education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

SUBJECT: MATHEMATICAL LITERACY
NQF LEVEL 2
PAPER 2

NOVEMBER 2007

(******)

(X-Paper)
09:00 – 12:00

EXEMPLAR QUESTION PAPER

This question paper consists of 8 pages.

DEPARTMENT OF EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
MATHEMATICAL LITERACY: NQF LEVEL 2
TIME: 3 HOURS
MARKS: 150

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions:

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Clearly show ALL calculations, diagrams, graphs, etc you have used in determining the answers.
3. An approved calculator may be used, unless stated otherwise.
4. Drawing instruments including rulers, pairs of compasses and protractors may be used.
5. Number the answers CORRECTLY according to the numbering system used in this question paper.
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7. Write neatly and legibly.

1.1.4 The petrol price is about to increase by 38c from R6,23/ℓ . If the taxi fare will increase in proportion determine how much Simphiwe should budget for taxi fare for each of the next three months. Give a detailed explanation for your answer. (6)

1.1.5 If Simphiwe expects her variable costs to increase by 2,5% in August, and would like to start saving R150,00 per month toward a end of year holiday.

Develop a budget for August for her anticipated costs using the same headings that are in her income and expenses statement and using the value for transport determined in 1.1.4. (6)

1.1.6 Simphiwe can work no more than 65 hours per month and her parents are unable to increase the money that they give her. Develop a budget for her anticipated income for August. (4)

1.1.7 Discuss two different ways in which Simphiwe can reduce the shortfall between her anticipated income and costs in August. (3)

1.2 Banking costs

The bank charges Simphiwe for her the transactions she makes on her account.

The bank uses different formulae to determine these fees. The formula for the debit order transaction fee is expressed as follows: R3,10/0,6%.

This means that the debit order transaction fee is made up of a basic amount of R3,10 plus a transaction amount of 0,6% of the value of the transaction.

For example the transaction fee for the payment of Simphiwe's tuition fee which is done by debit order is: R3,10 + 0,6% × R219,00 = R4,41

1.2.1 Calculate the transaction fee for the rental payment which is also done by means of a debit order. (4)

1.2.2 The transaction fee for making a cash withdrawal from her account via an ATM is determined using the formula R4,50/0,4%.
Calculate the cost of a R300,00 cash withdrawal using an ATM (5)

1.2.3 Compare the monthly transaction fees for the following scenarios

a. Simphiwe withdraws R200 cash from the ATM each weekend (for groceries, clothes and entertainment) and pays her tuition fees and rent by debit order (assume four weekends in a month). (6)

b. Simphiwe withdraws R200 cash from the ATM on each of three weekends and on the fourth weekend withdraws R720 – enough for groceries etc., rent and tuition fees which she pays in cash (6)

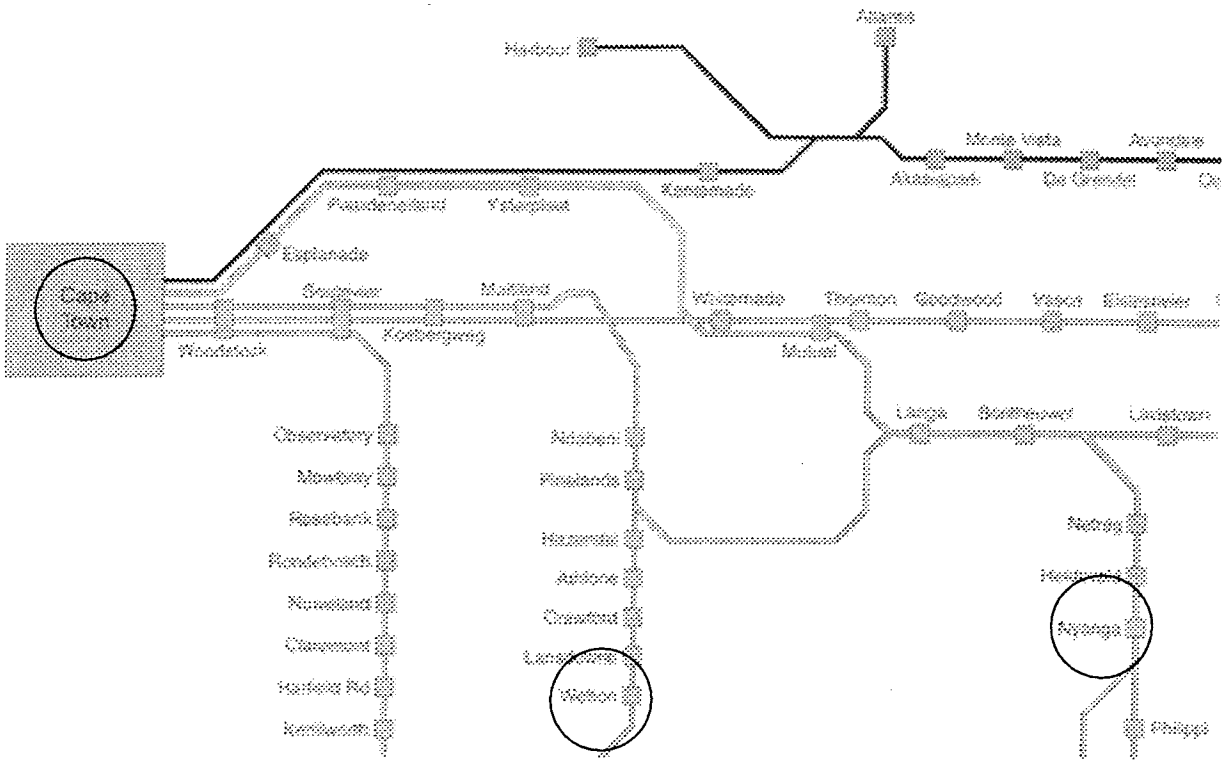
1.2.4 List one advantage and one disadvantage for each of the two scenarios described above (4)

[67]

QUESTION 2

The following have been provided and should be used to answer the questions that follow:

- An portion of the Cape Town Metro Rail train route map with three stations (Nyanga, Wetton and Cape Town) highlighted by means of circles;
- An extract of the timetable for the Khayelitsha to Cape Town timetable; and
- An extract of the Cape Town Retreat timetable.



FROM KHAYELITSHA - KAPTEINSKLIP - SAREPTA - LANGA TO CAPE TOWN (extract)									
TRAIN NO.	9428	9216	9516	9438	9518	9442	9522	9524	TRAIN NO.
NYANGA	06:43	06:51	07:03	07:09	07:16	07:31	07:34	07:41	NYANGA
HEIDEVELD	06:47	06:55	07:07	07:13	07:19	07:35	07:38	07:45	HEIDEVELD
NETREG	06:51	06:59	07:11	07:17	07:23	07:39	07:42	07:49	NETREG
BONTHEUWEL	06:54	07:02	07:14	07:20	07:27	07:42	07:45	07:52	BONTHEUWEL
LANGA	06:58	07:06	07:18	07:24	07:31	07:46	07:49	07:56	LANGA
MUTUAL	07:02	07:10	..	07:28	..	07:50	..	..	MUTUAL
YSTERPLAAT	07:08	07:16	..	07:34	..	07:56	..	..	YSTERPLAAT
PAARDENEILAND	..	..	..	..	..	..	..	..	PAARDENEILAND
ESPLANADE	07:13	07:21	..	07:39	..	08:01	..	..	ESPLANADE
PINELANDS	..	..	07:23	..	07:36	..	07:54	08:01	PINELANDS
NDABENI	..	..	07:25	..	07:38	..	07:56	08:03	NDABENI
MAITLAND	..	..	07:28	..	07:41	..	07:59	08:06	MAITLAND
KOEBERG RD	..	..	07:30	..	07:43	..	08:01	08:08	KOEBERG RD
SALT RIVER	..	..	07:33	..	07:46	..	08:04	08:11	SALT RIVER
WOODSTOCK	..	..	07:36	..	07:49	..	08:07	08:14	WOODSTOCK
CAPE TOWN	07:18	07:26	07:40	07:44	07:53	08:06	08:11	08:18	CAPE TOWN

CAPE TOWN - RETREAT VIA CAPE FLATS (extract)							
TRAIN NO.	519	521	523	525	527	529	TRAIN NO.
CAPE TOWN	07:10	07:26	07:38	07:57	08:29	09:03	CAPE TOWN
WOODSTOCK	07:13	07:29	07:41	08:00	08:32	09:06	WOODSTOCK
SALT RIVER	07:16	07:32	07:44	08:03	08:35	09:09	SALT RIVER
KOEBERG RD	07:18	07:34	07:46	08:05	08:37	09:11	KOEBERG RD
MAITLAND	07:20	07:36	07:48	08:07	08:39	09:13	MAITLAND
NDABENI	07:23	07:39	07:51	08:10	08:42	09:16	NDABENI
PINELANDS	07:26	07:42	07:54	08:13	08:45	09:19	PINELANDS
HAZENDAL	07:28	07:44	07:56	08:15	08:47	09:21	HAZENDAL
ATHLONE	07:31	07:47	07:59	08:18	08:50	09:24	ATHLONE
CRAWFORD	07:33	07:49	08:01	08:20	08:52	09:26	CRAWFORD
LANSDOWNE	07:35	07:51	08:03	08:22	08:54	09:28	LANSDOWNE
WETTON	07:38	07:54	08:06	08:25	08:57	09:31	WETTON
OTTERY	07:40	07:56	08:08	08:27	08:59	09:33	OTTERY
SOUTHFIELD	07:44	08:00	08:12	08:31	09:03	09:37	SOUTHFIELD

2.1 Use the train route map and timetable to answer the following questions

2.1.1 There are two different routes that the train takes from Nyanga to Cape Town. List the stations on each route by completing the two routes below:
Route 1: Nyanga – Langa – Mutual – …
Route 2: Nyanga – Langa – Pinelands – … (4)

2.1.2 By referring to the appropriate timetable determine which route (Route 1 or Route 2) is used by each of the following trains:

a. Train number 9516 (1)

b. Train number 9438 (1)

2.1.3 Answer the following questions with respect to train number 9524

a. At what time does the train depart from Nyanga? (1)

b. At what time does the train arrive in Cape Town? (1)

c. How long does the journey take? (1)

2.1.4 List the trains that can you take if you want to travel from Nyanga to Cape Town and want to depart from Nyanga after 07:00 and arrive in Cape Town before 08:00. You need only write down the train numbers (4)

2.2 Mr and Mrs Bhele live in Nyanga. Mr Bhele works in Wetton and Mrs Bhele in Cape Town.

They like to travel together from Nyanga.

2.2.1 On a particular day they depart from Nyanga on train no. 9216. In Cape Town Mr Bhele joins a train on the Cape Town – Retreat line.
What is earliest that Mr Bhele can get to Wetton? Give a detailed explanation of your answer which includes arrival and departure times and train numbers. (8)

2.2.2 Show that it is possible for Mr and Mrs Bhele to depart from Nyanga after 07:00 and for Mr Bhele to still arrive in Wetton before 08:00. Give a detailed explanation of your answer which includes arrival and departure times and train numbers. (10)

[31]

QUESTION 3

In Johannesburg residents are allowed to choose from two options, the way that they are charged for electricity.

The unit of electricity consumption is the kilo-Watt-hour (kWh)

Option 1: (Life Line rate) The first 50 kWh of electricity every month are free and after that electricity is charged at R0,40 per kWh.

Option 2: (Two part rate) There is an initial monthly service fee of R70,00 and electricity is charged at R0,25 per kWh.

3.1 Calculating the monthly charge

3.1.1 Option 1: Show how the following monthly charges have been calculated

a. Consumption 50kWh: cost = R0,00 (1)

b. Consumption 100kWh: cost = R20,00 (3)

c. Consumption 300kWh: cost = R100,00 (3)

3.1.2 Option 2: Show how the following monthly charges have been calculated

a. Consumption 0kWh: cost = R70,00 (1)

b. Consumption 300kWh: cost = R145,00 (3)

3.1.3 Determine the values of A and B in the table below

Consumption (kWh)	0	50	100	300	700
Option 1 (rand)	0,00	0,00	20,00	100,00	A
Option 2 (rand)	70,00			145,00	B

(6)

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