INTERNATIONAL TEACHERS TRAINING COLLEGE

2011/1 MS

P1 MATHEMATICS

PAPER 1

Mock 1

February 2020

MARKING SCHEME

PRIMARY TEACHER EDUCATION

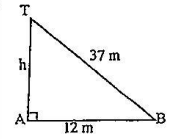
MATHEMATICS

(Paper 1)

MARKING SCHEME

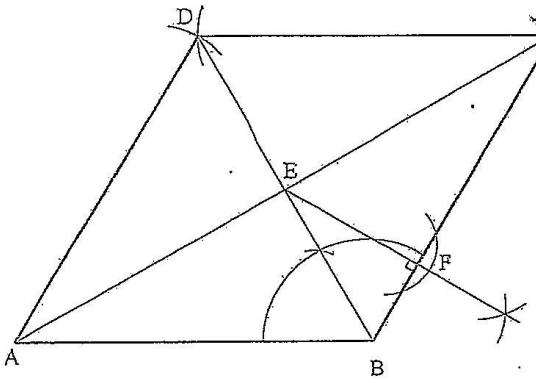
(CONFIDENTIAL)

This marking scheme consists of 7 printed pages.

1.	No. of children, men, women 24 5×24 $24+(5\times24)+28$ Total No. $= 24+5\times24+24+(5\times24)+28$ $= 316$	M1 M1 A1 3	Expression for no. of woman
2.	$\dfrac{\frac{2}{5}\div\frac{1}{2}\text{ of }\frac{4}{9}-1\frac{1}{10}}{\frac{1}{8}-\frac{1}{6}\times\frac{3}{8}}=\dfrac{\frac{7}{10}}{\frac{1}{16}}$ $=\frac{7}{10}\times\frac{16}{1}$ $=11\frac{1}{5}$	M1 M1 A1 3	numerator or denominator division
3.	Height $=\sqrt{37^2-12^2}$ m $=35$ m	M1 A1 2	
4.	Total distance $=48\times\frac{3}{2}$ $=72$ km Time taken $=(33+27)$min $=60$ min Average speed $=\frac{72\times1000}{60\times60}$ m/s $=20$ m/s	B1 B1 M1 A1 4	
5.	No. of men in the meeting: $\frac{5}{8}\times640$ $= 400$ No. of men who remained: $400\times\frac{3}{4}$ $= 300$	M1 M1 A1 3	
6.	$35=5\times7, 40=2^3\times5, 45=3^2\times5$ L.C.M of 35, 40, 45 $=2^3\times3^2\times5\times7$ $=2520$ No. of hours $=2520\div60=42$ No. of days and hours = 1 day 18 hours Time and day to ring together again: Tuesday 3: 20 p.m. + 1 day 18 hours = Thursday 9.20 a.m.	B1 B1 M1 A1 4	

7.	$5(360) \div 12 - {}^{-}19$ $= 1800 \div 12 + 19$ $= 150 + 19 = 169$	M1 A1 2	
8.	$\frac{8a^6 \times 9a^6}{36a^4} - \frac{10a^4}{10a^4}$ $= 2a^8 - 1$	M1 M1 A1 3	removing brackets in first part Simplifying fraction.
9.	Let Ksh x be marked price $\frac{90}{100}x = 270$ $x = \frac{270 \times 100}{90}$ $= 300$	M1 A1 2	
10.	No. of litres per cow in ascending order: 15, 15, 16, 19, 19, 20, 20, 21, 22, 22, 22, 26, 27, 28 Median $\frac{20+21}{2}$ $= 20.5$	M1 A1 2	
11.	$3 \times 65 + 2 \times 165 + 1 \times 230 + 2 \times 50 + 30$ $= 195 + 330 + 230 + 100 + 30$ = Ksh 885	M1 M1 A1 3	
12.	$5x + 8(3x + 2) = 190$ $29x = 174$ $x = 6$ Cost of one mango $= (3 \times 6) + 2 = 20$	M1 M1 A1 B1 4	
13.	$\frac{1600 - 900 + 20 - 5}{11 \times 5} = \frac{1600 + 20 - 900 - 5}{55}$ $= \frac{715}{55}$ $= 13$	M1 M1 A1 3	

14.	Previous number = 20 new number $= 3 \times 20$ $= 60$ Percentage increase: $= \frac{(60-20)}{20} \times 100$ $= 200\%$	M1 M1 A1 3	
15.	Surface area not in contact with ground: 12 x 8 x 1 = 96 12 x 5 x 2 = 120 8 x 5 x 2 = 80 96 + 120 + 80 = 296	M1 M1 A1 3	
16.	Amount after 3 years at compound interest: Year 1 = *Ksh* 30 000 × 1.1 = *Ksh* 33 000 Year 2 = *Ksh* 33 000 × 1.1 = *Ksh* 36 300 Year 3 = *Ksh* 36 300 × 1.1 = *Ksh* 39 930	M1 M1 A1 3	
17.	Actual area of plot: in cm^2 = $(20\,000 \times 2)^2$ in hectares = $\frac{40\,000 \times 40\,000}{100 \times 100 \times 100 \times 100}$ = 16 ha	M1 M1 A1 3	Scale application Conversion to hectares
18.	$2357 - 941 = 1416$ 2 | 1416 2 | 708 2 | 354 3 | 177 59 $\therefore 2^3 \times 3 \times 59 = 1416$	M1 M1 A1 3	

19.	 Line EF=2.6 ± 0.1cm	B1 B1 B1 B1 4	∠ ABC=120^0 constructed ✓ rhombus ABCD ⊥ as from E to BC constructed
20.	Volume of water delivered by pipe in a day $\frac{22}{7} \times \left(\frac{20}{2}\right)^2 \times 2.1 \times 60 \times 60 \times 10\ cm^3$ $= \frac{23\,760\,000}{100 \times 100}$ $= 2\,376\ m^3$	M1 M1 A1 3	Volume in cm^3 Conversion to m^3

21.	a) $7091 + 2289 + 905 + 514 + 1738 + 63$ $= 12600$ b) $\frac{63}{12600} \times 100$ $= 0.5\%$ c) $\frac{12600 - 63}{5}$ $= 2507.4$ d) $\frac{60}{100}x = 12600$ $x = 12600 \times \frac{100}{60}$ $= 21000$	M1 A1 M1 A1 M1 A1 M1 A1 8	
22.	a) Man hours needed to complete job in 40 days $= 20 \times 8 \times 40$ $= 6400$ b) (i) Man hours still needed after the 10 days: $= 20 \times 8 \times (40 - 10)$ $= 4800$ Man hours to be done by 20 workers in remaining (30 - 5) = 25 days: $= 20 \times 8 \times 25$ $= 4000$ Balance of man hours for extra workers: $= 4800 - 4000$ $= 800$ (ii) No. of extra people needed: $x \times 8 \times 25 = 800$ $x = \frac{800}{8 \times 25} = 4$	M1 A1 M1 A1 B1 B1 M1 A1 8	
23.	a) $6 - 9x + 5x + 20 \geqslant 18$ $-4x \geqslant -8$ $x \leq 2$ b) Let cost of white loaf be Ksh w and cost of brown loaf be Ksh b $6w + 5b = 520$ (i) $4w + 7b = 530$ (ii) $12w + 10b = 1040$ (iii) $12w + 21b = 1590$ (iv) iv - iii $11b = 550$ $b = 50$ in (i) $6w + 5(50) = 520$ $w = 45$ Total cost: Ksh $45 \times 2 + 50$ $= 140$	M1 M1 A1 B1 M1 A1 B1 B1 8	for both or equivalent

24.	(a) Inner radius = $21-5=16$ cm Inner height = $33-5=28$ cm $\therefore$ Inner volume $= 16\times16\times28\times\frac{22}{7}$ $= 22\,528$ cm^3 (b) Outer volume $= \frac{22}{7}\times21\times21\times33$ $= 45\,738$ cm^3 Volume of clay $= 45\,738 - 22\,528$ cm^3 $= 23\,210$ cm^3	B1 B1 M1 A1 M1 A1 M1 A1 8	
25.	(a) $180° - (70° + 70°) = 40°$ Base angles of an isosceles triangle are equal or sum of a triangle adds up to 180° (b) 70° Alternate angles as line JK is parallel to line MNL (c) $180° - 70° = \frac{110°}{2} = 55°$ $180° - (70° + 55°) = 55°$ Sum of angles on a straight line adds up to 180°. (d) $180° - (55° + 60°) = 65°$ Angle sum of a triangle adds up to 180°.	B1 B1 B1 B1 B1 B1 B1 B1 8	
26.	a) Cash price $= 15\,000\times\frac{95}{100}$ $=$ Ksh 14 250 b) Deposit $= \frac{2}{5}\times15\,000$ $=$ Ksh 6 000 Total instalments $= \frac{16\frac{2}{3}}{100}\times15\,000\times4$ $=$ Ksh 10 000 H.P price $= 6\,000 + 10\,000$ $=$ Ksh 16 000 c) Difference of Omanga's and Jeruto's prices: $= Ksh\,16\,000 - 14\,250$ $=$ Ksh 1 750	M1 A1 M1 M1 M1 A1 M1 A1 8	