learning channel

STUDY Mate

Department of Education

GRADES 8–11 ISSUE 6 AUGUST 2007

Learning activities for Grades 8–11

Education Minister Naledi Pandor

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INSIDE:
1 000 words to learn before you leave school

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Dear learner

It is never too late – or too early – to start preparing for your matric exam. So whether you are in Grade 8, 9, 10 or 11, this Study Mate will give you the opportunity to revise one or more of your subjects every week until October this year. We hope that you will find the lessons and test papers useful.

In this issue you will start off with a vocabulary exercise – one thousand words to learn by the time you leave school! These words have been carefully chosen by the Unisa English Department and if you follow the plan suggested in the lesson, you are sure to develop a wonderful vocabulary in the months and years to come.

This issue also contains Life Sciences, Physical Sciences and Mathematics lessons for those of you doing Maths and Science, and a Grade 10 Business Studies examination for some self-testing.

We will cover different subjects over the weeks that this project will be running, but you are sure to find something in each issue that will help you prepare for that very important moment in your school career – the matric exam. Grade 8s, you will be surprised at how quickly that moment will arrive!

We wish you all the best of luck and hope that your studies will not only be successful, but a little bit of fun as well!

ENGLISH VOCABULARY

With grateful acknowledgement to UNISA for the use of their English study materials.

1. New vocabulary

- Learning new words is hard work, involving both memory and understanding.
- Nobody can do it for you – we give guidance below, but the effort is up to you.

2. Which words should you learn?

That depends on which words you already know. UNISA English Department has compiled a list of 1 000 words you are most likely to need at university, no matter what your field of study is going to be. Begin with them. Add to them as you come across important new words in your reading.

3. How should you learn them?

You already know some of them. Use a dictionary to check that you actually do know what they mean and how to use them, and then tick them off.

You will need a special vocabulary book for the rest. Buy an A4 exercise book with 80 or 120 pages and rule three columns down all the pages, with headings as in the table below:

WORD	DEFINITION	USAGE
Abandon /dbænddn/	1. *v.* to leave a place, object or person permanently or for a long time; 2. *v.* to stop doing something before it is finished; 3. *n.* with abandon: in a wild or uncontrolled way.	1. A mother should not abandon her baby. 2. The search was abandoned when night fell. 3. After another glass of wine she danced with abandon.

You know a new word when you can define it and give an example of how to use it. You should also be able to look at the Definition column only and guess the word and give an example of its usage.

Now decide:

➢ In what order are you going to learn them? If you decide on alphabetical order, as they're listed, you'll be able to find words in your own book easily. On the other hand you may prefer to begin with words that seem most familiar. Or you might group words that are related in some way, for example:

- by meaning (e.g. words for writing style: clarity, distort, cogent, cumbersome, ...; words for movement; words for thinking; synonyms & antonyms; ...)
- by grammar & meaning (e.g. verbs to do with discussion: clarify, dispute, distort, challenge, confer, contradict, dictate, ...)
- by root (e.g. 'vert' meaning 'turn': revert, convert, divert, pervert, ...)

➢ How many new words are you going to learn a day? If you decide on five every weekday then you'll learn 125 new words a month. If there are four months before you write your exam, you'll know 500 new words by then. Is that enough? We think it's a good start.

ENGLISH VOCABULARY

➢ How are you going to memorize them? Memory works on revision. You need to revise new words later on the day you first learn them, again on the following day, again a week later and again a month later. All this has to be fitted in with adding five new words a day. You will need to plan it all like a military campaign.

4. What about a dictionary?

You need a good usage dictionary, in other words one that includes examples of how words are used. Most learners' dictionaries do this.

The introductory pages in your dictionary will give you a detailed guide to its features. Read this section carefully.

In the example in the table above we include pronunciation (including which syllable is stressed), part of speech, the most important different meanings, and examples of usage for each meaning. Your dictionary may also give you synonyms and antonyms, differences between American and British English, and information about style, for example if the word is slang or taboo or technical or archaic. Include whatever you think is important.

5. The importance of guessing

We have urged you to read a lot. Try to do it without stopping much to look up words in your dictionary. Rather guess the meaning of an unfamiliar word: use clues from its spelling or shape (what part of speech it is; what affixes it has); use clues from the meaning of the rest of the sentence. A quick, intelligent guess about a new word will register it in your mind. Next time you will recognize it. Soon you will know it. In the meantime you will have read many pages for general understanding instead of only a few for details. Many is better.

Here are prefixes to use in guessing the meaning of unfamiliar words. Learn them before you start on the university word list. Refer to them whenever you need to.

PREFIX	MEANING	EXAMPLES		
anti-	against	antiseptic	anticlimax	anticlockwise
auto-	of or by oneself	automatic	autobiography	
bi-	two; twice	bilingual	bilateral	bipartisan
ex-	former	ex-soldier	ex-Zimbabwean	
ex-	out of	expel	exhaust	export
micro-	small	microchip	microbe	microwave
mis-	badly/wrongly	mistake	misjudge	mislay
mono-	one/single	monochrome	monosyllabic	
multi-	many	multimedia	multilingual	
over-	too much	overcharge	overact	overdose
post-	after	postgraduate	postpone	posterity
pre-	before	prediction	preliminary	premonition
pro-	in favour of	proponent	pro-abortionist	
pseudo-	false	pseudo-scientific	pseudo-intellectual	
re-	again; back	re-election	re-tell	regain
semi-	half	semiconscious	semicircular	
sub-	under	subconscious	subhuman	submarine
un-/in-/im-	opposite; negative	unfair	infirm	impractical
ir-/dis-	opposite; negative	irresponsible	disloyal	
under-	not enough	undervalued	underdone	under-utilised

6 The Word List

A

abnormal	absorb	abstract	academic	accelerate	access
accompany	accomplish	accumulate	accurate	achieve	acid
acquire	adapt	adequate	adhere	adjacent	adjective
adjust	administer	adolescent	advocate	adult	aesthetic

ENGLISH VOCABULARY

affect	affiliate	affluence	aggregate	aggression	agitation
aid	alcohol	align	allege	allocate	allude
alley	alter	alternative	ambiguity	amorphous	analogy
analyse	angular	annual	anomaly	anonymous	anthropology
apparatus	appeal	append	appendix	appraise	appreciate
approach	appropriate	approximate	arbitrary	area	aristocrat
arithmetic	arouse	ascribe	aspect	aspiration	assemble
ascent	assert	assess	asset	assign	assimilate
assist	assume	assure	astronomy	atmosphere	atom
attach	attain	attitude	attribute	auspices	authorize
automatic	avail	averse	aware (-ness)	awe	axis

B

battery	benefit	biology	bulk	bureaucracy

C

capable	capture	carbon	catalogue	category	cater
cease	cell	challenge	channel	chemical	circuit
circulate	circumstance	civic	clarify	classic	client
code	coefficient	cogent	coincide	collapse	collide
colloquial	commit	commodity	commune	communicate	compel
compensate	competence	complement	complex	complicate	comply
component	compound	comprehend	comprise	compulsion	compute
conceive	concentrate	concentric	concept	condense	conduct
confer	configuration	confine	conflict	conform	confront
congress	conjunction	consent	consequent(-ce)	conserve	consist
console	constant	constitute	construct	construe	consume
contact	contaminate	contemplate	contend	context	contingent
continent	contract	contradict	contrary	contrast	contribute
controversy	convene	converge	converse	convert	cooperate
coordinate	corporate	correlate	correspond	credible	creditor
crisis	criterion	critic	crucial	crystal	cumbersome
currency	cycle	cylinder			

D

data	debate	decade	decimal	decline	dedicate
defect	defer	deficient	define	definite	deflect
degenerate	degrade	deliberate	democracy	demonstrate	denominator
denote	dense	deny	depress	deprive	derive
design	detect	detriment	deviate	devise	devote
diagram	diameter	dictate	diffuse	digest	dimension
discern	discourse	discrete	dispense	disperse	displace
dispose	dispute	dissipate	dissolve	distinct	distort
distribute	diverge	diverse	divine	doctrine	dominate
drain	drastic	duration	dynamic		

ENGLISH VOCABULARY

E

economy	edit	efficient	elaborate	electron	element
elevate	elicit	eliminate	eloquent	emancipate	embody
embrace	emerge	emotion	emphasize	empirical	enable
energy	enhance	enlighten	enrich	ensure	entity
enumerate	environment	episode	equate	equidistant	equilibrium
equipment	equivalent	err	establish	estimate	ethics
evaluate	evaporate	evident	eventual	evoke	evolve
exclude	execute	exert	exhaust	expand	expel
expert	explicit	exploit	exponent	export	expose
external	extract				

F

facilitate	faction	factor	fallacy	fare	fate
feasible	feature	federal	fertile	final	finance
finite	fluctuate	fluent	fluid	focus	forego
formulate	fossil	found	fraction	fragment	fraternal
fraud	friction	frontier	frustrate	fuel	fulfil
function	fundamental	fund	fuse		

G

generate	genuine	geography	geometry	germ	goal
grant	graph	gravity	guarantee		

H

harbour	hero	hemisphere	heredity	hierarchy	homogenous
horror	hostile	huge	hypothesis		

I

identical	identify	ignore	illuminate	illustrate	image
impact	imperial	implement	implicit	imply	import
impose	impress	impulse	incentive	incessant	incident
incline	income	incompatible	inconsistent	incorporate	index
indicate	indigenous	individual	induce	infer	inferior
inflation	ingenious	inherent	inhibit	initial	injure
innate	innovations	insist	inspect	instance	instinct
institute	instruct	integer	integrate	intellect	intelligent
intense	interact	interlock	interlude	intermediate	internal
interpret	interrelate	intersect	interval	interview	intervene
intimacy	intrinsic	intuitive	invade	inverse	invest
investigate	invoke	involve	irrigate	isolate	issue
item					

J

job	journal	judicial	justify

K

kindred

Department of Education

ENGLISH VOCABULARY

L

label	laboratory	labour	launch	layer	legal
legislate	legitimate	leisure	lens	liable	liberate
linguistic	litigate	locate	locomotion	logic	luxury

M

magic	magnetic	magnitude	major	maintain	manifest
manipulate	mature	material	maternal	mathematics	matrix
margin (-alised)	maximum	medium	mental	metabolism	metaphor
method	microscope	migrate	military	minimum	minor
mobile	modify	moist	molecule	momentum	monarch
morphology	motive	muscle	myth		

N

navy	negative	nerve	network	neutral	niche
norm	notate	notion	novel	nuclear	null
nutrient					

O

objective	oblige	obsolete	obtain	obvious	occupy
occur	odd	odour	option	orbit	orientate
oscillate	outcome	overlap	oxygen		

P

parenthesis	parliament	participate	partisan	passive	peasant
pendulum	period	perpendicular	perpetrate	perpetual	persist
perspective	pertinent	pervade	pest	phase	phenomena
philosophy	physical	planet	plead	plot	pole
policy	pollution	port	portion	positive	postulate
potential	pragmatic	precede	precipitate	precise	predict
preliminary	premise	preposition	prestige	presume	prevail
previous	prime	principle	priority	proceed	process
proclaim	procure	prohibit	project	propagate	propensity
proportion	proprietor	prosper	protest	province	provoke
prudence	psychology	publish	purport	pursue	

Q

quote

R

radical	radius	random	range	ratio	rational
react	rebel	rectangle	recur	reform	refute
region	reign	reinforce	reject	release	relevance
reluctant	rely (-able)	remove	render	repress	reproduce
repudiate	require	research	reservoir	resident	residue
resource	respective	respond	restore	restrict	retain
retard	reveal	reverberate	reverse	revise	revive
revolt	revolve	rhythm	rigid	rigour	role
rotate	route	rudimentary			

ENGLISH VOCABULARY

S

saint	sanction	satellite	saturate	scalar (-e)	schedule
scheme	score	secrete	section	secure	seek
segment	select	sequence	series	shift	shrink
sibling	signify	site	similar	simultaneous	skeleton
sketch	sociology	solar	sophisticated	source	spatial
species	specify	spectrum	speculate	sphere	spontaneous
stable	starve	stationary	statistic	status	stereotype
stimulate	stipulate	strata	structure	style	subdivide
subjective	subordinate	subsequent	subside	subsidize	subtle
suffice	sum	summary	superficial	superimpose	superior
supplement	suppress	supreme	surplus	survey	suspend
sustain	switch	symbol	symptom	synthetic	

T

tangent	tangible	tape	task	team	technique
technology	telescope	temporary	tense	tentative	terminology
territory	terror	text	texture	theft	theorem
theory	thermal	tiny	tissue	tolerate	tone
topic	trace	tractor	tradition	traffic	trait
transact	transfer	transform	transition	transmit	transparent
transport	treaty	trend	triangle	trivial	tropical
tyre					

U

ultimate	undergo	underlie	undertake	unduly	uniform
upsurge	urban	usage	utilize	utter	

V

vague	valid	vary	vast	vein	velocity
verbal	verify	version	vibrate	violate	visual
vital	vocabulary	volt	volume	voluntary	

W

withdraw

X

x-ray

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IMPACT OF HUMANS ON THE ENVIRONMENT

Introduction

In Grade 10 you learned that we create the environment in which we can live. We need air, water, food and a warm, protected place to sleep. All living organisms rely on the sun, air, soil and water to stay alive. The biotic and abiotic factors in an environment are necessary to ensure their survival. Humans disturb the balance and affect all the systems. We are going to look at the impact and influence of humans on the environment.

Natural distribution

Abiotic factors like sun, air, soil fertility and water are distributed differently over the earth. Climate affects all these factors. The temperature, rainfall and soil conditions determine where plants and animals are found.

Humans move to areas where it is easy to survive, so they look for a place to find and grow food and also where there are natural resources. Hence towns and cities develop. Humans take what they need and their wastes are disposed and impact on the environment.

Exploitation of the environment

The human population is increasing rapidly. Our resources are being used and not given a chance to be replenished. Humans exploit the environment:

- Rapid increases in populations cause environmental resistance
- Population increase problems:
  - Deforestation – loss of habitats for plants and animals resulting in extinction
  - Soil erosion results because people cut down trees and plants
  - Urbanization results in pollution of air, water and soil
  - Demands on water and mineral resources
  - Increased food production to feed all the people means that we must use monocultures (planting one type of crop as mass production)
  - Increased diseases result as we abuse the environment

Soil pollution

Fertile soil supports the roots of plants and supplies the nutrients needed for healthy growth. Plants in turn provide us with food, fuel, timber and medicines. Plants also protect the soil against erosion and water loss, and forests increase rainfall.

Animals need plants for food. They in turn provide us with skins, trophies and income as tourist attractions. Remember the food pyramids that you did in Grade 8? Each layer is important. The decomposers ensure that all dead organisms are decomposed and that the nutrients are returned to the earth. The producers (plants) provide food for the herbivores; the herbivores are food for the carnivores, and so on. When this food pyramid is affected and organisms are removed, it impacts on all the trophic levels and their survival.

Factors affecting soil

- Deforestation:
  - Forests are cleared to make place for homes or fields to grow food. The natural habitat of plants and animals is removed.
  - Immigration: when animals move from an area because of human intervention, causing imbalances and extinction.
  - Rainfall and water cycle affected.
- Farming:
  - Monocultures are grown to meet the need for food, resulting in a natural balance in food chains. Pests and parasites increase, which means an increase in the use of pesticides.
  - Farmers must ensure crop rotation to prevent infertility of the soil, but this is often not the case so soil becomes infertile and soil erosion results.
  - Livestock are allowed to overgraze due to lack of available food. This causes a decrease in the carrying capacity of the area. Environmental resistance results and animals starve.
- Soil erosion:
  - Plant roots bind the soil and keep it from washing away.
  - Animals eat vegetation and trample soil when areas are overgrazed.
  - Veld fires destroy vegetation.
  - Eroded soil is washed into rivers, causing them to silt up. Floods result as there is no natural way for the water to flow.
  - Carrying capacity on the environment is reduced because of environmental resistance.

LIFE SCIENCES GRADE 11 LESSON NOTES

- Fertilizers:
  - Fertilizers are used to increases crop yields.
  - Nitrates in fertilizers dissolve and are washed away by rainwater. This is called leaching and creates imbalances in rivers, lakes and dams killing fish and water life.
- Mining:
  - Humans mine for coal, oil, natural gas and minerals. As the population increases, so the demand increases.
  - Fossilization to produce the coal, oil and gas takes a long time, so we need to conserve our resources and use them sparingly.
- Plastics:
  - Useful but non-biodegradable, making plastics hard to dispose of, so it results in litter.
  - Toxic fumes are released when plastic is burned.
- Chemical wastes:
  - Factories – tons of toxic waste are produced annually.
  - Chemical waste must be disposed of and is often dumped in illegal areas.
  - Government legislation has been passed to regulate the dumping of toxic waste. Wastes should be buried in leak-proof containers in specially designed sites. This is often expensive so the legislation is ignored, resulting in leaks and poisoning of the soil and the environment.

When procedures are ignored

- Toxic, non-biodegradable chemicals leak and contamination occurs.
- Micro-organisms die, soil pH is changed, soil fertility ruined.
- Bioaccumulation: Non-biodegradable chemicals may accumulate in plant and animal tissue and cause death.
  - Plants absorb chemicals → eaten by animals/people
  - Chemicals washed into the water table → seas/oceans affecting aquatic plant and animals
- Biomagnification: toxins are magnified as they pass through the food web in the environment.

Water pollution

- Industrial wastes: Waste products are pumped into water. Industrial waste like cyanides, lead, copper and zinc are poisonous and non-biodegradable. The poison collects in the body and is toxic at high levels of concentration. This toxin spreads through the food chain. This accumulation affects food webs and therefore all the systems. Warm water changes water temperatures and causes thermal pollution, causing plants and water animals to die, causing excessive eutrophication by bacteria.
- Sewage: Raw sewage is pumped into water causing diseases like cholera, typhoid and poliomyelitis. Sewage is broken down by saprophytic bacteria, which grow exponentially out of proportion and use up the oxygen in the water.
- Oil spills: Oil tankers leak into the ocean. Oil is poisonous to sea organisms and pollutes beaches causing death of sea urchins, catfish, oysters, mussels etc. Birds and penguins become covered with oil, which they try to clean off. They ingest the oil, resulting in death.

Air pollution

- Air and pollution: The burning of fossil fuels releases carbon and sulphur dioxide into the atmosphere. Sulphur dioxide causes bronchitis, asthma, lung cancer. Sulphur dioxide oxidises to form sulphur trioxide. This results in acid rain when mixed with water vapour. Acid rain changes the pH of the soil burning the roots. It also burns the leaves.
- Carbon soot: Industrial sites release carbon soot, which collects on the leaves allowing too little light for photosynthesis. The stomata get blocked so the plants cannot breathe resulting in death.
- Exhaust fumes: Exhaust fumes contain carbon monoxide. Haemoglobin has an affinity for (likes) carbon monoxide, resulting in oxygen starvation of the cells as the haemoglobin carries carbon monoxide instead of oxygen. This results in tissue, lung and brain damage.

Nuclear pollution

- Radiation: Radioactive substances leak from the reactors used in nuclear plants. This is termed nuclear fall-out. Ionising radiation like alpha, beta and gamma radiation results, which causes damage to DNA, resulting in birth deformities, cancer and death, e.g: Chernobyl (Russia).

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Activities

Activity 1

Effects of human population on the environment

Study the table below and answer the questions that follow:

Population size over time

Time (years)	1940	1950	1960	1970	1980	1990	2000
Population size (millions)	1.5	1.8	2.2	3.1	3.7	4.4	5.5

1. Draw a graph showing the results of the table above.
2. What was the population size in 1945?
3. Do you think there will be an increase or decrease in the population size in 2010?
4. List one factor that needs to be considered to avoid over population.
5. What methods would you employ to avoid over population?

Activity 2

Human influence on the environment
Research and write a 1–2 page report or essay on one of the following topics:

- Deforestation
- Use of insecticides/ pesticides
- Culling of animals

Activity 3

Sustaining our environment
Draw a poster by choosing one of the topics below to make people aware of how we can improve and sustain our environment.

- Forestation
- Rehabilitation of soil
- Waste management
- Oil spills
- Factory emission

Summative assessment: environment

1. Differentiate between biotic and abiotic factors.

   Give TWO examples of each. (6)

2. Study the following food chain: grass → insect → frog → bird

   (a) What will happen to the food chain if the frog population is removed? (4)

   (b) If an insecticide is sprayed on the grass and has a harmful effect on the growth of the grass, explain what will happen to the food chain shown? (4)

3. The following table shows the results obtained by a scientist on the resistance of mosquito larvae to an insecticide (DDT).

Solution number	Percent DDT	Sample A mortality rate %	Sample B mortality rate %	Sample C mortality rate %
1	0,00	0	0	0
2	0,25	4	17	24
3	0,50	7	34	47
4	1,00	12	68	87
5	2,00	24	84	100
6	3,50	36	85	100

   Using the above data from the table, draw graphs on the same axes to illustrate the scientist's experimental results. (8)

4. Write an essay on the causes and effects of acid rain on humans and other organisms. (8)

Total: 30

LIFE SCIENCES GRADE 11 LESSON NOTES

Answers and assessment

Memorandum

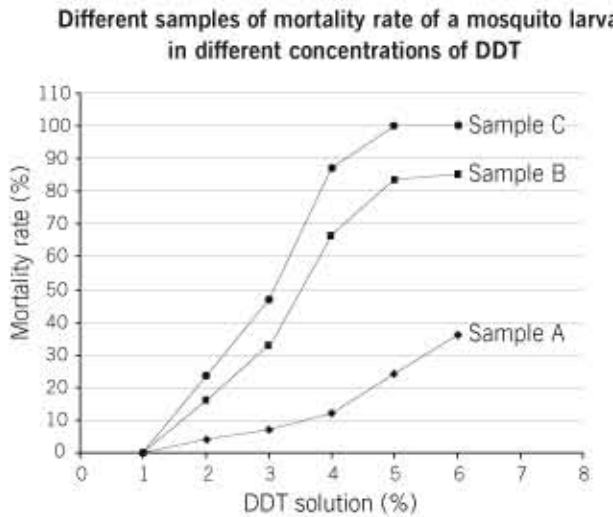
1. Biotic – living factors ✓ e.g. Any plant ✓ , any animal ✓ (3

   Abiotic – non-living factors ✓ e.g. Soil ✓,water ✓,air, wind, light, rainfall (any 2)(3

2. (a) If the frog is removed the trophic level preceding the frog, i.e. the insect will increase ✓ therefore eating all the grass ✓ which will reduce tremendously. The bird population will die off ✓ as there is no food available. The food chain will be destroyed ✓. (4

   (b) Grass will definitely decrease ✓ its population size, which in turn would decrease each level of consumer ✓ as there is not enough food ✓. The food chain will be destroyed ✓. (4

3.



2 marks for heading	= 2
1 mark each for scale on X and Y	= 2
2 marks each for labels on X and Y	= 4
1 mark each for unit in label X and Y	= 2
1 mark each for each line graph	= 3
Total	= 13

4. CAUSES
   - Nitrogen oxides and sulfur dioxides are primary causes. ✓
   - Burning fossil fuels, such as coal contributes to the above gases ✓
   - Winds can carry these gases far and wide ✓
   - These oxides react with water, oxygen and other chemicals to form acidic compounds ✓

   EFFECTS
   - Damage to forests, soil and animals ✓
   - Damage to materials and buildings ✓ which are hazardous to health ✓
   - Cause poor visibility ✓ (8

USEFUL TIPS

- This section lends itself to research, data collection and debates. Draw up a table of the main causes, effects and possible solutions to major environmental issues or types of pollution. It will then represent a summary of this section.

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TRIGONOMETRIC FUNCTIONS

Lesson overview

- In this lesson you will look at angles bigger than 90° and smaller than zero.
- Define the **sine**, **cosine** and **tan ratios** in terms of the coordinates and the radius.
- Establish the sign of the three trigonometric ratios.
- Use Pythagoras' theorem to find the values of the three different ratios.

Lesson

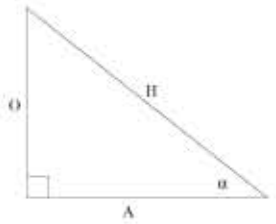
Prior knowledge

In Grade 10 we learnt:

$\sin\alpha = \frac{O}{H}$ (O: angle, H: ratio)

$\cos\alpha = \frac{A}{H}$

$\tan\alpha = \frac{O}{A}$



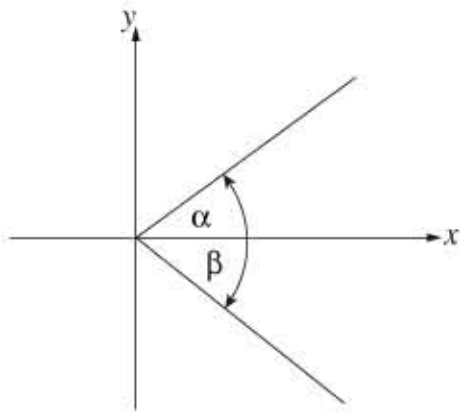
Bigger and smaller angles

If an angle is measured anti-clockwise it is positive.

If an angle is measured clockwise it is negative.

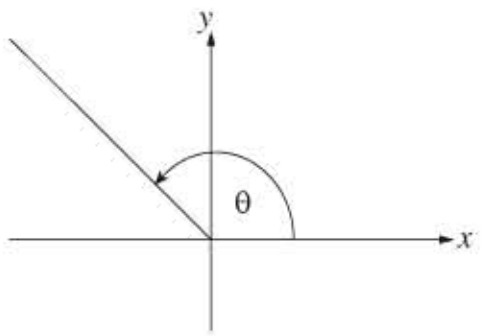
so $\alpha = 30°$
or $\alpha = 390°$
or $\alpha = -330°$
or $\alpha = -690°$

If $\beta = -40°$ or $\beta = 320°$ or $\beta = 680°$
we call these co-terminal angles.



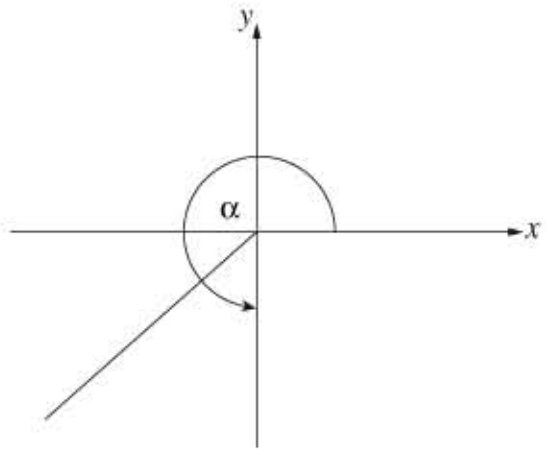
θ is in the second quadrant

If $\theta = 120°$ it could be
$\theta = -240°$
or $\theta = 480°$



MATHEMATICS GRADE 11 LESSON NOTES

If $\alpha = 200°$ it could be
$\alpha = -160°$
or $\alpha = 560°$



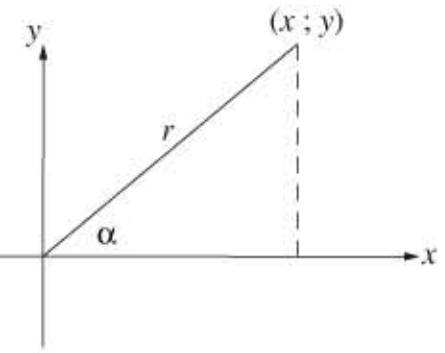
In which quadrant do you find:

1.	300°	4th	2.	(-150°)	3rd
3.	472°	2nd	4.	884°	2nd
5.	1 740	4th	6.	(–1 010)	1st

Now we will put the triangle into the Cartesian plane.

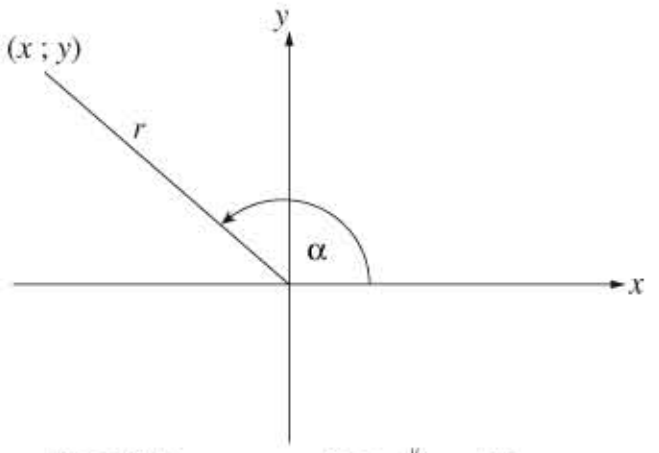
The angles are in the first quadrant

$\sin\alpha = \frac{y}{r}$
$\cos\alpha = \frac{x}{r}$
$\tan\alpha = \frac{y}{x}$



x is positive, y is positive, r is positive

In the 1st quadrant, all ratios are positive.



x is negative	$\sin\alpha = \frac{y}{r}$	+ve
y is positive	$\cos\alpha = \frac{x}{r}$	–ve
r is always positive	$\tan\alpha = \frac{y}{x}$	–ve

In the 2nd quadrant, $\sin\alpha$ is positive but $\cos\alpha$ and $\tan\alpha$ are negative.

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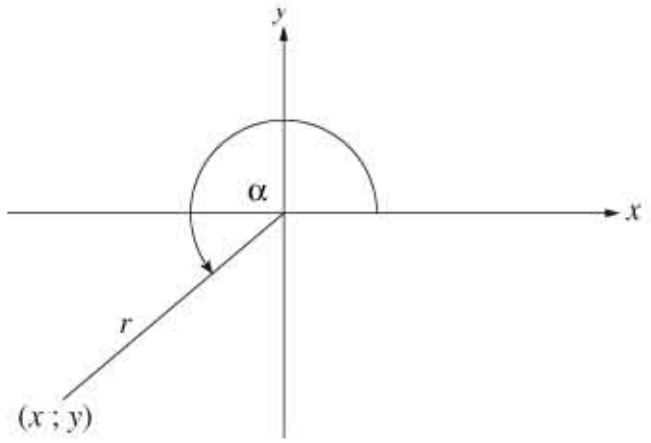
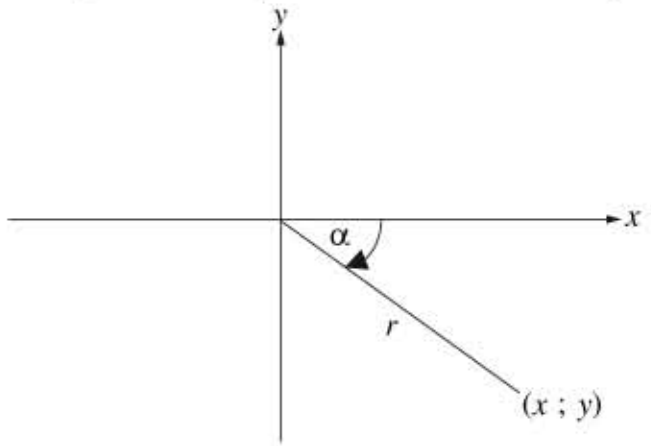


x is –ve	$\sin\alpha = \frac{y}{r}$	–ve
y is –ve	$\cos\alpha = \frac{x}{r}$	–ve
r is +ve	$\tan\alpha = \frac{y}{x}$	+ve

In the 3rd quadrant tan α is positive but sin α and cos α are negative.

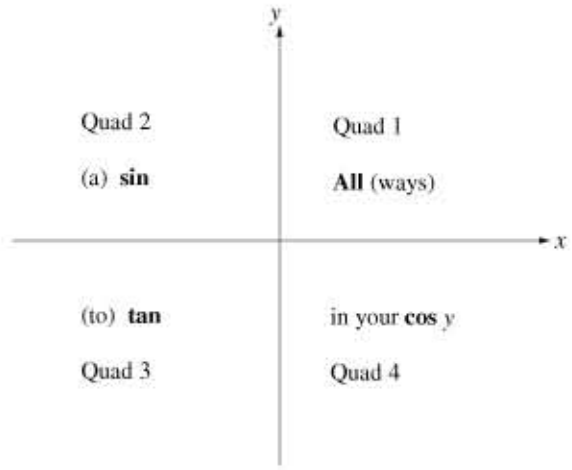


x is +ve	$\sin\alpha = \frac{y}{r}$	–ve
y is –ve	$\cos\alpha = \frac{x}{r}$	–ve
r is +ve	$\tan\alpha = \frac{y}{x}$	+ve

In the 4th quadrant cos α is positive but sin α and tan α are negative.

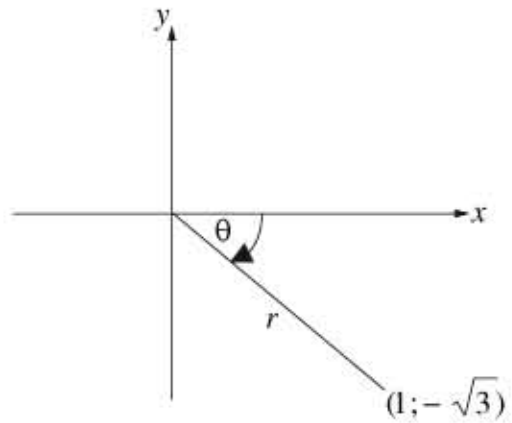
MATHEMATICS GRADE 11 LESSON NOTES

To summarise



Example 1

Calculate the value of sin θ, cos θ and tan θ if the terminal ray of θ is in standard position passes through $(1; -\sqrt{3})$

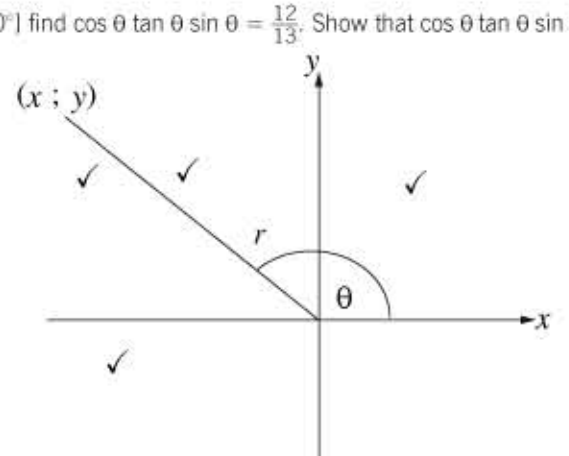


By Pythagoras: $x^2 + y^2 = r^2$

$r^2 = 1 + (-\sqrt{3})^2$	$\sin\theta = \frac{-\sqrt{3}}{2}$
$r^2 = 1 + 3$	$\cos\theta = \frac{1}{2}$
$r^2 = 4$	$\tan\theta = -\sqrt{3}$
$r = 2$	

Example 2

If $13\sin\theta = 12$ and $\theta \in [90° ; 270°]$ find $\cos\theta\tan\theta\sin\theta = \frac{12}{13}$. Show that $\cos\theta\tan\theta\sin\theta = \frac{13}{13}$



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$x = -\quad y = +\quad r = +$ By Pythagoras

$y = 12 \quad r = 13$

$x^2 = r^2 - y^2$

$x^2 = 169 - 144$

$x^2 = 25$

$x = \pm 5$

$x = -5y = 12r = 13$

$\cos\theta \,.\, \tan\theta = \left(-\frac{5}{13}\right)\cdot\left(-\frac{12}{5}\right) = \frac{12}{13}$

Example 3

If $4\tan\theta = 3$ and $\cos\theta < 0$ find $2\sin\theta - \cos\theta$

Step 1 : $\tan\theta = \frac{3}{4}$ Tick and draw in the sketch.

Tick tan positive in quads 1 and 3 where tan is positive and cos is negative.

Tick $\cos\theta < 0$

$x = -4 \quad y = -3 \quad r = +ve$

$r^2 = x^2 + y^2$

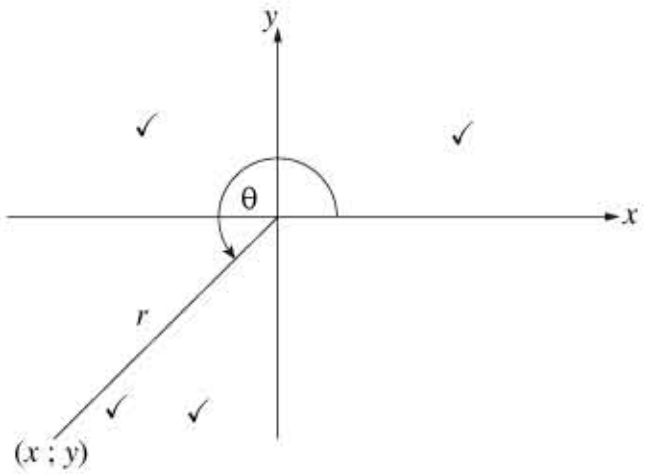
$r^2 = 25$

$r = +5 \quad x = -4 \quad y = -3$

$2\sin\theta - \cos\theta = 2\left(\frac{-3}{5}\right) - \left(\frac{-4}{5}\right)$

$= \frac{-6}{5} + \frac{4}{5}$

$= \frac{-2}{5}$



Activities

1. In which quadrant is :
   a) $\tan\theta$ –ve and $\sin\theta$ +ve
   b) $\cos\theta$ –ve and $\sin\theta$ +ve
   c) $\cos\theta$ –ve and $\tan\theta$ –ve
   d) $\sin\theta$ –ve and $\cos\theta$ –ve
   e) $\tan\theta$ +ve and $\cos\theta$ +ve
   f) $\tan\theta$ +ve and $\sin\theta$ –ve
2. If P(–3 ; 1) is a point in the Cartesian plane and $X\hat{O}P = \theta$. Find
   a) $\sin\theta + \cos\theta$
   b) $1 + \tan^2\theta$
   c) $\sin^2\theta + \cos^2\theta$
   (If necessary leave your answer in surd form)
3. If $12\tan\theta = -5$ find the value of (a) $\sin\theta$ (b) $\cos\theta$
4. If $10\cos x + 6 = 0$ and $\sin x < 0$, find $\sin x - \tan x$

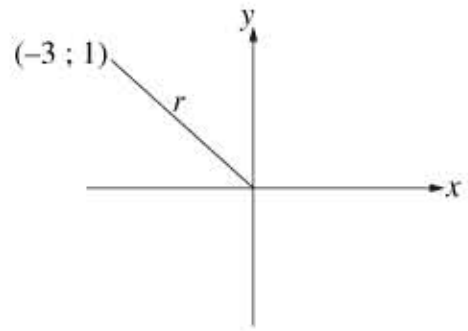
MATHEMATICS GRADE 11 LESSON NOTES

Answers and assessment

1. (a) 2nd
   (b) 2nd
   (c) 2nd
   (d) 3rd
   (e) 1st
   (f) 3rd

2. $x = -3 \quad y = 1 \quad r^2 = 10$

   $r = \sqrt{10}$

   (a) $\frac{1}{\sqrt{10}} - \frac{3}{\sqrt{10}} = -\frac{2}{\sqrt{10}}$

   (b) $1 + \left(\frac{1}{\sqrt{10}}\right)^2 = 1 + \frac{1}{10} = \frac{11}{10}$

   (c) $\sin^2\theta + \cos^2\theta$

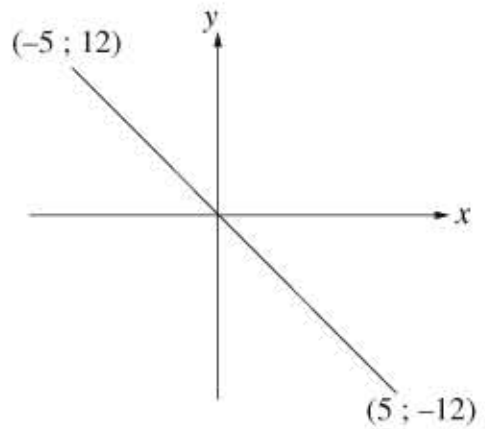
   $= \left(\frac{1}{\sqrt{10}}\right)^2 + \left(\frac{-3}{\sqrt{10}}\right)^2 = 1$

3. $\tan\theta = -\frac{5}{12}$ $r^2 = 25 + 144$

   $r = 13$

   a) $\sin\theta = \pm\frac{12}{13}$

   b) $\cos\theta = \pm\frac{5}{13}$

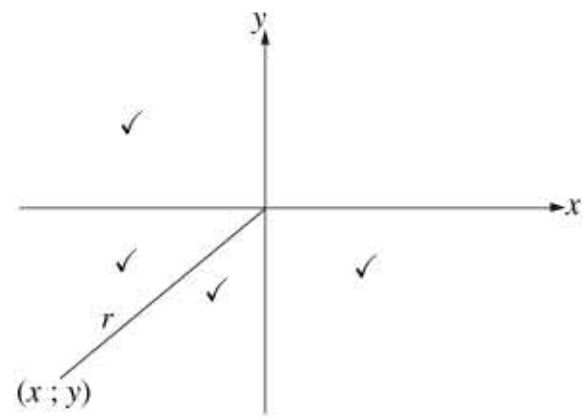
4. $\cos x = -\frac{6}{10}\ \cos x = -\frac{3}{5}$

   $X = -3 \quad r = 5 \quad y = -4$

   $\sin x - \tan x = -\frac{4}{5} - \frac{4}{3}$

   $= \frac{-12 - 20}{15}$

   $= \frac{-32}{15}$

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Issue 6 AUGUST 2007

BUSINESS STUDIES GRADE 10 EXAMINATION PAPER

INSTRUCTIONS AND INFORMATION

QUESTION 1 (24 minutes)

1.1 Various possible options are provided as answers to the following questions. Choose the correct answer and write only the letter (A - D) next to the question number (1.1.1 - 1.1.5) in the answer book, for example 1.1.0 B.

1.1.1 Organisation and management is part of the ... environment.
- A. macro
- B. micro
- C. market
- D. tertiary

1.1.2 Which ONE of the following describes a comprehensive overview of the proposed business unit in terms of its operations, marketing and financing?
- A. SWOT analysis
- B. Marketing plan
- C. Market research plan
- D. Business plan

1.1.3 Trying to put a product on the market that is better than those of the competitors is a good example of ...
- A. problem-solving.
- B. micro-environment.
- C. creative thinking.
- D. macro-environment.

1.1.4 Purchasing of raw materials, as inputs into the final product, is done for the ... market.
- A. retail
- B. manufacturing
- C. buyers
- D. consumers

1.1.5 Which ONE of the following best describes self-management?
- A. Setting goals, identifying careers and managing time
- B. Influencing international trends, for example exchange rates
- C. Control of the suppliers
- D. Global competitiveness

(5 x 3)(15)

1.2 Indicate whether the following statements are TRUE or FALSE. Write only 'true' or 'false' next to the question number (1.2.1 - 1.2.5). If the statement is FALSE, change only the underlined word to make it TRUE.

1.2.1 Unemployment is positively affected by unskilled labour in a country.

1.2.2 Industries that employ a large number of workers are generally referred to as capital intensive undertakings.

1.2.3 The success of any team depends on the individuals who make up the team.

1.2.4 The financial function is responsible for creating a favourable image of the business enterprise.

1.2.5 Joreshmi is 16 years old and she bought a CD player for R9 000 on credit without her parents' knowledge and this is regarded as a legal contract. (5 x 3)(15)

1.3 Fill in the missing word(s) in the sentences below. Choose the correct word(s) from the list below. Write only the correct word(s) next to the question number (1.3.1 - 1.3.5).

working; raw materials; private; adaptability; public; stagnation; fixed; information

1.3.1 South Africa's macro-environment is rich in ... such as platinum, gold, iron ore, coal, et cetera, which are exported to earn foreign exchange.

1.3.2 A graph is a good way of showing ... quickly and in a way that will make the greatest impact on a business.

1.3.3 ... is the ability of the entrepreneur to recognise, manage and respond positively to a changing business environment.

1.3.4 ... capital is used to keep the business running from day to day.

1.3.5 A spaza shop, operated by Bengu and Sons in Thembisa township, is an example of a ... enterprise. (5 x 2)(10)

TOTAL SECTION A: 40

SECTION B (COMPULSORY)

This section consists of three independent questions covering all learning outcomes. Answer ALL THREE questions.

QUESTION 2 (36 minutes)

2.1 List FIVE components of the micro business environment. (10)

2.2 Read the case study below and answer the questions that follow:

> THANDI'S BUSINESS VENTURE
>
> Thandi is an experienced housekeeper and played an active role in her employer's business.
>
> Her employer used Thandi's help to sell curios made from a wide range of materials from the environment to local shops. Thandi was recently informed that the curio business had been sold to a new owner.
>
> Thandi will either have to find a new job or start her own business. She realises that she possesses hands-on experience of the curio business. She thinks of manufacturing greeting cards as well as other products such as writing paper, postcards and albums on request for customers at competitive prices.
>
> She's done research on the possibility of making use of environmental material to produce attractive paper products with a South African flavour for tourists. She will make use of a range of natural resources such as natural paper, grass, wood chips and elephant and rhino dung to manufacture these products, which are very popular as gifts bought by tourists.
>
> Thandi approaches the Small Business Development Corporation for financial assistance. They request a comprehensive business plan from her for the intended factory and design studio in Mpumalanga near the Kruger National Park.
>
> Thandi plans to leave brochures of her business at all tourist destinations.

2.2.1 Thandi approaches you as a business consultant, to assist her in the decision to start her new business. You advise her that market research must be conducted before finally making the decision.
What information will Thandi need to start her business? (8)

2.2.2 Design a market research questionnaire that can be used by Thandi to collect information on the setting up of her new business.
Design FIVE questions that can be used in the questionnaire. (10)

2.2.3 Identify the components of Thandi's marketing mix by using examples. (8)

2.2.4 Conduct a SWOT analysis for this new business venture. (16)

2.2.5 Briefly describe the most important components of Thandi's business plan. (8)[60]

QUESTION 3 (36 minutes)

Read the following quotes and answer the questions that follow:

> For company success, time is a valuable and limited resource – in fact, for them time is money.'

3.1 You are the manager of this company. Indicate how you would make the best use of time to ensure the long-term success of the company. (10)

> Successful people have the uncanny ability to harness all aspects of their personality, paradoxical as they may seem; the positive and the negative, the bold and the cautious, the grandiose and the humble. Within the ability to employ our conflicting traits lies immense personal power.

3.2 In the light of the above statement discuss the most important self-management characteristics of highly successful entrepreneurs. (10)

3.3 Match ONE example of business objectives from COLUMN B with a characteristic in COLUMN A.

Column A Characteristics Of Business Objectives	Column B Business Objectives In Practice
S = Specific M = Measurable A = Action R = Realistic T = Time management	A. good customer relations B. profits at the end of the current financial year C. weekly, monthly report on sales to evaluate progress D. sponsoring the local school hockey team E. increase profits, sales or turnover by 10% F. top management has decided that increasing sales by 10% is a realistic objective G. vigorous advertising in the newspaper and other media

(15)

learning channel

3.4 Read the case study below and answer the questions that follow:

> M & C General Store is Facing Problems!!
>
> M & C General Store, which sells groceries, experienced a problem with one of the canned food products in the shop. Mrs Thulule purchased the canned food product and experienced severe illness after consuming it. After a visit to the doctor it was confirmed that she had food poisoning. Mr Smith purchased the same product a day later and experienced the same problem. The conclusion was that the canned food product seemed to be the problem.
>
> This matter reached the local newspaper and the complainants issued a statement to the effect that the product was purchased from M & C General Store. The medical doctor also confirmed that he had treated Thulule and Smith for food poisoning.
>
> This eventually lead to a decrease in the customers and sales. M & C General Store got worried about the negative publicity and decrease in customers' trust. They had to solve the problem.

3.4.1 Assume that you are the owner of M & C General Store. Identify the problem that is being experienced by the store. (3)

3.4.2 You, as the owner of M & C General Store, have to solve the problem. Discuss SIX logical steps that you will follow to solve the problem. (12)

3.5 Explain FIVE criteria for successful and collaborative team performance in a business. (10)[60]

QUESTION 4 (36 minutes)

4.1 Discuss any FIVE business functions. (20)

4.2 Use the following information and answer the questions that follow:

KZN Manufacturers produces T-shirts for school pupils. The following information was extracted from their accounting records for the year ended 31 December 2005:

Stock of raw material 1 January 2005	R45 000
Purchase of raw material	R100 000
Stock of raw material 31 December 2005	R15 000
Direct labour costs	R80 000
Overhead expenses:	
Depreciation	R15 000
Water and electricity	R25 000
Insurance	R10 000
Indirect labour costs	R20 000

4.2.1 Calculate the total cost of production. (10)

4.2.2 Calculate the cost of the production of ONE T-shirt.
(NOTE: 1 000 T-shirts were manufactured.) (4)

4.2.3 Calculate the selling price of ONE T-shirt if the business uses a 50% mark-up on the cost price. (6)

4.3 Different management departments need different information.
Use the following information and classify it according to the correct business function of the enterprise:
EXAMPLE: Information on debtors and creditors
ANSWER: Financial function

4.3.1 The image of the company

4.3.2 Sales figures

4.3.3 Competitors and consumers

4.3.4 Suppliers

4.3.5 Use of people and machinery (5 x 2)(10)

4.4 Classify the following sources of capital as OWN CAPITAL or BORROWED CAPITAL:

4.4.1 Bank overdraft

4.4.2 Long-term mortgage bond

4.4.3 Sale of shares

4.4.4 Short-term loans from a commercial bank

4.4.5 Sales of debentures (5 x 2)(10)
[60]

TOTAL SECTION B: 180

SECTION C

Answer any TWO questions from this section.

NOTE: Credit will be given for an introduction, body, including headings, sub-headings, and a conclusion.

QUESTION 5 (24 minutes)

Read the following scenario and answer the question that follows:

> Mr Johannes Vermaak is a maize farmer in the Free State. He produces and sells his maize to Burgers Flour Milling. Burgers Flour Milling sells its final product to all the bakeries in the Free State.

Identify the sector in which Johannes Vermaak operates. Compare this sector with the other kinds of enterprises and discuss the salient characteristics of each, using suitable examples. Johannes Vermaak's business cannot exist in isolation, he must also interact with, amongst others, the market environment. Identify the components of this environment and discuss this interaction process using examples. [40]

QUESTION 6 (24 minutes)

Read the following scenario and answer the question that follows:

> Sandy Mkhwanazi intends opening a small factory manufacturing ladies' garments in the Western Cape. She consults you to advise her on the suitability of the location of her factory.

You are required to give a detailed outline of ALL the factors that you will consider when advising Sandy on the location of the factory to ensure a successful setting for the factory. [40]

QUESTION 7 (24 minutes)

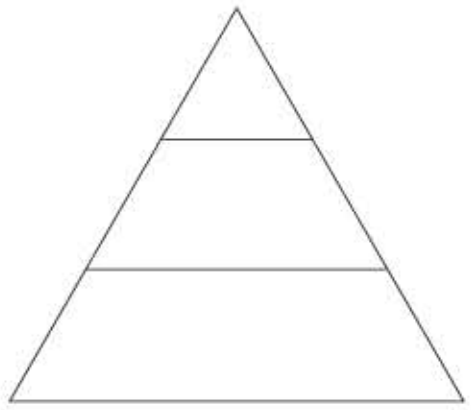
Read the following scenario and answer the question that follows:

> **Unleash Creativity in your Business!**
>
> Make your organisation work better by encouraging creativity amongst everyone in the business.
>
> Establish an environment which allows staff to be more involved in choosing the tasks that they will be undertaking or at least how they will fulfil them. A staff member will become more creative when he/she takes ownership of the task. It is vital that no ideas are crushed!
>
> Leading entrepreneurs will never say NO to an idea. They will encourage and grow ideas to suit the business.
>
> Make time for creative thinking. Often ideas will build off one another and your best ideas will come from brainstorming, meetings, et cetera.
>
> [From: *Succeed*, June 2006]

In the light of the above scenario explain the term creativity and illustrate why it is important for an entrepreneur to encourage creativity in the business environment. You are also required to elaborate on the characteristics of a creative business environment. [40]

QUESTION 8 (24 minutes)

The following hierarchy represents the different levels of management:



Identify the THREE levels of management and discuss the types of decisions that are formulated at each level. Make use of examples to illustrate the types of decisions described in your discussion. You are also required to make reference to the FOUR basic management tasks. [40]

TOTAL SECTION C:
GRAND TOTAL: 80
300

Department of Education

SECTION A

QUESTION 1

QUESTION 1.1

1.1.1 B
1.1.2 D
1.1.3 C
1.1.4 B
1.1.5 A 5 x 3 = (15)

QUESTION 1.2

1.2.1 FALSE - NEGATIVELY
1.2.2 FALSE – LABOUR
1.2.3 TRUE
1.2.4 FALSE – PUBLIC RELATIONS
1.2.5 FALSE – 21 5 x 3 = (15)

QUESTION 1.3

1.3.1 (B) Natural Resources
1.3.2 (H) Information
1.3.3 (D) Adaptability
1.3.4 (A) Working
1.3.5 (C) Private 5 x 2 = (10)
[40]

SECTION B

QUESTION 2

2.1 List five (5) components of the micro business environment.
1. Vision
2. Mission
3. Objectives
4. Resources
5. Management functions or business functions.
6. Skills
7. Management tasks.
8. Immediate work environment.
9. Any other acceptable correct answers. Any 5 x 2 = (10)

2.2 Read the given case study carefully and answer the questions that follow.

2.2.1 Thandi approaches you as a business consultant to assist her in the decision of starting her new business. You advise her that market research must be conducted before finally making the decision.

What information would Thandi need to start her business?

(1) Nature of products or service that consumers want.
(2) Other related products or services on the market that may be in competition,
(3) Willingness of consumers to purchase the product or service
(4) Price consumers will be prepared to pay for the product or service.
(5) Quantity of the product or service they are willing to purchase.
(6) Other correct possibilities. Any 4 x 2 = (8)

2.2.2 Design a market research questionnaire that could be used by Thandi to collect information on the setting up of her new business.

You are required to design FIVE (5) questions that can be used in the questionnaire.

(1) Will you buy products such as greeting cards, postcards or writing paper made from environmental resources?
(2) Are the same or similar products sold in the immediate or nearby vicinity?
(3) Do you think the paper products are sold at reasonable prices?
(4) Are you willing to buy these products?
(5) How many of these products are you willing to buy?
(6) Other correct possibilities. Any 5 x 2 = (10)

2.2.3 Using examples identify the components of Thandi's marketing mix. (8)
(1) Product/s: per products, greeting cards, writing paper, postcards.
(2) Place: Mpumalanga
(3) Promotion: Brochures
(4) Price: Competitive 4 x 2 = (8)

2.2.4 Conduct a SWOT analysis for this new business venture.

Strengths	Weaknesses
1. Hands on business experience. 2. Availability of resources. 3. Entrepreneurship. 4. Target market – tourists. 5. Natural resources such as elephant and rhino dung – tourist attraction. 2 x 2 = (4)	1. Lack of sufficient capital. 2. Competitors 3. Limited marketing and management experience and training. 4. Trained labourers for the type of business. 2 x 2 = (4)
Opportunities	**Threats**
1. Tourism market. 2. Very few competitors 3. Pricing competitive 4. Abundance of resources. 5. Special attraction – wild animal dung 2 x 2 = (4)	1. Threat of competitor – change of prices, diversify product to use Thandi's ideas. 2. New business or similar products to be established. 3. Financing (securities not existing). 4. To be bought out by bigger businesses. 2 x 2 = (4)

Note: Any other acceptable correct answer. 4 x 4 = (16)

2.2.5 Briefly describe the most important components of Thandi's business plan.
1. Vision, mission and objectives.
2. Location of premises.
3. Marketing plan.
4. Financial plan.
5. Target market
6. Future expansion.
7. Distribution plan for products.
8. Sustainability of business.
9. Any other suitable possibilities. 4 x 2 = (8)(60)

QUESTION 3

3.1 You are the manager of this company. Indicate and write down how you would make best use of time to ensure long-term success of the company. (1)
1. Set clear goals. (2)
2. Scheduling: Plan the year, month,week and day. (3)
3. Eliminate wasteful activities. (4)
4. Practise key management techniques. (5)
5. Prioritise tasks. (6)
6. Set deadlines. (7)
7. Use time saving devices: fast tracking, outsourcing etc. (8)
8. Help to organise the workspace of workers. (9)
9. Any other suitable answer. 5 x 2 = (10)

3.2 In the light of the above statement discuss the most important self-management characteristics of highly successful entrepreneurs. (1)

1. Need to be in control of yourself. Actions, thoughts and attitudes. (2)
2. Practise self-discipline and remain self-critical. (3)
3. Be an efficient and effective manager and leader. (4)
4. Display attitudes and values that allows you to lead the business in a positive way. (5)
5. Be self-confident and self-reliant. (6)
6. Be creative and versatile. (7)
7. Be trustworthy and dependable. (8)
8. Execute tasks accurately and carefully. (9)
9. Be willing to commit yourself. (10)
10. Be energetic, hardworking and creative. Any 5 x 2 = (10)

3.3 Give ONE (1) example of business objectives by applying the above criteria.

Business objectives must have the following characteristics e.g. SMART
S = (5) Specific – Increase profits, sales or turn-over by 10%
M = (2) Measurable - Profits at the end of the current financial year.
A = (7) Action – Vigorous advertising in the newspaper and other media.
R = (6) Realistic – Top management has decided that increasing sales by 10% is a realistic objective.
T = (3) Time-management – Weekly, monthly report on sales to evaluate progress towards achievement of our objective. 5 x 3 = (15)

3.4.1 Assume you are the owner of M & C General Store. Identify the problem that is experienced by the store.
There is a problem with the specific canned food bought by Thulule and Smith. (3)

3.4.2 You as the owner of M & C General store has to solve the problem. Discuss
Six (6) logical steps that you will follow to solve the problem.
(1) Identify the problem – canned food.
(2) Definition of the problem – poisoned canned food.
(3) Construct strategy for problem solving – withdraw product from shelf & contact manufacturers.
(4) Decide how to implement strategy – suggestion that product should be tested and in the meanwhile not offering it for sale.
(5) Allocation of resources – call two customers in and offer to pay doctors expenses and free alternative product.
(6) Monitor problem solving – progress report from manufacturer. Press release.
(7) Evaluate problem solving – successful or not. Did you manage to change customers perception about your store? Any 6 x 2 = (12)

3.5.1. Explain FIVE (5) criteria for successful and collaborative team performance in a business.
(1) People in the team must be prepared to work together.
(2) Objectives of the team must be formulated carefully.
(3) Each member must know his/her role within the group.
(4) Each member must have a skill, experience or quality that adds value to the team.
(5) Team members must support each other.
(6) Team members must have team spirit, trust and be participative.
(7) Openness and expression of ideas.
(8) Good decision-making skills.
(9) Review of the team process.
(10) Team members must be innovative and creative to solve problems. 5 x 2 = (10)
(60)

QUESTION 4

4.1 Discuss any FIVE (5) business functions. (1)

1. **Marketing**
   (a) Responsible for the pricing, distribution and marketing of the product.
   (b) Ensure the correct marketing mix to boost sales.
   (c) Transfer of the goods and services from producer/manufacturer to the consumer. (2)
2. **Human Resources**
   (a) Employment of skilled and unskilled labour.
   (b) Training schedules to up-skill workers.
   (c) Appointment, maintenance of human resources
3. **Production**
   (a) Ensure quality products are manufactured.
   (b) Transformation of raw materials into finished products.
4. **Administration**
   (a) Structuring of activities through administration imperative.
   (b) Storage and retrieval of information should be in order.
   (c) Employees to be trained in all aspects of administration to be well informed.
5. **Financing**
   (a) Responsible for provision and utilisation of capital.
   (b) Control of cash flow.
   (c) Preparation of financial statements and reporting to the shareholders.
6. **Purchasing**
   (a) Enterprise must buy products, machinery and raw materials from other suppliers.
   (b) Suitable quality at the lowest possible prices should be acquired.
   (c) Responsible for stock management.
7. **Public relations**
   (a) Business cannot exist in isolation.
   (b) Interact with the social, political and environmental issues.
   (c) Develops good relations between the public and the company.
8. **General management.**
   (a) Combines all activities of the other functions into one.
   (b) Sets up the enterprises' vision, goals and objectives.
   (c) Combines the planning, organising, activating and control elements. Any 5 x 4 = (20)

4.2.1 Calculate the total cost of production.

		R	
Opening stock:		45 000	
Add: Purchases		100 000	✓
		145 000	
Less: Final stock		15 000	✓
		130 000	✓
Add: Direct labour cost		80 000	✓
		210 000	
Add: Overhead expenses		70 000	✓
Depreciation	15 000		✓
Water & Electricity	25 000		✓
Insurance	10 000		✓
Indirect labour	20 000		✓
Total cost of production		280 000	✓
Total marks			(10)

4.2.2 Calculate the cost of the production of one T-Shirt. (Note: 1 000 T-shirts were manufactured)

Cost of production of 1 T-shirt = $\frac{280\,000}{1\,000}$
= 280 ✓✓✓✓ (4)

4.2.3 Calculate the selling price of one T-shirt if the business uses a 50 percent mark-up.

Selling price = Cost price + mark-up
= 280 + (50 % x 280) (✓)
= 280 (✓) + 140 (✓✓)
= 420 (✓✓) (6)

4.3 Use the following given information and classify it according to the correct business function of the enterprise.
Example: Information on debtors and creditors. Answer: Financial function.

4.3.1 The image of the company: Public relations department
4.3.2 Sales figures: Marketing: Financial department
4.3.3 Competitors and consumers: Marketing department
4.3.4 Suppliers: Purchasing department
4.3.5 Use of people and machinery: Production department 5 x 2 = (10)

4.4 Classify the following sources of capital into:
Own capital or
Borrowed capital:

4.4.1 Bank overdraft: Borrowed capital
4.4.2 Long-term mortgage bond: Borrowed capital
4.4.3 Sale of shares: Own capital.
4.4.4 Short-term loans from a commercial bank: Borrowed capital
4.4.5 Sale of debentures: Borrowed capital 5 x 2 = (10)
(60)
TOTAL FOR SECTION B = [180]

SECTION C MARKS: [80]

ANSWER ANY TWO QUESTIONS

PLEASE NOTE THAT CREDIT WILL BE GIVEN FOR : AN INTRODUCTION, BODY INCLUDING HEADINGS, SUB-HEADING AND A CONCLUSION.

QUESTION 5.

Identify the sector in which Johannes Vermaak operates. Compare this sector with the other kinds of enterprises and discuss the salient characteristics of each, using suitable examples.

5.1 Johannes Vermaak operates in the Primary industry. ✓✓

5.1.1 Primary sector.✓✓
(1) Businesses involved in the extraction of products and raw materials from natural resources. ✓✓
(2) These products are required to be processed in final products. ✓✓
(3) Examples of businesses in this sector: agriculture, forestry, and fishing. ✓✓ Max: (6)

5.1.2 Secondary sector: ✓✓
(1) This sector also known as the industrial sector.✓✓
(2) Businesses involved in the sector change the form of the unprocessed products and raw materials from the primary sector by processing them into final products. ✓✓
(3) Secondary sector changes products into a more useful form that is useful to consumers. ✓✓
(4) Examples of businesses: food, clothing, petroleum products, machinery, motor vehicles, furniture etc. ✓✓ Max: (8)

5.1.3 Tertiary sector: ✓✓
(1) Businesses that operate in this sector facilitate the flow of goods and services from producers to consumers. ✓✓
(2) This sector adds place and time value to goods and services because the products are brought within reach of consumers and are made available at a time and place it is needed.✓✓
(3) Includes all the services provided by government to communities.✓✓
(4) Examples of tertiary sector: education, policing, defence, health, welfare, banking, household and vehicle insurance, transport, storage etc.✓✓ Max: (8)
(24)

5.2 Components of the market environment.

5.2.1 Consumers
(1) These people have unlimited needs to be satisfied with limited means.
(2) Different behaviour patterns.
(3) Needs changes over time.
(4) Business must be able to adapt to needs of consumers. Heading: 2 marks = (2)
Any other fact 2 marks = (2)(4)

5.2.2 Suppliers
(1) People who provide resources to the business.
(2) The right quality, quantity, to be supplied on time.
(3) Pricing and credit terms must be considered. Heading: 2 marks = (2)
Any other fact 2 marks = (2) (4)

5.2.3 Intermediaries/agents
(1) People who bridge the gap between the business and the consumer.
(2) Bring goods and services within easy reach of the consumer.
(3) Consider their input costs and final price to consumer when making use of the agents.
Heading: 2 marks = (2)
Any other fact 2 marks = (2)
(4)

5.2.4 Competitors.
(1) Competition from other businesses selling the same or similar product must be considered.
(2) The price offered must be as competitive as possible to attract customers.
(3) Future competition must also be taken into account. Heading: 2 marks = (2)
Any other fact 2 marks = (2) (4)
(16)
TOTAL: [40]

QUESTION 6

You are required to give a detailed outline of all the factors that you will consider when advising Sandy on the location of the factory to ensure a successful setting of the factory.

6.1 INTRODUCTION
(1) The location refers to where a business enterprise will be set up.
(2) The location should attract as many customers as possible
(3) Future profit and costs are influenced by this decision.

6.2 LOCATION FACTORS.

6.2.1 PROXIMITY OF MARKETS
(1) Business has to situated as close as possible to potential customers.
(2) Examples: shopping centres, boutiques.
(3) The shortest distance must be considered to save on transport costs.

6.2.2 PROXIMITY TO SUPPLIERS.
(1) The factory must also be situated close suppliers of raw materials.
(2) Agents, intermediaries as a source of supply must also be considered.
(3) The pricing structure of suppliers i.e. credit terms, discounts etc. must be taken into account.

6.2.3 LABOUR.
(1) Sources of labour.
(2) Skilled and unskilled labour and training.
(3) Negotiations with unions regarding salaries and wage structures and conditions of employments.
(4) Transport, accommodation of labour.

6.2.4 LEGAL OBLIGATIONS.
(1) Registration with the local municipality.
(2) Registration as a sole trader or any other form of ownership.
(3) Registration with the SARS.
(4) Professional registration where applicable.

6.2.5 INFRASTRUCTURE
(1) Proximity to taxi ranks, railway station, harbours and main roads.
(2) Availability of water and electricity.
(3) Suitable building for the factory – ergonomic issues.
(4) Parking.

6.2.6 OTHER FACTORS
(1) Personal factors: preference of manufacturer, location etc.
(2) Economic factors: purchasing power of target market/clients.
(3) Existence of competition: other shops/factories selling the same or similar product.
(4) Geographical factors: proximity to markets, raw materials, etc. Any 20 x 2 = [40]

6.3 CONCLUSION

(1) The abovementioned factors are of vital importance for the sustainability of a business.

(2) A wrong location decision can add cost to the business and end into failure.

QUESTION 7

In the light of the above scenario explain the term 'creativity' and illustrate why it is important for an entrepreneur to encourage creativity in the business environment. You are also required to elaborate on the characteristics of a creative business environment.

7.1 INTRODUCTION
DEFINITION/EXPLANATION :

(1) Creative thinking involves inventive , imaginative, new ideas and thoughts about your entire business enterprise.

(2) Creative thought is about finding opportunities where less creative thought would not have seen potential.

(3) It is a way of thinking that generates new ideas and helps generate unique solutions to problems.

(4) Creative thinkers try new approaches inn their tasks and introduce new perspectives to projects. (4)

7.2 CHARACTERISTICS OF CREATIVE BUSINESS ENTERPRISES.

7.2.1 EMPLOYEES ARE ENCOURAGED TO GENERATE NEW IDEAS

(1) An environment that supports creative thinking at all levels of management should be encouraged.

(2) Employees need the confidence to take risks and use unusual ideas.

(3) New ideas should be accepted, not crushed.

(4) Business needs to support ideas. It is not enough to have ideas.

(5) A good manager will be able to help any team to fulfill its potential and draw innovative ideas and motivation from employees.

(6) Encourage the use of motivational speakers.

7.2.2 CREATIVITY IS ENCOURAGED AS AN APPROACH TO ALL SITUATIONS

(1) Creativity needs to be understood as an approach rather than as a simple techniques.

(2) It should not only be used occasionally.

(3) It is a continuous process to be used at all times.

7.2.3 EMPLOYEES DEVELOPMENT AND TRAINING.

(1) To keep up with a changing world employees needs to be up-skilled, and multi-skilled.

(2) Business and employees needs to be innovative to keep up with competition and future developments.

(3) Growth lies in it's employees, this can be achieved through facilitation of on-going training and development.

(4) Skills development Act – 1% of the Gross wage/salaries contributed by business for skills development.

7.2.4 THE BUSINESS ENVIRONMENT SHOULD BE FLEXIBLE.

(1) To be globally competitive business enterprises needs to do research in new innovations and possible new production lines.

(2) An environment must be created to allow employees to be free to criticise existing practices and provide effective alternative solutions.

(3) They must learn to drive out the fear of failure when embarking on change. MAX: (36 MARKS)

7.3 CONCLUSION

(1) Ideas are the driving force behind businesses that create something new as well as generating ways to find solutions to problems.

(2) It is a way of allowing businesses to recognize and take advantage of opportunities.

(3) Creative thought is especially rewarding in that, if it is encouraged in an organization, it actually leads to and stimulates further creative thought.

(4) Creative thought is a way of keeping up with market change.

(5) Eg. Changes to the packaging of products to make it more attractive to the customers.This requires creative thinking.

TOTAL: [40]

QUESTION 8

Identify the three levels of management and discuss the types of decisions that are formulated at each level. Make use of examples to illustrate the types of decisions described in your discussion. You are also required to make reference to the four basic management tasks.

8.1 LEVELS OF MANAGEMENT

8.1.1 Top level/senior level management.✓✓

(1) Consists of directors, general managers, executive heads; members in a close corporation, partners in a partnership or owner of a sole proprietorship (business)

(2) Make strategic decisions.

(3) Control the long-term management of the enterprise.

(4) E.g. determine the objectives (goals) of the enterprise. Heading: 2 marks = (2)
Any other 3 facts: 3 x 2 = (6)
(8)

8.1.2 Middle-level management.

(1) Heads of sections, (Departments, Business Functions) e.g. marketing, human resources, administrative, financial, production, public relations, sales and purchasing heads/managers.

(2) Make tactical decisions.

(3) Control the medium-term management of the enterprise.

(4) E.g. How things must be done – develop working plans. Heading: 2 marks = (2)
Any other 3 facts: 3 x 2 = (6)
(8)

8.1.3 Lower-level/First-line Management.

(1) Supervisory management, foremen, work team members/superintendents.

(2) Ensure that tactical decisions are carried out.

(3) Control the short-term management.

(4) Possess technical knowledge.

(5) Focus on the carrying out of instructions.

(6) Focus on the daily execution of instructions. Heading: 2 marks = (2)
Any other 3 facts: 3 x 2 = (6)
(8)
8 x 3 = (24)

8.2 TASKS OF GENERAL MANAGEMENT.

8.2.1 PLANNING

(1) Determine who is responsible for which activity.

(2) Planning the overall operations of the enterprise.

(3) Indicate how the organisation is going to achieve its goals.

8.2.2 ORGANISING.

(1) Determine which people should work for the business and what their responsibilities and tasks should be structured.

(2) Has to do with making it possible for plans to be put into action.

8.2.3 CONTROLLING

(1) List the expected results or set standarc, that is, what the enterprise withses to achieve.

(2) Evaluate the actual results.

8.2.4 LEADING.

(1) Activating – put staff/personnel into action

(2) Compile instructions and coveys them to subordinates.

(3) Delegates – transfer of authority to a subordinate.

(4) Guidance – influence personnel in such a way that they carry out instructions spontaneously.

(5) Motivates and effective communicates. Heading: 2 marks = (2)
Any 1 fact x 2 marks = (2)
4 x 4 = (16)
Total: [40]
GRAND TOTAL: /300/

Department of Education

Physical activity stimulates mental activity

Now that you have time on your hands to get outdoors during daylight hours, get off the couch and involve the youth in your neighbourhood in some form of physical activity. A healthy and active body stimulates mental activity. You do not need any fancy equipment to get you exercising. What about starting a walking or aerobics group or getting all involved in a game of street soccer? A ball can be improvised out of soft material such as plastic bags rolled up into the shape of a ball and a piece of tape or string can be used to hold it all together.

Those of you who would like to pay more detailed attention to your physical fitness could put together a circuit of 6-10 different station around the house to address the different muscle groups of the body:

- Arm dips using a chair/ bed
- Arm curls using improvised weights (empty cooldrink cans filled with sand/ stones)
- Push-ups (no equipment required)
- Step-ups using a step (inside or outside the house)

Execute 1-3 sets of each exercise at a station at a time, complete the circuit of stations 1-3 times. A set should include 10 or more repetitions of the exercise and the number of repetitions, sets and circuits completed will depend on your level of fitness. If you have not been too physically active over the past few weeks, start slowly with 1 set of 10 repetitions at each station and complete the circuit once for the first week. Double the sets completed at each station in the second week; complete the circuit twice in the third week, etc.

Body Mass Index

There are 5 health-related components to fitness. These include: Body Mass Index; cardiovascular fitness; flexibility; muscular endurance; and muscular strength.

Of the five components, the Body Mass Index (BMI) relates directly to one's lifestyle habits concerning nutrition and exercise. You may have often heard the expression: You are what you eat. Your eating habits have a great impact on how the organs in your body function, including your brain. While the BMI is a key indicator of one's body fatness, it also provides an indication of how prone one is to lifestyle diseases such as diabetes, obesity, cardiovascular complications, etc.

Body Mass Index (BMI) refers to the level of under- or over-nutrition compared to ideal weight range. BMI (Body Mass Index) is a measure used by doctors to determine the best weight range for a person's health—it is an approximate measure of total body fat. It is calculated using a person's height and weight in the following formula: weight in kg divided by height in m which is squared (weight (kg) / height (m)^2). A BMI measure of 20-25 is considered healthy, while a measure between 25-30 is overweight and a measure exceeding 30 is obese and a measure below 20 classifies one as undernourished.

Calculation of BMI

The formula for calculating BMI is:

$$\text{BMI} = \frac{\text{weight (kg)}}{[\text{height (m)}]^2}$$

Examples

- The BMI of an adult who weighs 86kg and who is 1,80m tall is 86kg divided by (1,8m)^2:
  $\text{BMI} = \frac{86}{(1,80)^2} = 26,5$ = overweight
- The BMI of an adult who weighs 58kg and who is 1,63m tall is 58kg divided by (1,63m)^2:
  $\text{BMI} = \frac{58}{(1,63)^2} = 21,8$ = healthy weight range

Self-activity

Calculate your own Body Mass Index using the formula provided above.

If your measure falls outside the healthy range, what can you do to improve your BMI? What changes do you need to make to your nutrition and exercise habits to improve your situation?

TAKING A BREAK

Cardiovascular endurance

The fitter your heart muscle, the longer you will be able to sit up and study without getting tired. Did you know that you need to exercise 3–5 times a week at an exercise intensity at a higher-than-normal level, that is 60–80% of your individual training heart rate zone, for 20-30 minutes at a time?

If you want to develop your cardiovascular endurance, you must regularly exercise in the fitness target zone. The intensity of the exercise must elevate the heart rate above 60% of its working range during the exertion phase. An individual must exercise within their own training heart rate zone.

How to calculate your own individual training heart rate zone

1. Start with the number 220 and subtract your age in years to arrive at your maximal heart rate:

   220 – Age = Maximal heart rate

2. Take your maximal heart rate and subtract your resting heart rate to arrive at your working heart rate:

   Maximal heart rate – Resting heart rate = Working heart rate

NOTE: Resting pulse/ heart rate is the rate at which your heart is beating per minute once you have been lying in a relaxed and reclined position for approximately 2 minutes.

3. Now calculate your training heart rate zone (i.e. 60% threshold and 80% upper level) as indicated in the table below.

60% threshold level		**80% upper level**	
Start with your working heart rate	=	Start with your working heart rate	=
Multiply by .60	× .60	Multiply by .80	× .80
Get a subtotal	=	Get a subtotal	=
Add your resting pulse	+	Add your resting pulse	+
This answer is your threshold training heart rate at 60% effort level	=	This answer is your training heart rate at 80% effort level	=

How to measure resting heart rate

- Lie flat on the ground for 2 minutes
- Find the carotid pulse by pressing lightly on the carotid artery (next to the Adam's apple on the front side of the neck) with the forefinger and middle finger
- Count the number of pulses in 15 seconds and multiply the number by 4. This is the 1-minute pulse rate.

Self-activity

Calculate your own individual training heart rate zone: _____ to _____ beats per minute.

What do you need to change about your exercise habits to develop your cardiovascular endurance?