr}$ $T = 3$ hours $T = \dfrac{D}{Sa}$ $T = \dfrac{180 \times km}{80 \times km/hr}$ $= 4$ | $T = 2\frac{1}{4}$ hours $2\frac{1}{4}$ hours $=$ $2$ hours $+ (\frac{1}{4} \times 60)$ $= 2$ hours $15$ minutes Hours minutes $\begin{array}{cc} 3 & 60 \\ -2 & 15 \\ \hline 0 & 45 \end{array}$ minutes she will save $= 45$ | $B_1$ | For $T = 3$ hours |
| | | $B_1$ | For $T = 2\frac{1}{4}$ hours |
| | | $B_1$ | For using the correct operation of subtraction |
| | | $B_1$ | For final correct answer |

**24 P.4**

| | | | |
|---|---|---|---|
| a) Total length $= 4(L+W+H)$ | | $M_1$ | For any correct method that |

$= 4(12m + 8m + 5m)$

$= 4 \times 25m$

Total length $= \underline{100m}$ | $A_1$ | leads to correct answer

For final correct answer

b) $V =$ base area $\times H$ | $B_1$ | For stating the correct formula

$V = (L \times W) \times H$

$V = (12m \times 8m) \times 5m$ | $B_1$ | For correct substitution of values in the formula

$V = 96 m^2 \times 5m$

$V = 480 m^3$ | $B_1$ | For final correct answer

**25  P.7**  $130_{six} = (1 \times 6 \times 6) + (3 \times 6) + (0 \times 1)$ | $B_1$ | For correct expansion.

$= 36 + 18 + 0$

$= 54_{ten}$ | $B_1$ | For $54_{ten}$

| base | number | remainder |
|------|--------|-----------|
| 4 | 54 | ///////// |
| 4 | 13 | 2 |
| 4 | 3 | 1 |
| ///// | 0 | 3 |

$B_1$ | For correct division

$B_1$ | For $312_{four}$

$= 312$ four

**20  P.6  a)**

| Item | Quantity | Unit cost | Amount |
|------|----------|-----------|--------|
| Rice | 3kg | Sh.2400 | Sh.7200 |
| meat | $1\frac{1}{2}$kg | Sh.13500 | Sh.20,250 |
| cooking oil | $\frac{1}{2}$litre | Sh.10,000 | Sh 5,000 |
| Total | | | Sh.32,450 |

$B_1$ | For Sh.2400

$B_1$ | For Sh.20,250

$B_1$ | For Sh.5,000

$B_1$ | For Sh.10,000

Rice: $\rightarrow$ unit cost $= \frac{7200}{3}$

unit cost $= Sh.2400$

meat $\rightarrow$ amount $= \frac{3}{2} \times 13500^{6750}$

$= Sh.20,250$

Cooking oil $\rightarrow$ amount

$= Sh.32,450 - (Sh.20,250 + Sh.7200)$

$= Sh.32,450 - 27450$
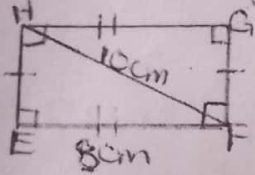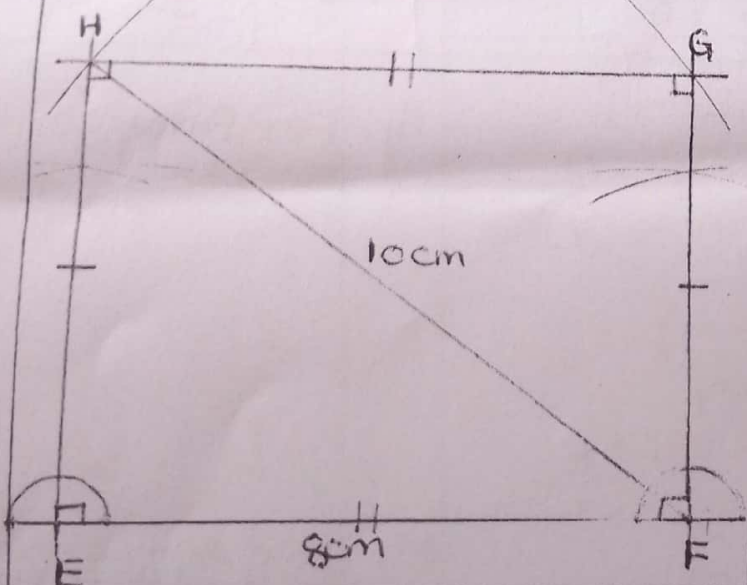
$= Sh.5,000$

Cooking oil $\rightarrow$ unit cost

$= 5000 \div \frac{1}{2} = 5000 \times \frac{2}{1}$

$= Sh.10,000$

| | | |
|---|---|---|
| | 3 2 4 5 0<br>0 2 5 5 0 | $A_1$ | For correct answer |
| **7 P.6** (a)(i) $F_{30} = (m, 2, 5)$ $m = 3$,<br>$m \times 2 \times 5 = 30$<br>$\dfrac{m \times 10}{10} = \dfrac{30}{10}$<br>$m = 3$ | $M_1$ | For correct working steps shown |
| | $A_1$ | For final correct answer |
| (ii) $F_y = (2_1, 2_2, 3_1, 3_2)$<br>$Y = 2 \times 2 \times 3 \times 3$<br>$Y = 36$ | $M_1$ | For correct method displayed |
| | $A_1$ | For final correct answer |
| b) $HCF = F_y \cap F_{30}$<br>$F_y \cap F_{30} = (2_1, 3_1)$<br>$HCF = 2 \times 3$<br>$HCF = 6$ | $M_1$ | For correct method shown |
| | $A_1$ | For final correct answer |
| **28 P.6** a) Sketch rectangle<br> | $S_1$ | For drawing correct sketch |
| | $L_1$ | For correct length of EF |
| Accurate rectangle<br> | $C_1$ | For constructing right angle at F |
| | $L_1$ | For correct length of line FH |
| b) EH = 6cm | $B_1$ | For EH = 6cm |
| **7 P.5** � T/TH TH H T O<br>2 3 5 6 8<br>$\longrightarrow 5 \times 100 = 500$<br>$\longrightarrow 2 \times 10000 = 20000$<br>$\underline{20500}$ | $B_1$ | For correct value of 5 |
| | $B_1$ | For correct value of 2 |
| | $B_1$ | For final correct sum of 20,500 |

| | | | | |
|---|---|---|---|---|
| | | **b)** $\begin{array}{cccc} T & O & .T^{th} & H^{th} \\ 3 & 9 & .⑦ & 8 \end{array}$ $\rightarrow$ $\begin{array}{ccc} T & O & .T^{th} \\ 3 & 9 & .7 \\ + & 0 & .1 \\ \hline 3 & 9 & .8 \end{array}$ | $M_1$ | For any correct method that leads correct answer |
| | | $\therefore 39.78 \simeq 39.8$ | $A_1$ | For correct answer |
| 30 | P.6 | **(a)** Let the amount a man had be $m$ $\dfrac{m}{3} = 550$ $\cancel{3} \times \dfrac{m}{\cancel{3}} = 550 \times 3$ $m = 1650$ He had Sh.1,650 | $M_1$ $A_1$ | For correct working shown For final correct answer |
| | | **b)** $p^2 + 2 - 2 = 38 - 2$ $p^2 = 36$ $\sqrt{P \times P} = \sqrt{6 \times 6}$ $P = 6$ | $M_1$ $A_1$ | For correct working Steps shown For correct value of $P$. |
| 31 | P.7 | **a)** 1 week = 7 days $2\frac{3}{7}$ weeks $= \dfrac{17}{\cancel{7}} \times \cancel{7}$ $= 17$ days | $B_1$ | For 17 days |
| | | <table><tr><td>Mon</td><td>Tue</td><td>Wed</td><td>Thur</td><td>Fri</td><td>Sat</td><td>Sun</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>0</td></tr></table> Day + days $= -$ (finite 7) Sun + 17 $= -$ (finite 7) 0 + 17 $= -$ (finite 7) 17 $= -$ (finite 7) $17 \div 7 = 2$ rem 3 17 $= 3$ (finite 7) $=$ Wednesday The day of the week will be Wednesday | $B_1$ $B_1$ | For correct working Steps shown For final correct answer |
| | | **b)** $86 \div 12 = 7$ rem 2 $86 = 2$ (finite 12) | $M_1$ $A_1$ | For any correct method that leads to correct answer For correct answer |
| 32 | P.6 | Division 1 $\rightarrow \dfrac{\overset{120}{\cancel{24}}}{\underset{\cancel{3}}{\cancel{72}}} \times 360° = 120°$ | $B_1$ | For division 1 $= 120°$ |

6

| | |
|---|---|
| Division 3 $\rightarrow$ $\dfrac{\overset{5}{\cancel{30}}}{\underset{1}{\cancel{72}}} \times 360° = 150°$ | $B_1$ For division 3 = 150° |
| | $B_1$ For division 2 = 90° |
| Division 2 $\rightarrow$ 360° − (120°+150°) <br> $= 360° − 270°$ <br> $= 90°$ | |
| | $B_1$ For drawing the circle using correct radius |
| | $B_1$ For measuring angles accurately |

Division 3    Division 1

150°    120°

Division 2

END    7