Grade 12 Education Supplement 2010

2010 NATIONAL SENIOR CERTIFICATE(NSC) EXAMITNATION TIMETABLE
OCTOBER/NOVEMBER 2010

WEEK 1	09:00	14:00
Monday 25/10	Information Technology P2 Theory (3hrs) Computer Application Tech P2 Theory (3hrs)	
Tuesday 26/10	Dance Studies (3hrs) Electrical Technology (3hrs	Portuguese HL, FAL, SAL P1 (2hrs) German HL, SAL P1 (2hrs) Hebrew P1 (2hrs)
Wednesday 27/10	History P1 (3hrs) Maritime Economics Equine Studies	Hindi, Gujarati, Urdu, Tamil, Telegu HL, FAL, SAL P1 (2hrs) Arabic, French, Italian, Spanish, Modern Greek SAL P1 (2hrs) Latin FAL P1 (2½hrs)
Thursday 28/10	Afrikaans HL and FAL P1 (2hrs SAL P1 (2½hrs)	
Friday 29/10	Mathematics P1 (3hrs) Mathematical Literacy P1 (3hrs)	Portuguese HL P2 (2½ hrs) , Portuguese FAL, SAL P2 (2hrs) German HL P2 (2½ hrs), German SAL P2 (2hrs) Hebrew P2 (2hrs)
WEEK 2	09:00	14:00
Monday 1/11	Mathematics P2 (3hrs) Mathematical Literacy P2 (3hrs)	Hindi, Gujarati, Urdu, Tamil, Telegu HL P2 (2½hrs) FAL and SAL P2 (2hrs) Arabic, French, Italian, Spanish, Modern Greek SAL P2 (2hrs) Latin FAL P2 (1½ hrs)
Tuesday 2/11	English HL and FAL P1 (2hrs) SAL P1 (2½hrs)	Engineering Graphics and Design P1 (3hrs)
Wednesday 3/11	isiZulu, isiXhosa, Siswati, isiNdebele HL and FAL P1 (2hrs) SAL P1 (2½hrs)	Engineering Graphics and Design P2 (3hrs)
Thursday 4/11	Agricultural Science P1 (2½hrs) Nautical Science P1	
Friday 5/11		
WEEK 3	09:00	14:00
Monday 8/11	Agricultural Science P2 (2½hrs)	Visual Arts (3hrs)
Tuesday 9/11	Afrikaans Home Lang P2 (2½hrs) FAL and SAL (2hrs)	Sepedi, Sesotho, Setswana, Xitsonga, Tshivenda HL and FAL P1 (2hrs) and SAL P1 (2½hrs)
Wednesday 10/11	Economics (3hrs)	Mechanical Technology (3hrs)
Thursday 11/11	English HL P2 (2½hrs) FAL and SAL P2 (2hrs)	Portuguese , HL and FAL P3 (2½hrs) German HL P3 (2½hrs),
Friday 12/11	Physical Science (Physics) P1 (3hrs)	
WEEK 4	09:00	14:00
Monday 15/11	Physical Science (Chemistry) P2 (3hrs)	Hindi, Gujarati, Urdu, Tamil, Telegu HL and FAL P3 (2½hrs)

Tuesday 16/11	English HL and FAL P3 (2½hrs)	Music P1 Theory (3hrs)
Wednesday 17/11		
Thursday 18/11	History P2 (3hrs)	Agricultural Technology (3hrs)
Friday 19/11	Life Sciences P1 (2½hrs)	Afrikaans HL and FAL P3 (2½hrs)
WEEK 5	09:00	14:00
Monday 22/11	Life Sciences P2 (2½hrs)	Religion Studies P1 (2hrs)
Tuesday 23/11	Tourism (3hrs)	Mathematics P3 (2hrs)
Wednesday 24/11	Accounting (3hrs)	Agriculture Management Practices (2½hrs)
Thursday 25/11	isiZulu, isiXhosa, Siswati, isiNdebele HL P2 (2½hrs) FAL and SAL P2 (2hrs)	Design (3hrs)
Friday 26/11	Sepedi, Sesotho, Setswana, Xitsonga, Tshivenda HL P2 (2½hrs) FAL and SAL P2 (2hrs)	Dramatic Art (3hrs)
WEEK 6	09:00	
Monday 29/11	Business Studies (3hrs)	Music P2 Comprehension (1½hrs)
Tuesday 30/11	isiZulu, isiXhosa, Siswati, isiNdebele HL and FAL P3 (2½hrs)	Sepedi, Sesotho, Setswana, Xitsonga, Tshivenda HL and FAL P3 (2½hrs)
Wednesday 1/12	Geography (Theory) P1 (3hrs)	Geography (Map work) P2 (1½hrs)
Thursday 2/12	Consumer Studies (3hrs) Nautical Science P2	
Friday 3/12	Religion Studies P2 (2hrs) Civil Technology (3hrs)	Hospitality Studies (3hrs)

CONCLUSION OF THE 2010 NSC EXAMINATION: 3 DECEMBER 2010

WEEK 0	09:00	14:00
Wednesday 13/10	Computer Application Speed Test (Optional)	Must still form part of monitoring plan so that very good monitoring takes place
Thursday 14/10	Computer Application Tech P1 (3hrs) Practical	
Friday 15/10	Information Technology P1 (3hrs) Practical	

CAT and IT Practical will be administered prior to the official examination period. Learners not offering CAT and IT will attend school as normal on 13, 14 and 15 October 2010. Normal classes continue until 22 October. Gr. 12 learners may not be released for study purposes before 22 October 2010 to secure three weeks contact time in the 4th term

CONCLUSION OF THE 2010 NSC EXAMINATION: 3 DECEMBER 2010
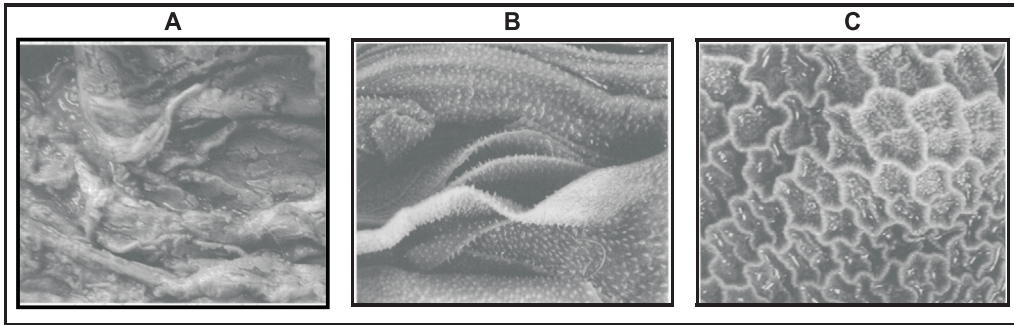
Together Educating the Nation

SECTION B

START THIS QUESTION ON A NEW PAGE.

QUESTION 2

2.1 The photographs below show the internal structure of the stomach of a ruminant.

A	B	C

2.1.1 Identify each part of the ruminant stomach visible in the photographs labelled A, B and C. (3)

2.1.2 Link the structure(s) in the photographs (marked A, B and C) that best represent(s) the following statements:

(a) When the cud has been chewed finely enough, it passes directly to this part of the stomach where the excess water is forced out. (1)

(b) Fermentation of cellulose by bacteria and protozoa occurs here. (1)

(c) The mucous membrane of this stomach is glandular and secretes gastric enzymes. (1)

2.2 Dairy herds should be divided into groups with basically similar feed requirements. The yearly feed requirements of a single lactating dairy cow producing an average of 30 litres of milk per day are indicated in the table below. The farmer feeds his dairy cows a ration which consists of 60% roughage and 40% concentrate (calculated on dry material basis).

Farm animal	Live weight (kg)	Total dry material requirements (kg)	Metabolic energy requirements (MJ)
Lactating cow	650	50 676	564 447

2.2.1 Determine the mass of dry material (DM) of the roughage component of a dairy cow. (2)

2.2.2 This farmer's kikuyu pasture has an estimated average annual dry matter production of 37 tons DM/ha. Calculate the number of cows that a hectare of kikuyu pasture will support in terms of the dry material for the roughage requirements of the ration. (2)

2.2.3 Differentiate between *roughage* and a *concentrate*. (2)

2.3 The nutritive ratio of a ration refers to the ratio between the digestible non-nitrogen substances and the digestible protein content of a feed. This value plays a very important role in the scientific feeding of animals for optimal growth and production. The following feeds were used in a feeding programme for cattle:

Feed	Total digestible nutrients %	Digestible protein %
A	81,9	6,9
B	78,0	13,2

2.3.1 Calculate the nutritive ratio for each of the feeds (Feed A and Feed B). (4)

2.3.2 Deduce, from your calculation, the feed type indicated above that will be most suitable to raise heifers. Give a reason for your answer. (2)

SECTION B

QUESTION 2

2.1 **INTERNAL STRUCTURES OF A RUMINANT STOMACH**

2.1.1 ☐ A – abomasums/true stomach/milk stomach √
☐ B – omasum/leaf stomach √
☐ C – reticulum/honeycomb stomach/net stomach/hardware stomach √ (3)

2.1.2 (a) B √ (1)
(b) C √ (1)
(c) A √ (1)
[6]

2.2 **FODDER FLOW**

2.2.1 $\dfrac{60}{100}$ X $\dfrac{50\ 676}{1}$ √ = 30 405,6 kg /30 406 kg √ (2)

2.2.2 37 000 kg ÷ 30 405,6 kg √ = 1,22 cows √ (2)

2.2.3 **Roughage**
☐ contain a small percentage of digestible nutrients/TDN < 60% √
☐ much crude fibre √
☐ large/high volume per mass unit/bulky √ (any 1)
Concentrates
☐ contain a large percentage of digestible nutrients/TDN > 60% √
☐ little crude fibre√
☐ small/low volume per mass unit √ (any 1) (2)
[6]

2.3 **NUTRITIVE RATIO**

2.3.1 **Feed type A**: 81,9% − 6,9% = 75,0% √
= 1 : $\dfrac{75,0}{6,9}$ √
= 1 : 10,9 √ / 1:11 √ (any 2) (2)

Feed type B: 78,0% − 13,2 = 64,8% √
= 1 : $\dfrac{64,8}{13,2}$ √
= 1 : 4,9 √ / 1:5√ (any 2) (2)

2.3.2 ☐ Feed type B √
☐ High concentration of/much protein with high biological value is essential for growth/ratio is less than 1:6/ratio is narrow √ (2)
[6]

QUESTION 2

2.1   Choose the correct word(s) from those given in brackets.

   2.1.1   Countries that experience fundamental balance of payments problems are usually assisted by the (World Bank/IMF).

   2.1.2   The redistribution of income is essential in a (command/market) economy.

   2.1.3   In economic forecasting, methods based on opinion and understanding are referred to as (quantitative/judgemental).

   2.1.4   The output produced in South Africa by a French-owned company is part of South Africa's (GDI/GNI).   (4 x 2)   (8)

2.2   Name THREE types of foreign exchange rate systems.   (3 x 2)   (6)

2.3   Study the diagram below and answer the questions that follow.
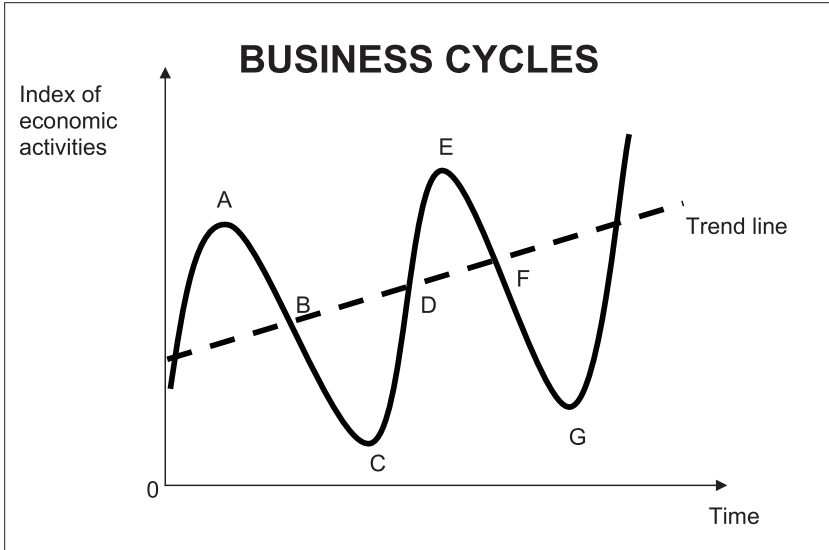

BUSINESS CYCLES

   2.3.1   Define a *business cycle*.   (3)

   2.3.2   Identify the labels for the following periods in the business cycle as indicated in the above diagram:

      (a)   Upswing or expansion
      (b)   Length or duration of a cycle   (2 x 3)   (6)

   2.3.3   At which point/phase in the above diagram will unemployment be at its highest?   (2)

   2.3.4   Name ONE exogenous factor that gives rise to business cycles.   (3)

   2.3.5   Explain how government can stimulate economic activity in an effort to smooth out cycles.   (3)

   2.3.6   Name the method of predicting future business cycles based on the patterns of previous ones.   (3)

QUESTION 2

2.1   Choose the correct word(s) from those given in brackets:

   2.1.1   IMF

   2.1.2   market

   2.1.3   judgemental

   2.1.4   GDI   (4 x 2)   (8)

2.2   List THREE types of foreign exchange-rate systems.

   ☐ Fixed
   ☐ Free floating / flexible
   ☐ Managed floating / Controlled floating   (3 x 2)   (6)
   [14]

2.3   Study the diagram and answer the questions that follow:

   2.3.1   Refer to <u>successive</u> periods   of increasing (expansion/upswing) and decreasing (contraction/downswing)   economic activities
   OR
   Successive periods of economic   fluctuations   (3)

   2.3.2   (a)   CDE / CE
            (b)   CG / AE   (2 x 3)   (6)

   2.3.3   Point C / point G / trough   (1 x 2)   (2)

   2.3.4   ☐ inappropriate government policies / interventions
           ☐ change in money supply
           ☐ climatical conditions (sunspot theory)
           ☐ shocks (e.g. war, major increase in fuel price)
           ☐ structural change to the economy
           ☐ technology
           ☐ accept any other relevant factor from an approved resource (1 x 3)   (3)

   2.3.5   ☐ Using expansionary monetary policies
           ☐ Reducing interest rates
           ☐ Expansionary fiscal policies
           ☐ Reducing tax
           ☐ Increased government expenditure
           Any other relevant examples   (max 3)   (3)

   2.3.6   Extrapolation   (1 x 3)   (3)
   [20]

QUESTION 3

3.1   Choose the correct word(s) from those given in brackets.

   3.1.1   The main objective of the Competition (Commission/Tribunal) of South Africa is to investigate and evaluate restrictive business practices.

   3.1.2   To enumerate and evaluate the total social cost and benefits associated with an economic project, a (feasibility study/cost-benefit analysis) should be done.

   3.1.3   High development costs can be a possible reason for the existence of a/an (perfect/imperfect) market.

   3.1.4   A monopolistic competitor is able to make (normal/economic) profit over the short and the long term.   (4 x 2)   (8)

3.2   With reference to oligopolies, list any THREE forms of non-price competition.   (3 x 2)   (6)

3.3   Study the graphs below and answer the questions that follow.

THE EFFECTS OF MARKET FAILURE
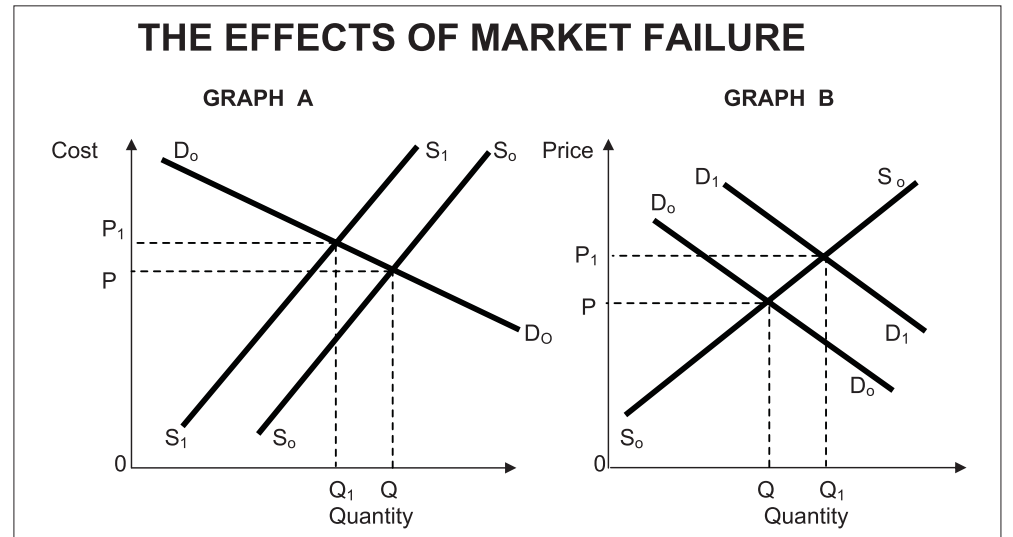
   3.3.1   Define the concept *externality*.   (3)

   3.3.2   Which ONE of the above graphs indicates a negative externality?   (3)

   3.3.3   Give TWO examples of positive externalities.   (6)

   3.3.4   Which demand curve in GRAPH B represents the social benefit?   (2)

   3.3.5   Explain the impact of positive externalities on costs/prices and quantities of goods. Refer to the relevant graph above.   (6)

3.4   Discuss *collusion by oligopolies*.   (4 x 4)   (16)
   [50]

QUESTION 3

3.1   Choose the correct word(s) from those given in brackets:

   3.1.1   Commission

   3.1.2   cost-benefit analysis

   3.1.3   imperfect

   3.1.4   economic   (4 X 2)   (8)

3.2   With the reference to oligopolies, list any THREE forms of non-price competition.

   ☐ Product recognition and differentiation
   ☐ Extended shopping and business hours
   ☐ Doing business over the internet
   ☐ After-sales service
   ☐ Offering additional services (free travel insurance by banks)
   ☐ Loyalty rewards for customers
   ☐ Door-to-door deliveries
   ☐ Building brand loyalty
   ☐ Advertisements   (6)
   ☐ Accept any other relevant forms from an approved source   (Any 3 x 2)   [14]

3.3   Study the graphs below and answer the questions that follow:

   3.3.1   Externalities are benefits or costs resulting from the production of a good that is not reflected in the price.
           Accept any other definition from an approved source   (3)

   3.3.2   Graph A   (3)

   3.3.3   ☐ Pollination of fruit trees by bees
           ☐ Public enjoyment of views of private buildings
           ☐ Flu injections affect those who do not pay for inoculation.

           ☐ Accept any other relevant example   (any 2 x 3)   (6)

   3.3.4 D_1D_1 / D_1 (2)

   3.3.5   DD represent the demand from individuals, i.e. the **private benefits** gained from purchasing a particular good or service, and SS represents the **direct cost** of providing that good or service. The **market equilibrium** is given where S_0 and D_0 intersects

           If it were possible to quantify the **external benefit** associated with the provision of this good or service the social benefit accruing to society could be represented by D_1D_1 / D_1
           If the external benefit were to be taken into account, the **equilibrium** would be with output Q_1 selling at P_1

   Accept any relevant example   (3 x 2)   (6)

QUESTION 3

3.1 Some people have the ability to roll their tongue (rollers) while other people cannot roll their tongues (non-rollers).

A Grade 12 learner wanted to determine the frequency of learners in the school that could roll their tongues.

She went to each grade in the school and counted the number of rollers and non-rollers. She presented her results in the graph below.

Number of learners in Grades 8 -12 that can or cannot roll their tongues

Key:
☐ – Rollers
▨ – Non-rollers
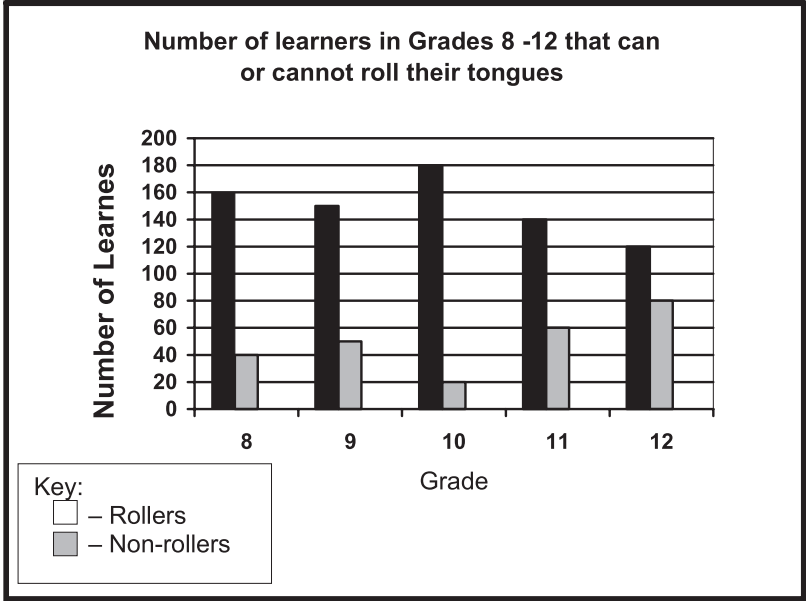
3.1.1 State a hypothesis for this investigation. (2)

3.1.2 Which grade had the most learners that could roll their tongues? (1)

3.1.3 Use the data in the graph to draw a table that shows the results she obtained. (7)

3.1.4 Calculate the ratio of rollers to non-rollers. Show ALL working. (4)

3.2 People with albinism are unable to produce the dark pigment, melanin, in their skin. This condition is caused when an individual is homozygous recessive for this characteristic.

The family tree below shows the occurrence of albinism over three generations.

Family tree to show the occurrence of albinism
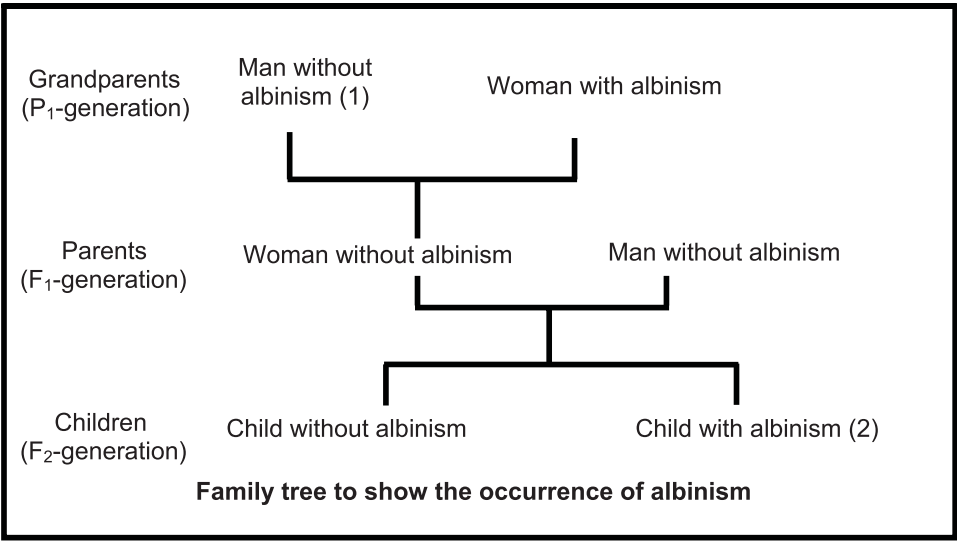
3.2.1 Indicate whether each of the individuals below could be homozygous dominant, homozygous recessive or heterozygous:

(a) 1
(b) 2 (3)

3.2.2 Explain your answer to QUESTION 3.2.1(a). (2)

3.3 Since the 1980s, human insulin has been produced using genetically modified bacteria and yeast.

3.3.1 State THREE advantages of producing human insulin by genetic modification. (3)

3.3.2 Give TWO reasons why some people might be against genetic modification. (2)

3.4 Explain:

3.4.1 The principle of dominance (3)
3.4.2 Mendel's law of segregation (3)
[30]

TOTAL SECTION B: 60

QUESTION 3

3.1

3.1.1 Most   learners in the school can roll their tongue
OR
Most   learners cannot roll their tongue
OR
Equal   number of rollers and non-rollers
OR
Difference   in the number of rollers and non-rollers
OR
Tongue rolling occurs   /does not occur among the learners (2)

3.1.2 Grade 10 (1)

3.1.3 The number of rollers and non-rollers in the different grades

Grade	Rollers	Non-rollers
8	160	40
9	150	50
10	180	20
11	140	60
12	120	80

OR
The number of rollers and non-rollers in the different grades

Grade	8	9	10	11	12
Rollers	160	150	180	140	120
Non-rollers	40	50	20	60	80

Caption
Correct column headings
Correct row headings
Data in table: 5 rows correct
3 to 4 rows correct
1 to 2 rows correct
Drawing of table (7)

3.1.4 160 + 150 + 180 + 140 + 120 = 750
40 + 50 + 20 + 60 + 80 = 250   } **OR**   750   250
750   250   **OR**   750/250

3 : 1   / 75% : 25%   / ¾ : ¼   **OR**   1 non-roller: 3 rollers (4)
(14)

3.2
3.2.1 (a)   homozygous dominant   and heterozygous (2)

(b)   homozygous recessive (1)

3.2.2 Normal is dominant and the dominant condition
can show up in either homozygous or heterozygous state
OR
To have a normal child   the person (1) must have at least one
dominant gene   /phenotype is normal (2)
(5)

3.3
3.3.1
May have fewer side effects
May not be contaminated   /will be in it's natural form
No problem from a religious perspective
Can be mass produced   /produced faster
Avoids killing animals
(Mark first THREE answers only in learner's script) (3)

3.3.2 Against:
- risk to human health
- risk to the environment
- risk to the health and well-being of other organisms
- interference with nature   /God's creation
- cultural sensitivity   e.g. objection to the use of pigs and cows
*(Mark first TWO answers only in learner's script)* (2)
(5)

3.4
3.4.1 In a heterozygous condition   the dominant allele expresses
itself in the phenotype   , masking the effect of the recessive allele
OR
When two individuals with pure breeding   contrasting characteristics
are crossed,the F₁-generation all display the dominant   characteristic (3)

3.4.2 Each characteristic is regulated by two alleles   /factors which separate
during meiosis so that each gamete contains only one of the
alleles   /factors (3)
(6)
[30]

TOTAL SECTION B: 60

QUESTION 2: GEOGRAPHICAL TECHNIQUES AND CALCULATIONS

2.1 The diagram below is a cross-section from spot height 578 (**A**) to spot height 553 (**B**) on the orthophoto map.
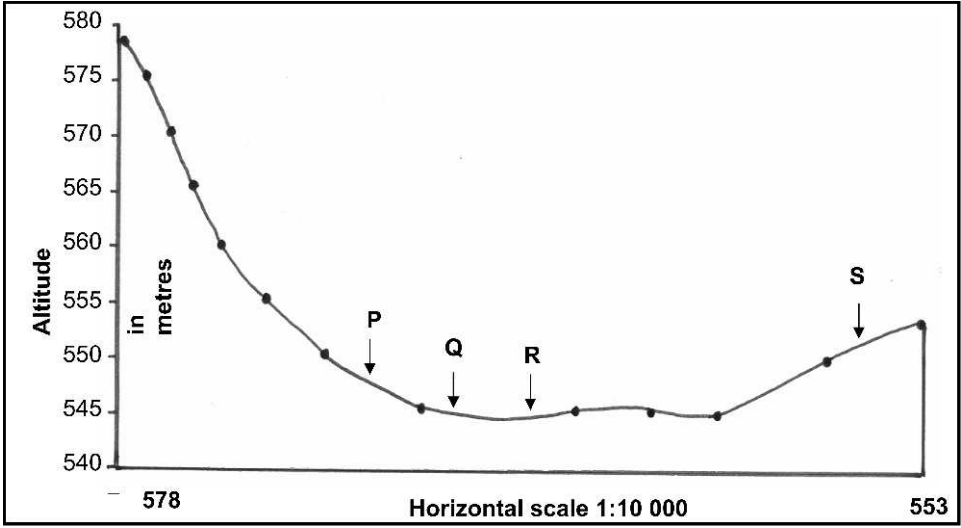
2.1.1 Identify features marked **P**, **Q**, **R** and **S** on the cross-section.

P _____

Q _____

R _____

S _____ (4)

2.1.2 Are features **P** and **R** intervisible?

_____ (1)

2.1.3 Give ONE reason for your answer to QUESTION 2.1.2.

_____

_____ (1)

2.1.4 Calculate the vertical exaggeration for the given cross-section. Show ALL your calculations.

_____
_____
_____
_____
_____
_____
_____
_____
_____ (4)

2.2 Calculate the average gradient between spot height 532 (**F3**) and spot height 553 (**E2**) on the topographical map. Show ALL your calculations.

_____
_____
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_____
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_____
_____
_____ (6)
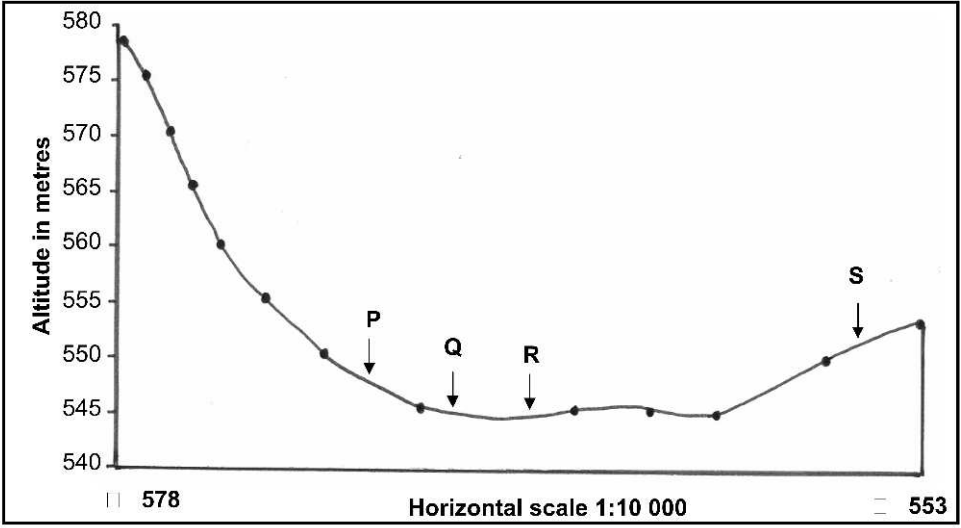
2.1.1 Identify features marked **P**, **Q**, **R** and **S** on the cross-section.

P - *Road (Accept any type)* ✓
Q - *Messina waters/stream/non-perennial stream/dry stream/ river* ✓
R - *Railway line* ✓
S - *Power line/cut line/hiking trail* ✓ (4)

2.1.2 Are features **P** and **R** intervisible?

Yes ✓ (1)

2.1.3 Give ONE reason for your answer to QUESTION 2.1.2.

No high-lying ground/obstructions between the two given points ✓
[Concept] (1)

2.1.4 Calculate the vertical exaggeration for the given cross-section. Show ALL your calculations.

$$Vertical\ exaggeration = \frac{vertical\ scale}{horizontal\ scale}\ ✓$$

$$= \frac{1:500/555}{1:10\ 000}\ ✓$$

$$= \frac{1}{500/555} \times \frac{10\ 000}{1}\ ✓$$

$$= 18 - 20\ times\ ✓$$

[ONLY answer give FULL marks. If answer is incorrect mark steps.] (4)

2.2 Calculate the average gradient between spot height 532 (**F3**) and spot height 553 (**E2**) on the topographical map. Show ALL your calculations.

$$Vertical\ Interval/Rise = \begin{array}{r} 553\ m \\ - 532\ m \\ \hline 21\ m\ ✓ \end{array}$$

Horizontal Equivalent/Distance = *2,5 cm x 500* (range: 2,4 cm – 2,6 cm) ✓
= *1 250 m* ✓

[Accept any other method to calculate distance. Actual marks for measurement and answer.]

$$Gradient = \frac{Vertical\ Interval}{Horizontal\ Equivalent}\ ✓$$

$$= \frac{21}{1\ 250}\ ✓$$

$$= \frac{1}{59,52}\ /\ 1:59,52\ /\ 1\ in\ 59,52\ ✓$$

(Range: 57 – 62)

[ONLY answer give FULL marks. If answer is incorrect mark steps.] (6)

QUESTION 2

O is the centre of the circle in the figure below. P(x ; y) and Q (12 ; 5) are two points on the circle. POQ is a straight line. The point R(t ; −1) lies on the tangent to the circle at Q.
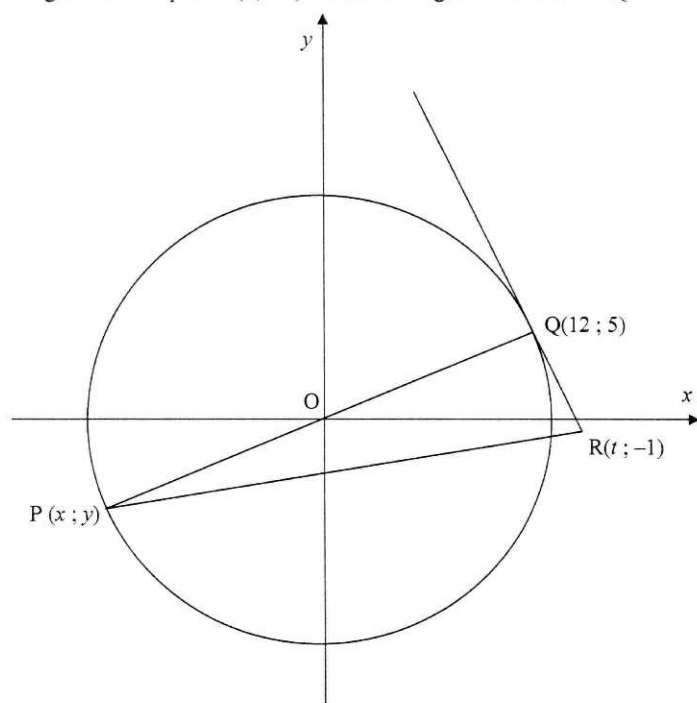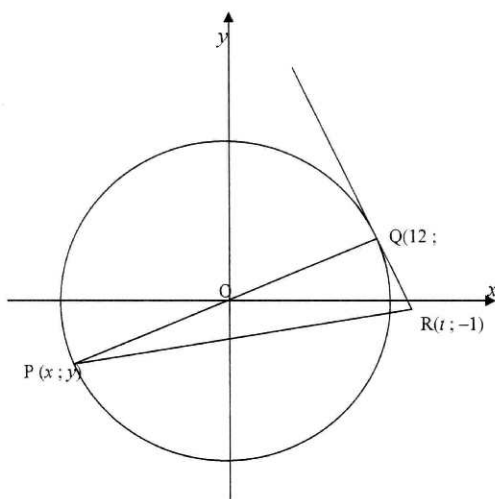

2.1 Determine the equation of the circle. (3)

2.2 Determine the equation of the straight line through P and Q. (2)

2.3 Determine x and y, the coordinates of P. (2)

2.4 Show that the gradient of QR is $-\dfrac{12}{5}$. (2)

2.5 Determine the equation of the tangent QR in the form $y = \ldots$ (3)

2.6 Calculate the value of t. (2)

2.7 Determine an equation of the circle with centre Q(12 ; 5) and passing through the origin. (3)

[17]

2.3	P(− 12; − 5) (By symmetry)	✓ $x = -12$ ✓ $y = -5$ (2)
	OR	
	$x^2 + y^2 = 169$ $x^2 + \left(\dfrac{5}{12}x\right)^2 = 169$ $144x^2 + 25x^2 = 169 \times 144 = 24336$ $169x^2 = 24336$ $x^2 = 144$ $x = \pm 12$ $x = -12$ $y = -5$	
2.4	tangent $\perp$ diameter $m_{PQ} \times m_{QR} = -1$ $m_{PQ} = \dfrac{5}{12}$ $\therefore m_{QR} = -\dfrac{1}{\frac{5}{12}} = -\dfrac{12}{5}$	✓✓ $m_{PQ} \times m_{QR} = -1$ (2)
	OR	
	PQ $\perp$ QR $m_{QR} = -\dfrac{12}{5}$	✓✓ PQ $\perp$ QR (2)
2.5	$y = \dfrac{-12}{5}x + c$ $5 = \dfrac{-12}{5}(12) + c$ $c = \dfrac{169}{5}$ $y = -\dfrac{12}{5}x + \dfrac{169}{5}$ OR $y = -2{,}4x + 33{,}8$	✓ $y = mx + c$ ✓ substitution of gradient and (12 ; 5) ✓ calculation of c. (3)
	OR	

QUESTION 2

2.1	$r^2 = OQ^2$ $= (5)^2 + (12)^2$ $= 169$ $\therefore x^2 + y^2 = 169$ OR $x^2 + y^2 = (5)^2 + (12)^2 = 169$	✓ substituting (5 ; 12) into $x^2 + y^2$ ✓ 169 ✓ $x^2 + y^2 = 169$ (3) ✓ $x^2 + y^2 = r^2$ ✓ substitution coordinates ✓ 169 (3) Answer only: Full marks
2.2	$m_{PQ} = \dfrac{5 - 0}{12 - 0)}$ $m_{PQ} = \dfrac{5}{12}$ $\therefore y = \dfrac{5}{12}x$	✓ gradient ✓ $c = 0$ (2)

	$y - y_1 = m(x - x_1)$ $y - 5 = -\dfrac{12}{5}(x - 12)$ $5y - 25 = -12(x - 12)$ $5y = -12x + 144 + 25$ $5y = -12x + 169$ $12x + 5y - 169 = 0$ $y = -\dfrac{12}{5}x + \dfrac{169}{5}$	✓ formula ✓ substitution of gradient and (12 ; 5) ✓ equation in correct form (3)
2.6	$-1 = \dfrac{-12}{5}(t) + \dfrac{169}{5}$ $12t = 174$ $t = \dfrac{174}{12}$ $t = 14{,}5$	✓ substitution of $(t ; -1)$ ✓ answer (2)
	OR	
	$m_{QO} \times m_{QR} = -1$ $\dfrac{5}{12} \times \dfrac{-6}{t - 12} = -1$ $t = 14{,}5$	✓ $\dfrac{5}{12} \times \dfrac{-6}{t-12} = -1$ ✓ answer (2)
	OR	
	$PQ^2 + QR^2 = PR^2$ $576 + 100 + (12 - t)^2 + 36 = (t + 12)^2 + 16$ $712 + 144 - 24t + t^2 = t^2 + 24t + 144 + 16$ $-48t = -696$ $t = 14{,}5$	✓ Pythagoras with substitution ✓ answer (2)
2.7	$(x - 12)^2 + (y - 5)^2 = OQ^2$ $OQ^2 = (12 - 0)^2 + (5 - 0)^2 = 169$ $(x - 12)^2 + (y - 5)^2 = 169$	✓ $(x - 12)^2$ ✓ $(y - 5)^2$ ✓ 169 (3)
	OR	
	$(x)^2 + (y)^2 = 169$ By translating 12 units right and 5 units up $(x - 12)^2 + (y - 5)^2 = 169$	If answer only: $(x-12)^2 + (y-5)^2 = 169$: 3 / 3

[17]

SECTION A: COMPREHENSION

QUESTION 1

Read the following passage (TEXT A) and answer the set questions.

TEXT A

FIGHTING CRIME ONE YOUNG LIFE AT A TIME

1. Captain John Maluleke is no ordinary cop. He is also a soccer coach, and a passionate youth and community development activist.

2. While growing up in Sebediela village, Limpopo, Maluleke aspired to be a singer and stage actor. But he gave up the prospect of a showbiz lifestyle for a life dedicated to service to his country after his father persuaded him to join the police force in the early 1980s. — 5

3. 'We, the police, are there to serve, protect and make this country a safer and better place for its inhabitants, so we should be friends to our communities. Community police forums inspired me to work with people, but the youth were not really interested,' says Maluleke. — 10

4. The Adopt-a-Cop project was launched in 1997 with the aim of establishing and building a relationship of trust between the police and the youth. Maluleke was inspired to take the project to street children and shelters in inner-city Johannesburg and Hillbrow, getting them to adopt a cop. 'I became their friend and helped most of them get off the streets,' he reveals. Maluleke also involved children living in high-rise buildings in the inner city. — 15

5. A street children's soccer project, Inner City Ambassadors' Football Club, was later launched and has grown to 120 players. His players are forced to play in parks because of the lack of proper playing grounds, but Maluleke thinks they may soon have proper soccer fields. — 20

6. According to Maluleke, 'Creating a positive lifestyle at a tender age is more likely to influence children to live positively as adults. Officers must be role models and attract youngsters to the police force. Imagine if each police officer, or any other community member for that matter, can change the life of one youth for the better. We will be launching a silent war against drug lords and crime kingpins. If we can come together as businesses and communities, we will surely beat crime.' — 25

[Adapted from an article in *The Star*, 11 September 2009]

NOTE: All questions must be answered in your own words, unless you are asked for a quotation.

1.1 Explain the meaning of the following expressions as used in the passage:

    1.1.1   'no ordinary cop' (line 1)   (2)

    1.1.2   'launching a silent war against drug lords and crime kingpins' (lines 25 – 26)   (2)

1.2 Indicate whether the following statement is TRUE or FALSE. Quote ONE line from the text to support your answer.

    Captain John Maluleke's childhood dream was to become a policeman.   (2)

1.3 Has Captain Maluleke done well in his chosen career? Give a reason for your answer.   (2)

1.4 Refer to lines 9 – 10 ("Community police forums ... interested," says Maluleke').

    Suggest a reason why the young people were not really interested in community police forums.   (2)

1.5 Refer to paragraph 4 ('The Adopt-a-Cop ... inner city').

    What positive influence did the Adopt-a-Cop project have on street children in the city?   (2)

1.6 Refer to paragraph 5 ('A street children's ... proper soccer fields').

    1.6.1   In your opinion, why did Captain Maluleke launch the Inner City Ambassadors' Football Club?   (2)

    1.6.2   Why do the players of this club play in parks?   (1)

1.7 Refer to lines 22 – 23 ('Officers must be ... the police force').

    In your view, why is it important to attract young people to the police force?   (2)

1.8 Refer to lines 26 – 27 ('If we can ... surely beat crime').

    Do you agree with Captain Maluleke's view that communities and businesses must come together to fight crime? Give a reason for your answer.   (2)

1.9 Refer to lines 26 – 27.

    Give a synonym for the underlined word in the following sentence:

    'If we can come together as businesses and communities, we will surely beat crime.'   (1)
    [20]

SECTION A: COMPREHENSION

QUESTION 1

NOTE: Incorrect spelling and language errors should not be penalised, because the focus is on understanding.
Candidates are required to use their own words to answer questions, unless a quotation is asked for.

1.1   1.1.1   He is involved in other projects besides his job./He is not confined to routine duties./He goes beyond the call of duty./He is different to other cops/policemen.   (2)

    1.1.2   Fighting crime without using violence/force.
OR
Starting a fight against crime without using violence/force.
OR
Dealing with crime through other projects, e.g. youth support/ community involvement.   (2)

1.2   False. (1) 'Maluleke aspired to be a singer and stage actor.' (1)

    NOTE: Award a mark for the quotation only if the first part of the answer (False) is correct.
The quotation must be correct.
Do not penalise candidates for omitting the quotation marks.   (2)

1.3   Yes. (1) He is now a police captain./He has made a difference to the lives of children in Johannesburg, particularly street children. (1)

    NOTE: Award a mark for the reason/motivation only if the first part of the answer (Yes) is correct.   (2)

1.4   Young people did not trust the policemen.
OR
Young people did not like attending police meetings.
OR any other relevant answer.   (2)

1.5   The number of street children decreased.   (2)

1.6   1.6.1   To ensure that street children became involved in activities that would have a positive influence on their lifestyles./To get the street kids off the streets.   (2)

    1.6.2   There are no proper playing fields.   (1)

1.7   It will influence the youth to help fight crime and become part of the solution to the problem.
OR
There is a shortage of policemen and policewomen in South Africa.
OR
South Africa has a serious crime problem./South Africa has a high crime rate.   (2)

1.8   Open-ended. Accept a well-substantiated response, e.g.

    Yes. The police alone cannot solve the problem of crime./Crime is a community problem, not only a problem of the state.
OR
No. It is the responsibility/duty of the police to fight crime.

    NOTE: Do not award a mark for YES/NO only. Consider the answer as a whole and award a mark accordingly.
The motivation/reason must suit the initial YES/NO response.   (2)

1.9   defeat/overcome/reduce   (1)
    [20]

QUESTION 2

NOTE: Incorrect spelling and language errors should not be penalised, because the focus is on understanding.
Candidates are required to use their own words to answer questions, unless a quotation is asked for.

2.1   People do not have time to prepare home-cooked meals because of their busy schedules. (1)
Fast foods are tasty. (1)
Fast foods are fairly affordable. (1)
Fast foods are filling. (1)
There are many fast-food outlets. (1)

    NOTE: Accept any TWO of the above answers.   (2)

2.2   Unhealthy food/An unhealthy diet/Eating foods which are high in fats/Eating too little fresh fruit and vegetables. (1)
Less time is spent on physical activities. (1)
Lack of exercise. (1)
Stress. (1)

    NOTE: Accept any TWO of the above answers.   (2)

2.3   The writer wishes to show that poor eating habits are a global problem and not only a South African one.   (2)

2.2 CASE STUDY: PRESTIGE HOTELS LTD

You are provided with an extract from a newspaper article which is based on an actual case.

REQUIRED:

2.2.1 If you were a major shareholder in this company, what questions would you ask the managing director at the special meeting? Give TWO questions. (6)

2.2.2 What should the managing director say at the special meeting to defend the board's decisions about the budget? Briefly explain TWO points. (6)

INFORMATION:

PRESTIGE HOTELS LTD SLAMMED FOR INAPPROPRIATE DECISIONS
[*By Helen Brown, Daily Views, 24 Nov. 2007*]

The decision by Prestige Hotels Ltd to sponsor the Far East International Soccer tournament to the tune of R5 million at a time when the company is seeking extra loans and finance from investors has been criticised by some of the major shareholders and trade unions.

One of the major shareholders, Glyn Schroda, said this week that Prestige Hotels made an operating loss of R83 million during the 2006/2007 financial year and that the budget for the new year shows huge cash shortfalls. She said that the managing director, Brand Schoon, needed to be held accountable and would have to explain the actions of the board at a special meeting called by shareholders next week. Trade union representative, Vally Pradeep, also criticised the company for not looking after its employees.

Prestige Hotels Ltd is the main sponsor and owns hotels in South Africa and the Far East. They will be providing free accommodation for players for the Far East International Soccer tournament. Spectators will be required to pay for their own rooms.

'We are taking our strong South African brand to the rest of the world with this sponsorship; we are making our presence felt on the world stage,' said Schoon.

Siswe Mashala, chief accountant of the company, said Prestige Hotels had reduced its sponsorships from more than 40 to only five sporting events and had budgeted for 8% salary and wage increases.

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2.2 PRESTIGE HOTELS LIMITED

2.2.1 | **If you were a major shareholder in this company, what questions would you asked the managing director at the special meeting? Give TWO questions.**

Any two valid and separate questions
Response does not have to be in question form
Valid response = 3 Invalid response = 0

Examples of expected responses (does not have to be in question form):
③ How will this sponsorship benefit the company after a loss of R83m during the 2006/2007 financial year?
③ What are the reasons for the loss of R83m?
③ What are the reasons for retaining my shareholding in the company?
③ What plans and control measures does management have in place to prevent another loss?
③ What other plans does management have in place to decrease the operating loss / ensure a profit in future?
③ How can you approve a sponsorship if a loan was needed?
③ What response will be given to employees when only 8 % increase has been approved on their salaries?
③ Why has the number of sponsorship events decreased significantly? Are they focusing on high-profile events only? Will it affect their overall profile?

6

2.2.2 | **What should the managing director say at the special meeting to defend the board's decisions about the budget? Briefly explain TWO points.**

Any two valid and separate points
Excellent = 3   Good = 2   Satisfactory = 1   Incorrect = 0

Examples of expected responses:
③ In the long run the company and shareholders will benefit from increased profits when the marketing initiatives take effect.
③ The decrease in sponsorship – reasons for this and effect on company
③ Remuneration increases were given despite downturn in the economy – company's ability to sustain this
③ Addressing social responsibility – King Code
③ World wide exposure / publicity for the company – effect on future prospects
③ Sponsorship is tax-deductible – effect to be ascertained – cost vs benefit
③ Free accommodation will attract others to stay in the same hotel.

6

education
DEPARTMENT: EDUCATION
MPUMALANGA PROVINCE

Together Educating the Nation

QUESTION 3

MANUFACTURING (45 marks; 25 minutes)

3.1 PRODUCTION COST STATEMENT AND INVENTORY SYSTEMS

You are provided with information relating to Valley Bed Manufacturers for the financial year ended 29 February 2008.

The business produces beds, and sells these at a mark-up of 70% on cost. They use the perpetual (continuous) inventory system for finished goods and the periodic system for raw materials and indirect materials.

REQUIRED:

☐ Prepare the Production Cost Statement for the year ended 29 February 2008. (9)

☐ Provide workings for Direct Materials Costs and Factory Overhead Costs. (16)

INFORMATION:

1. The following **balances** appeared, amongst others, in the ledger at the beginning and end of the financial year.

	1 March 2007	29 February 2008
Raw materials stock	95 000	110 500
Work-in-process stock	71 500	191 600
Finished goods stock	480 000	96 200
Factory indirect materials stock	20 500	18 000

2. **Transactions during the year:**

☐ Raw materials purchased on credit, R521 000
☐ Cost of transporting raw materials to the factory, R29 500
☐ Factory indirect materials bought for cash, R77 500
☐ Wages paid to factory workers who make the beds, R300 800
☐ Salary paid to factory foreman (manager), R105 000
☐ Commission paid to sales staff, R90 000
☐ Maintenance of factory equipment paid, R37 000 (a further R11 000 is still owed)
☐ Water and electricity paid, R21 000 (this is to be split between the factory and the office in the ratio 4:1)
☐ Rent paid, R108 000 (this is to be split across the various departments according to floor area - the factory accounts for 800 square metres out of the total area of 1 200 square metres)
☐ Depreciation on factory equipment amounts to R60 500

QUESTION 3

3.1 VALLEY MATTRESS MANUFACTURERS

 # If = calculation below   @ Inspection
If DMC & FOHC calculations are on the face of the PCS, mark those and transfer marks to the section below.
If candidates do both, mark both and give benefit to candidate.

PRODUCTION COST STATEMENT FOR YEAR ENDED 29 FEBRUARY 2008	
Prime/Direct cost	835 800
Direct materials cost	535 000
Direct labour cost	300 800
Factory overhead costs	382 300
Total manufacturing costs	1 218 100
Work-in-process at the beginning of the year	71 500
	1 289 600
Work-in-process at the end of the year *Bracket not essential*	(191 600)
Cost of production of finished goods *WIP at end must be deducted*	1 098 000

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CALCULATION OF RAW MATERIALS COSTS	

Note: This is a calculation only – figures may be presented in a different format

Opening stock	95 000
Purchases	521 000
Carriage on purchases	29 500
	645 500
Closing stock	(110 500)
Raw materials issued to production	535 000

Brackets not essential
Inspection & only if at least one component correct

5

CALCULATION OF FACTORY OVERHEAD COSTS	

* Method mark if figure wrong but one part correct; -1 for R90 000 salesmen's commission

Factory indirect materials 20 500 + 77 500 - 18 000	80 000
Factory maintenance 37 000 + 11 000	48 000
Salary to factory foreman	105 000
Water & electricity 4/5 x 21 000	16 800
Factory rent 800 / 1200 x 108 000	72 000
Depreciation on factory equipment	60 500
	382 300

R18 000 must be - minus
R195 000 will be 1 - 1
Inspection & only if at least one component correct

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