



ASSESSMENT & EXAMINATION

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MATHS LIT P1Nov/Dec CHIEF MARKERS REPORT

12/12/2015

SUBJECT			
Mathematical Literacy Paper One			
Examination	GRADE 12		
Final National Exams 2015			
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Section 1.

General overview of the question paper and learner's performance in this question paper.

General question paper overview:

- 1. Language:** The Language comprehension is a problem as many learners hardly understand what is being asked. Learners struggled with some terms and concepts used e.g. in **Question 1**. Couple, reception costs versus overall budget, UIF, gross non-retirement, taxable, non-taxable, remainder, difference, left over. in **QUESTION 2**, inside radius vs. outside radius, interior vs. exterior, glitter, dash, pinch, nearest unit, what fraction ?, in **QUESTION 3**, closest vs. closer, third last, from previous ,relative to. In **QUESTION 4** categorical, greatest difference, percentage usage, data snapshot. **QUESTION 5** Total remuneration, Largest-greatest-biggest vs. smallest the list, not qualify, next financial year, annually, with certainty, percentage attendance, etc.]
For English 3rd language learners the difficult has been more.

2. Topics: The topics covered are according to CAPS Documents-viz [Finance, Shapes and measurements; Maps, plans and space, Data handling; Probability and Statistics] and weighing correspond to Caps. Requirements- Finance: 35%, Measurements=20%, Maps and Plans = 15%; Data handling =35%; Probability=5%.

3. Technical: Tables, drawings, figures and diagrams are clear and well presented.

Numbering of questions is acceptable as well as mark allocation.

NB (i) in 2.1 the decoration (triangles) are usually sawn on one side of stocking or boots and thus many learners multiplied by 3 instead of 6.

(ii) Table for 2.2 should have been taken to the next page as learners overlooked or did not take note of the instruction “**show all calculations**” as it is very close to the foot notes.

(iii) Table for 5.1 some explanatory foot note would have been given with reference to “R’000” as many learners did not figure out when to write their answers as thousands or not.

Instead of using (-) a (o) could maybe have been used for the null entries.

4. CAPS Cognitive levels: The question paper complies with CAPS as the percentage covered by the paper per topic as well as the cognitive levels are appropriate as follows Finance, Maps and Plans, Measurement, Data; Probability and Statistics => 5 topics with 60% L1,35% L2 and 5% L3 questions.

5. MARK ALLOCATION AND TIME: The final marking guidelines (memo) provides for consistency accuracy (CA) marks for or in all questions where necessary and this ensures

that learners are awarded marks for performing basic algebraic calculations. The allocated time is enough but learners do not manage time appropriately as many could not do question 5 as a result performed the worst in question 5.

LEARNERS PERFORMANCE: Learners performed is at 42.2% in the overall.

Question 4 at 49,3% , followed by Question 1 at 48,9%, then Question 3 at 45,1%, then Question 2 at 34,9% and lastly Question 5 at 30,1%.

Question1- Finance-48, 6%, better performance in this question implies that teachers are doing much to improve on this topic and there has been an observable increase in learner's performance for the past three years.

Question2- Measurements – 34, 9%, Learners have been performing badly (poorly) on measurements for years since 2008.

NB. Something has to be done in teaching and learning of this topic

Question 3- Maps and plans- 45.1% similarly to question1 teachers have just got it right in teaching maps and plans.

Question4- Data handling- 49, 3% data analysis and plotting of graphs has always been dealt with diligently at schools.

Question5- Integrated topics and Probability: There is no reason why learners are doing bad in this question as it integrate all other topics and probability, maybe it is because question 5 is asked the last and as such many learners do not get to answer this question because of poor time management.

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Section 2.

Question by question analysis:

Question one: [Finance]

Question One: out of 38
(a) The question has been well answered as compared to other questions at 48,9% [2nd best performance question by learners]
(c) Provide Suggestion for improvement in relation to teaching and learning.
Learners should do more to analyse pay slips and salary advices the Teachers should refer to CAPS document for teaching resources.
(d) Describe any other specific observations relating to response of Learners.
Learners responded positively to this question which means they are taught Financial Maths Lit at schools better.
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Teachers could provide learners with more practical resources to do calculations.
1.1.1. Learners did not multiply 67 by 2 as 67 is number of couples invited hence most wrote $67+16(\text{singles})=83$ as an answer instead of $= 136+16=150$
1.1.2. Many learners left out the wedding couple in determining the catering cost: i.e. multiplied R225.00 by 150 instead of multiplying by 152.
1.1.3. Answered well, very few could not express R66 450 is a % of R125 000.
1.1.4. Answered well => learners can calculate the percentages values.
1.1.5. Very poorly answered, learners could not convert GHC 30 000 to Rands instead of dividing by 0.32253, most multiplied and many subtracted from R66 450 instead of the total budget amount R125 000- this error can be attributed to learners not understanding the questioning due to language barrier.
1.1.6. There is an improvement in calculating VAT inclusive/exclusive prices by learners. Mistakes are made in doing conversion of currency. [as it is in 1.1.5. as well]
1.1.7. Very well answered-variety of responses according to cultural diversity.
1.2.1. There is a gross misunderstanding of the concept of Employer vs. Employee. Learners cannot explain who is who.
1.2.2. About 50% of the learners do not understand the concept of UIF.
1.2.3. Poorly Answered. Learners have difficulties in reading, comparing, interpreting and associating the cording to amounts on the payslip - $3605 \approx R15\ 521$.
1.2.4. Well answered, as they could not see the reference code indicated on the payslip they concluded correctly (3703 not in payslip).
1.2.5. Well answered most learners got $\frac{2}{2}$.
1.2.6. Poorly to fairly answered. Some used the correct values from the table to add to get $A=13\ 909+20\ 0013+8\ 640$ and others used/added codes $\approx A \approx 4\ 001+4\ 474$.
1.2.7. Poorly answered-reading, interpreting, understanding of payslips, salary advisers Tax tables is still a challenge.
1.2.8. Poorly answered learners could not subtract the 5 months contribution to get the remaining 7 months contribution from the total annual pension contribution $R13\ 9099 - (5\text{months}) R4\ 975.25 = (7\text{months}) R8\ 933.75$ and then divide $R8\ 933.73$ by 7. This is due to language barrier – not understanding terms [remaining, difference act.].
(c) Learners should do more exercises in working with payslips, salary adviser , tax certificates, till slips, telephone, water and electricity bills etc.
(d) Learners attempted all questions in question one- more is needed to be done in converting of units (been a problem for years).

(e) Teachers should start from the CAPS documents and then look for teaching resources not just text book then teaching of the topic. Teacher development, content gaping in teaching financial maths is needed for maths Lit teachers.

Question 2: Measurements

Question Two: out of 31

(a) This question has been poorly answered it is the 2nd poorly answered question at 34, 9%. This topic is poorly taught and learnt at schools-NB it is an absurdity that this has been the case since 2008. This need but rather an urgent attention by teachers and SESs.

(b) 2.1.1. Fairly answered by learners, most learners worked out area of the rectangle piece of fabric to cut from, correctly $\Rightarrow 30\text{cm} \times 12\text{cm}$
 $= 360\text{cm}^2$

\Rightarrow Most got $\frac{2}{6}$.

they did not subtract the given area of the fabric to be used to get the left over and then $\times 2$ to get total left over for two sides [most if not all learners lost $\frac{4}{6}$ marks]

2.1.2. Most learners calculated the area of the triangular shape correctly by substituting in the given formula but failed to multiply by 6 for the two sides i.e. they. Looked into 1 side, most learners got $\frac{2}{4}$.

2.1.3. Very poorly answered: learners multiplied 9 by 18 but failed to convert minutes to hours and hence to obtaining the remaining minutes of 07, most got $\frac{2}{4}$ marks.

2.2. This question was very poorly answered: most learners did not use the diameter $D = 2r = 2 \times 11.5\text{mm} = 23\text{mm}$ to divide the sides of the rectangle, to get numbers of reels along each side: others just use radius, or surface area of the circle, others just calculated the area of the rectangle.

Most learners got $\frac{1}{5}$ marks in this question lost $\frac{4}{5}$.

2.3.1. Poorly performed – incorrect substitution in the given formula.

-Mixing of units. Inability to convert units [there are general problems in doing calculations in this topic]; also the presentation of the scenarios and language used in section is often tedious and confusing.

2.3.2. Very poorly answered due to incorrect substitution –incorrect converting of units-learners could not or did not calculate 75% of the volume of the cylinder, maybe the 75% portion could have been labelled on the cylinder for learners to immediately see not to confuse with the written data on the foot notes. Most learners only got $\frac{2}{6}$ substitution marks i.e. lost $\frac{4}{6}$.

2.3.3. Poorly answered – learners clearly cannot do multiple step conversion of units and concept of a fraction as $\frac{a}{b}$ not understood.

:Question Three: out of 24
Maps and Plans – Performance at 45,1%
(a) Performance is very well in this topic which really shows an improving teaching and learning approach in this section – this is in comparison with other questions learner performance.
(b) 3.1.1. Very well answered [average mark $\frac{2}{2}$] 3.1.2. Well answered learners simple said there is no plug point where she/he is seated [the average mark $\frac{2}{2}$]. 3.1.3. Poorly answered: the concept of relative position/points relative direction/location is still misconceived by learners as well as by teachers. 3.1.4. Fairly answered: Most learners calculated portion/section by section. The number of seats and others calculated the seats in the lecture room one by one. 3.1.5. Fairly answered: Learners could not concentrate on Row A alone as the seats to be identified where only and only in row A. 3.1.6. Fairly answered: Calculating probability is well done. The problem was to identify all seats with direct access to power outlet/points.
3.2.1. Well answered: Learners had only to count the number of black shaded portions on the Route Map which is 14. 3.2.2. Poorly answered: Learners misconceptualized the meaning of third last. 3.2.3. Very well answered: Almost all learners got this one correct. 3.2.4. Poorly answered: Learners had difficulties in understanding that the difference in distance from successive water points had to be exactly 13km. we just confused by wording “exactly 13 km from the previous”
(c) Provide Suggestion for improvement in relation to teaching and learning.
Maths sets should be used at all times in a Maths lit class.
(d) Describe any other specific observations relating to response of Learners.
Learners are not aware of importance of points of reference (Relativity) when giving directions or positions.
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Teaching of Cartesian coordinates and compass directions should always be referred to points of reference as in Geography.

:Question four: out of 30
Data handling and graphs-.
(a). The question is the best answered at 49, 3%. Teaching and learning of data handling + graphs has since improved from 2008. Learners attempted all questions and no learner got 4.1.1 correct i.e. All got 0/2.
(b). 4.1.1. Not a single learner got this question correct-could be it's a new concept and teachers not referring to CAPS guidelines for their lesson plans.
4.1.2. Poorly answered learners are not very confident in working with <u>large numbers</u> (Billions and Millions) and they are not clear of the concept of <u>bimodal data</u> .
4.1.3. Very well answered: but many used calculators wrongly and got $\frac{7+8}{2} = 11 \neq 7.5$ meaning they could not understand the concept modal values..
4.1.4. Very well answered => most learners read and added values correctly from the table and got (2/2) i.e. 3%+8%=11%=22%.
4.1.5. Very well answered => most learners read and added values correctly from the table: i.e. 2%+9%+23%+22%=56% to get full marks (2/2).
4.1.6 Very well answered: Reading 16% correctly from the graph.
4.1.6. (b) Plotting of graphs is done very well.
4.1.7. Poorly answered-This is due to language barrier => Not understanding "greatest difference between" % internet usage to cell phone usage. [Reading and comparing two columns per row] comparing values on tables.
4.2.1. Very well answered-substitution in the formula and calculating the required percentage.
4.2.3. Very well answered: Although some learners still have problems working with large number with many digits they confused some digits.
(c) Provide Suggestion for improvement in relation to teaching and learning.
More calculations and exercises should be done on problems involving large populations.
(d) Describe any other specific observations relating to response of Learners.
Learners do well in reading and interpreting data presented on tables and generally do well in DATA handling, Plotting of graphs is done well also.
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Teachers could get more teaching resources from STATSSA.

Question five: out of 27
Integrated topics and probability.
(a) The question was poorly answered at 30, 1%. The problem could be time management and improper reading of values/information presented in the table.
5.1.1. Well answered-some learners wrote M with 000 as 15 403 000, not as other values presented on the table as 15 403.
5.1.2. Fairly well answered: Most learners did not divide R3 240.by 2 and penalized if answerer given in 1000's hence most got 2/4.
5.1.3. Well answered but most did not give answerer as 1000's and where penalized (-1).
5.1.4. Poorly answered: concept of ratio still not understand: most learners could read the correct values 30&342 and could not put them in order and simplify.
5.1.5. Poorly answered: most learners did not use the table to do calculations to compare and conclude. They seemed to guess most of the times. They answered without verification i.e. Calculations as required.

5.1.6. Fairly well answered: most learners do not read the foot notes to assist them to interpret the Data.
5.2.1. Very well answered: most learners only considered the number of Board meetings (6) only and they had 6 in their numerator i.e. $(\frac{6-4}{6}) = 2/6$ instead of 14/18 and failed to simplify to 7/9.
5.3. Fairly answered: learners calculated the 5% of the original number. 4 705 306 correctly but failed to calculate 5.9% of the accumulated amount. i.e. 5.9% of (4 705 306+235 265)
(b) Why the question was poorly answered? Also provide specific examples, and indicate common errors committed by learners in this question and any misconception.
Learners could not answer all questions in question 5
(c) Provide Suggestion for improvement in relation to teaching and learning.
Learners should be drilled on time management in exams, the order of answering questions is not important.
(d) Describe any other specific observations relating to response of Learners.
Plotting and drawing of line graphs is well understood
(e) Any other comments useful to teachers, subject advisors, teacher development etc.
Use of CAPS document is more emphasised when teaching.

(NAME OF THE CHIEF MARKER)

SIGNATURE

DATE

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