education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICAL LITERACY P2

COMMON TEST

JUNE 2019

MARKS: 50

TIME: 1 hour

This question paper consists of 8 pages and an addendum with 2 annexures (3 pages).

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions. Answer ALL the questions.

2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

   - ANNEXURE A for QUESTION 3.1
   - ANNEXURE B for QUESTION 3.2

3. Number the answers correctly according to the numbering system used in this question paper.

4. Start EACH question on a NEW page.

5. You may use an approved calculator (non-programmable and non-graphical). Unless stated otherwise.

6. Show ALL the calculation clearly.

7. Round off ALL the final answers to TWO decimal places, unless stated otherwise.

8. Indicate units of measurements, where applicable.

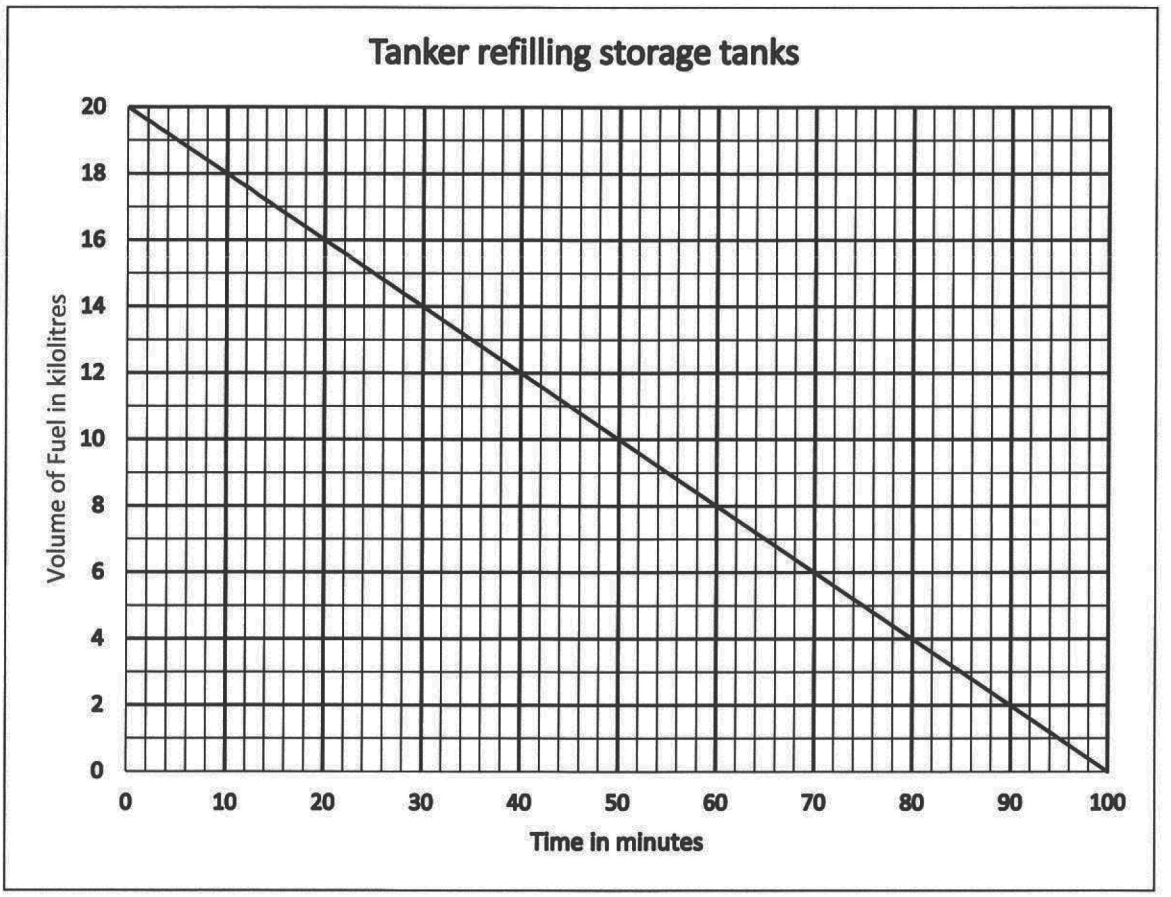
9. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

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QUESTION 1

1.1 The graph below shows the time in minutes to empty the fuel truck tanker when refilling storage tanks at the petrol station. Study the graph below and answer the questions that follow.



NOTE: 1 kl = 1 000 litres

1.1.1 The fuel tanker is only filled up to 80% of its capacity when transporting fuel. Determine how long in hours and minutes it will take for a fuel tanker to reach a level of 0 kilolitres? (4)

1.1.2 Explain how the graph shows the relationship between the volume of the fuel in the tanke, and time, in minutes? (2)

1.1.3 Give the number of kilolitres that were refilled into the storage tank between 30 minutes and 90 minutes. (2)

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1.2 Miss Moira is a petrol attendant, TABLE 1 below shows her earning according to the number of hours worked. Study table 1 and answer the questions that follow.

Table 1: Earning rates per number of hours worked

Time (in hours)	4	8	12	16	20	24
Payment (in rand)	R120	R240	R360	R480	R600	R720

1.2.1 Show by calculations that Miss Moira earns R30 per hour. (2)

1.2.2 Miss Moira works for eight hours a day. She worked for three days and earned R720 in wages. She laid a complaint with her site steward stating that she was paid less than required.
Verify with calculations whether her claim is valid. (4)

1.2.3 Determine the equation that best describes the earnings of Miss Moira. (2)

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QUESTION 2

2.1 Hluhluwe Municipality uses tariff structure to control how residents uses water. Study the residential and Non- residential structure to answer the questions that follow.

Table 2 : Residential tariff rates

Cost per kl	Nil	R5,20	R7,20	R8,90	R12,50
Category	+0kl to 6kl	+6kl to 10kl	+10kl to 15kl	+15kl to 25kl	Above 25kl
Maximum consumption in a category	6kl	5kl	**L**	.....	**K**

Table 3 : Non-Residents flat rates

Non-residential	Industries	School	Government offices	Municipality
Cost per kl	R13,20	R4,90	R7,20	R4,90

www. dwa.gov.za

2.1.1 Calculate the value of **L,** the maximum consumption in category 3. (2)

2.1.2 Verify whether the value of **K,** is 7kl for residential that used a total of 32kl per month. (2)

2.1.3 According to TABLE 2 given, Explain with a valid reason why a resident that consumed 20kl of water will not pay for all 20kl used? (2)

2.1.4 Residents that use 52kl will pay R545, 30.
How much more will industries pay for using same number of kilolitres of water? (4)

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2.2 Water is becoming a scarce natural source. Hluhluwe municipality in KZN imposed daily water restrictions to users to save water.

Table 4: Water restrictions imposed by the Municipality



Source:http//www.google.com/googleimages/

Study TABLE 4 and the information above and answer the following questions.

2.2.1 Show by calculation that the number of litres per person usage is 50 litres. (2)

2.2.2 Write down the ratio of number of litres used in its simplest form of one flush to shower. (2)

2.2.3 Residents are allowed to water the gardens ONLY 3 days a week before 9am and after 4 pm.

Write down residents' watering times using a digital format. (2)

2.2.4 Give ONE possible way in which the Hluhluwe residents can save water. (2,

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QUESTION 3

3.1 ANNEXURE A shows the layout of cinema 3 in Durban. Study the layout and answer the following questions.

3.1.1 Determine the total number of seats in the SIDE 1 BLOCK in this cinema. (2)

3.1.2 The letters represent the number of rows in the cinema.

Explain ONE possible reason for not including the letter "I" (Row I) in the cinema. (2)

3.2 Quinton lives in Gledhow and his friend Mark lives in Tongaat. ANNEXURE B shows the train route from KwaDukuza to Berea Road in Durban from Monday to Friday. Use ANNEXURE B to answer the following questions.

3.2.1 It is advisable to arrive at the train station 30 minute prior to the departure time. Give one advantage of this advice. (2)

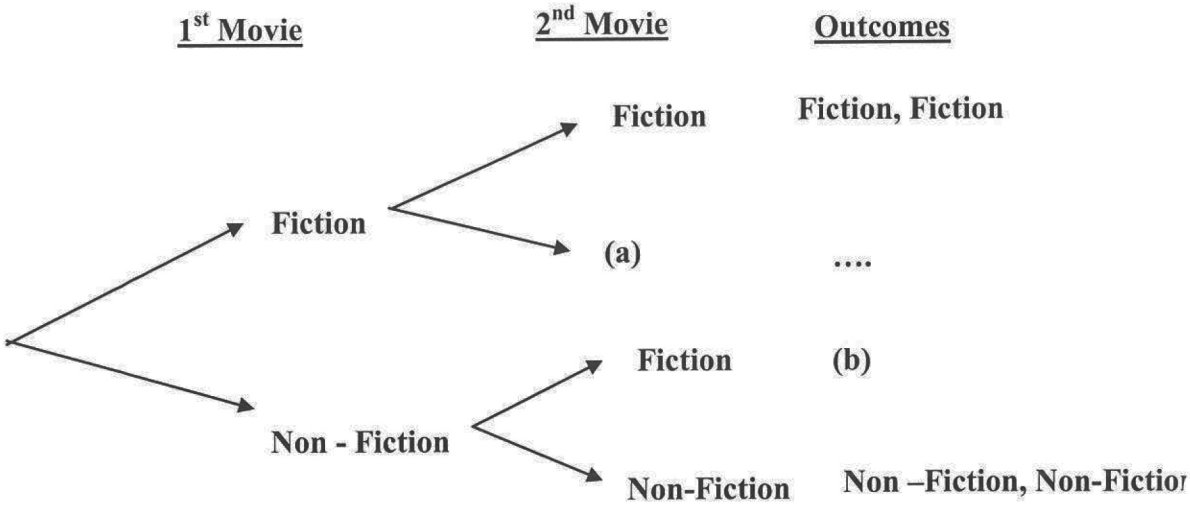
3.2.2 How many hours will train 0268 take before it passes Verulam from Stanger? (4)

3.2.3 The two friends decided to use train 0260 to travel to Durban in order to watch a movie that starts at 15:00 in Durban cinema. Give a reason why train 0260 is NOT the best option for their trip. (2)

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3.3 Mark is interested in watching a Non-fiction movie and Quinton likes Fiction movies. Below is the tree diagram showing the outcomes for two movies they will watch.

3.3.1



Complete the diagram above by writing ONLY an answer next to the question number. (2)

3.3.2 What is the probability, as a decimal fraction, that both movies at the cinema will be Non-Fiction movies? (2)

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TOTAL: 50

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MATHEMATICAL LITERACY P2

ADDENDUM

COMMON TEST JUNE 2019

NATIONAL SENIOR CERTIFICATE

GRADE 10

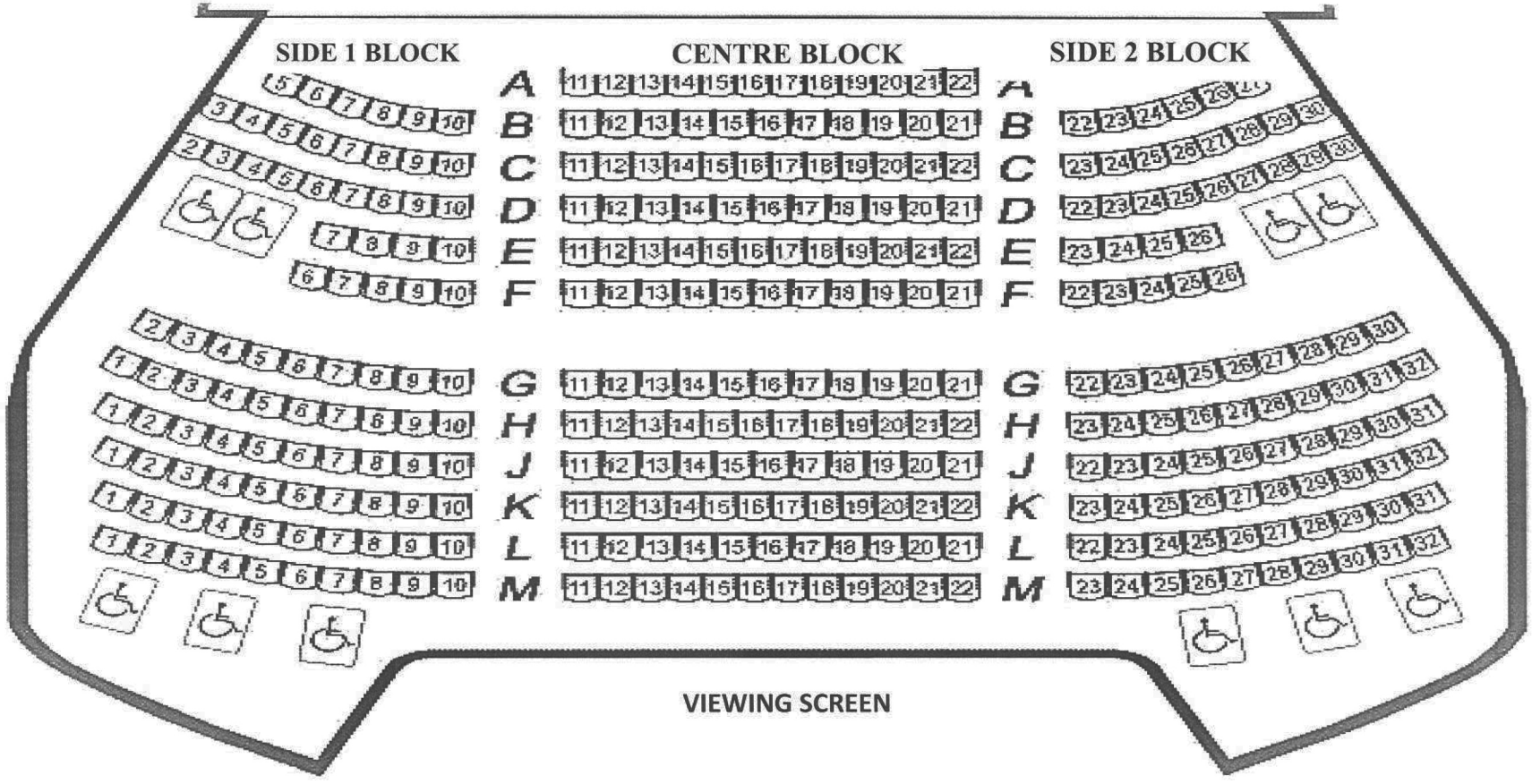
This addendum consists of 3 pages with 2 annexures.

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ANNEXURE A

Question 3.1

SCREEN PLAY-CINEMA 3



Source : www.google.co.za/seating plan

ANNEXURE B

Question 3.2

MONDAYS TO FRIDAYS	STANGER (kwaDUKUZA) - BEREA ROAD											
Distance km	STATIONS	Usual Platform	0248	0250	0260	0268	0274	0286	0290	0292	0294	0296	0298
-	**STANGER (kwaDUKUZA)**	2	**09:00**	**10:52**	**12:11**	**13:13**	**14:17**	**15:21**	**16:16**		**17:16**	**18:16**	**19:07**
4	GLEDHOW	-	09:06	10:58	12:17	13:19	14:23	15:27	16:22		17:22	18:22	19:13
8	CHARLOTTEDALE	2	09:11	11:03	12:22	13:24	14:28	15:32	16:27		17:27	18:27	19:18
10	GROUTVILLE	-	09:15	11:07	12:26	13:28	14:32	15:36	16:31		17:31	18:31	19:22
14	*TINLEY MANOR*	-	09:22	11:14	12:33	13:35	14:39	15:43	16:38		17:38	18:38	19:29
17	**SHAKASKRAAL**	**2**	**09:27**	**11:19**	**12:38**	**13:40**	**14:44**	**15:48**	**16:43**		**17:43**	**18:43**	**19:34**
20	UMHLALI	2	09:32	11:24	12:43	13:45	14:49	15:53	16:48		17:48	18:48	19:39
25	*COMPENSATION*	-	09:39	11:31	12:50	13:52	14:56	16:00	16:55		17:55	18:55	19:46
29	*FRASER*	-	09:45	11:37	12:56	13:58	15:02	16:06	17:01		18:01	19:01	19:52
34	**TONGAAT**	**2**	**09:52**	**11:44**	**13:03**	**14:05**	**15:08**	**16:12**	**17:07**	**17:46**	**18:07**	**19:07**	**19:58**
36	TONGAAT CENTRAL	2	09:56	11:48	13:07	14:09	15:12	16:16	17:11	17:50	18:11	19:11	20:02
39	FLAMINGO HEIGHTS	2	10:01	11:53	13:12	14:14	15:17	16:21	17:16	17:55	18:16	19:16	20:07
41	*NYANINGA*	2	10:04	11:56	13:15	14:17	15:21	16:24	17:19	17:58	18:19	19:19	20:10
45	*CANELANDS*	2	10:10	12:02	13:21	14:23	15:27	16:30	17:25	18:04	18:25	19:25	20:16
48	**VERULAM**	**3**	**10:14**	**12:06**	**13:25**	**14:27**	**15:31**	**16:34**	**17:29**	**18:08**	**18:29**	**19:29**	**20:20**
51	OTTAWA	3	10:19	12:11	13:30	14:32	15:36	16:39	17:34	18:13	18:34	19:34	20:25
55	MOUNT EDGECOMBE	3	10:25	12:17	13:36	14:38	15:42	16:45	17:40	18:19	18:40	19:40	20:31
58	PHOENIX	3	10:29	12:21	13:40	14:42	15:46	16:49	17:44	18:23	18:44	19:44	20:35
61	**DUFF'S ROAD**	**4**	**10:34**	**12:26**	**13:45**	**14:47**	**15:51**	**16:54**	**17:49**	**18:28**	**18:49**	**19:49**	**20:40**
65	*EFFINGHAM*	1						17:01	17:56	18:34	18:56	19:56	20:47
68	*KENVILLE*	1						17:04	17:59	18:37	18:59	19:59	20:50
69	TEMPLE	1						17:08	18:03	18:41	19:03	20:03	20:54
64	*AVOCA*	-	10:41	12:33	13:52	14:54	15:58						
66	*RED HILL*	-	10:47	12:39	13:58	15:00	16:04						
67	*GREENWOOD PARK*	1	10:50	12:42	14:01	15:03	16:06						
69	*BRIARDENE*	-	10:53	12:45	14:04	15:06	16:09						
72	UMGENI	1	10:59	12:51	14:10	15:12	16:15	17:13	18:08	18:46	19:08	20:08	20:59
73	MOSES MABHIDA	4	11:01	12:53	14:12	15:14	16:17	17:15	18:10	18:48	19:10	20:10	21:01
75	**DURBAN**	**7**	**11:06**	**12:58**	**14:17**	**15:19**	**16:23**	**17:20**	**18:15**	**18:53**	**19:15**	**20:15**	**21:06**
77	**BEREA ROAD**	**7**	**11:10**	**13:02**	**14:21**	**15:23**		**17:24**	**18:19**				

Source: www.metrorail.co.za /Durban/Stanger

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JUNE 2019

MARKING GUIDELINE

NATIONAL SENIOR CERTIFICATE

GRADE 10

MARKS: 50

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy(Answer)
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/ graph/ diagram
NPR	No penalty for units/rounding
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example
J	Justification
R	Rounding off/
F	deriving a formula
E	Explanation
U	Units
AO	Answer only full marks

This marking guideline consists of 5 pages.

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QUESTION 1 [16 MARKS]

QUE	Solution	Explanation	T/L
1.1.1	Capacity $= \frac{80}{100} \times 20k\ell$ ✓M $= 16k\ell$ ✓A Time taken = 100 min – 20 min ✓MA = 80 minutes = 1 hour 20 minutes ✓CA	1M, Percentage concept 1A Capacity 1M subtracting 20 minutes 1CA time in hours and minutes (4)	M L3
1.1.2	✓A The time taken to empty the tanker increases as the number of fuel litres in a tanker decreases. ✓A	1A, Increase in time 1A, Decrease in the fuel (2)	M L4
1.1.3	Number of kl = 14 kl – 2kl ✓MA = 12 ✓CA	1MA, Subtracting correct values 1CA, Answer **AO** (2)	M L4
1.2.1	Rate per hour = R120 ÷4 ✓MA = R30 ✓A **OR** Rate per hour = R240 ÷8 ✓MA = R30 ✓A **OR** Rate per hour = R360 ÷ 12 ✓MA = R30 ✓A **OR** Rate per hour = R480 ÷ 16 ✓MA = R30 ✓A **OR** Rate per hour = R600 ÷20 ✓MA = R30 ✓A **OR** Rate per hour = R720 ÷24 ✓MA = R30 ✓A	1MA, Dividing correct amount by correct number of hours 1A, Answer (2)	F L2

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QUE	Solution	Explanation	T/L
1.2.2	No of hours worked = 3 x 8 ✓M = 24hrs days ✓A Total earnings = 24 x R30 ✓CA = R720 Her claim is invalid. ✓J	1M, multiplying 3 days by 8 hours 1A, Number of hours worked 1CA, Total earnings 1J, Justification (4)	B L4
1.2.3	✓A Earnings per day = R30 × number of hours worked✓A **OR** ✓A Earnings per day = R30 × n (where n is the number of hours worked) ✓A	1A, Rate 1A, Variable **OR** 1A, Rate 1A, Variable (2)	F L2
		[16]	

QUESTION 2 [18 MARKS]

QUE	Solution	Explanation	T/L
2.1.1	L = 6 kl✓ ✓A	2A, Answer (2)	F L2
2.1.2	K = 32 – 6 – 5 – 6 – 11 ✓MA = 4kl Only 4kl will be charged in category 5 not 7kl.✓O	1MA, Subtracting correct values 1O, Deduction (2)	F L4
2.1.3	Because the first 6 kl are for free. ✓✓ O	2O, Opinion (2)	F L4
2.1.4	Industries = R13,20 × 52 ✓ MA = R686,40 ✓A ✓ M Difference = R686,40 – R545,30 = R 141,10 ✓CA	1MA, Multiplying by correct rate 1A, R686,40 1M, Subtracting values 1CA, difference (4)	F L3
2.2.1	Total water usage = 15 + 18 + 2 +2 + 9 +3 = 50lt	2MA, Adding correct values (2)	M L2
2.2.2	One flush : Shower 9 : 15✓A 3 : 5 ✓CA	1A, Correct ratio and order 1CA, Simplification **AO** (2)	B L2
2.2.3	✓A ✓A 9:00 and 16:00	1A, 9:00 1A, 16:00 (2)	M L2
2.2.4	Close taps properly ✓✓ O **OR** Fix leaking taps/pipes ✓✓ O **OR** Re-use shower water in the garden ✓✓ O **OR** Any other relevant opinion	2O, Opinion (2)	M L4
		[18]	

QUESTION 3 [16 MARKS]			
QUE	**Solution**	**Explanation**	**TL**
3.1.1	Number of seats = 96 seats ✓✓ A **OR** Number of seats = (50+6+8+9+4+5+9) + 5✓M = 91 +5 = 96 seats ✓A	2A, Answer **OR** 1M, Adding 1A, Answer **AO** (2)	MP L2
3.1.2	Because letter I can read as a number. ✓✓ O **OR** It may be misinterpreted as number 1 ✓✓ O	2O, Explanation (2)	MP L4
3.2.1	Option of choosing the seat of your choice. ✓✓ O **OR** You can avoid long queues. ✓✓ O **OR** You avoid unnecessary rushes. ✓✓ O **OR** Take advantage of free services at the station. ✓✓ O **OR** Any other relevant opinion	2O, Opinion. (2)	MP L4
3.2.2	Time taken = 14:27 - 13:13 ✓M = 1 hour 14 minutes ✓A = 14 min ÷ 60 ✓MA = 0,23 = 1,23 hours ✓CA	1M subtracting train times 1A total duration 1MA converting to hours 1CA answer in hours (4)	MP L3
3.2.3	They will arrive at 14:17 which does not give them enough time to reach the cinema✓✓ O	2O Reason (2)	MP L4
3.3.1	a) Non- Fiction ✓A b) Non-Fiction , Fiction ✓A	1A, Answer 1A, Answer (2)	P L3
3.3.3	P(both movies Non-Fiction) = ¼ ✓A = 0,25 ✓CA	1A, Probability concept 1CA, Decimal fraction (2)	P L3
		[16]	

TOTAL: 50

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