



PROGRAM : NATIONAL DIPLOMA
MINERAL SURVEYING
MINING ENGINEERING

SUBJECT : **ENGINEERING MANAGEMENT II**

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EXAMINER : MS D KOHALY

MODERATOR : MR R SIBANDA

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INSTRUCTIONS:

1. READ INSTRUCTIONS IN EACH SECTION CAREFULLY
 2. WRITE YOUR LECTURER'S NAME ON YOUR ANSWER SHEET
 3. PLAN YOUR TIME CAREFULLY
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SECTION A

Read the following article “Junior miners could drive the revival of South Africa’s resources sector” before choosing the most correct answer. Write down the question number and correct letter only. E.g.1C

JUNIOR MINERS COULD DRIVE THE REVIVAL OF SOUTH AFRICA’S RESOURCES SECTOR

1. The dominant sentiment about mining in South Africa over the past few years has been overwhelmingly negative. Confidence in the country’s regulatory framework, according to local and international bankers, analysts, major and junior mining executives, and other industry commentators, has all but vanished. While South Africa is still described as a country with one of the richest mineral endowments in the world, meaningful exploration has not been evident for decades.
2. Updated and modern exploration techniques using newly developed technology has not yet been applied to any meaningful extent to replace the known reserves, which have been largely exhausted. And the JSE has fewer than 30 active, contributing mining, resource and exploration companies currently listed, a fraction when compared to the eighties. Canada and Australia each have more than 200 junior companies listed on their boards, vying for attention, with many of them exploring for projects on our continent.
3. Many people have argued that South African mining was ultimately a sunset industry, and it was only a matter of time before the last mines closed their doors/shut down their shafts. That sentiment has now shifted dramatically, as we are seeing a new dawn for commodities, following rapid advances in technology with a voracious appetite for base metals. More specifically, I believe that this has again turned the spotlight to South Africa, where we are seeing the beginnings of a long-awaited revival of the country’s junior mining and exploration sector. With the right support and alignment of priorities, we can turn our rich mineral endowment into the cornerstone of a growing economy that it deserves to be.
4. Recent confidence in the junior mining and exploration sector in this country can largely be attributed to four key factors: the potential quantum of mineral deposits still to be discovered; general sentiment towards juniors; trends in supply and demand; and - more recently - South Africa’s changing political climate. Cyril Ramaphosa’s election to party president at the ANC’s elective conference in December was a pivotal moment in terms of business and investment confidence, evidenced by a strong rally in the rand versus the US dollar.
5. A Goldman Sachs report prepared in early January in the wake of the ANC conference identified South Africa as the “big emerging market story” of 2018, especially given the possibility of declining interest rates and strengthening rand. This positive sentiment was further shored up during the World Economic Forum in Davos where Ramaphosa, a former union leader, promised to deliver economic policy change, saying that South Africa did not want to miss out on a commodity boom and if the Mining Charter is “holding us back we must deal with that”.

Section A (Continued)

6. South Africa has not recently attracted significant foreign direct investment (FDI) due to slow economic growth, policy uncertainty, allegations of corruption and higher labour costs. According to data from UN trade and development agency Unctad, South Africa recorded FDI inflows of \$2.3billion (R27.7bn) in 2016 against outflows of \$3.4bn. Ten years ago average annual inflows were almost double that, at \$4.5bn against outflows of \$3.3bn. In the mining sector, policy uncertainty related to the third iteration of the Mining Charter knocked R51bn off the value of listed mining stocks on the JSE when it was introduced and caused deep unhappiness across the sector, which argued it was unworkable, impractical and poorly drafted, and lacking in proper industry consultation.
7. The political will to provide an investment-friendly regulatory climate will be key to a mining sector that has the potential to attract FDI - and the junior and mid-tier miners stand poised to unlock that potential in South Africa and on the continent. We are already seeing overseas juniors with dual listings on the JSE, which has a track record of ensuring good governance and also provides access to international financial markets for capital raising.
8. Speaking at the Geological Society of South Africa's Exploration Showcase, held in Johannesburg last year, respected resources consultant Dr John Bristow said that while another major find such as the Witwatersrand Basin or the Bushveld Complex was unlikely, the country's "geological and minerals jewel box" was under-explored and he believes there are at least six to 10 mid-tier deposits to be found.
9. "We need the leadership to look at where we take this industry, and it's a resources industry and not just mining. We need to go back to the value curve and we need to go and work on the front of the value curve, which is exploring and finding new ore bodies," he said. Our own experience supports these views and we believe that there is an urgent need to explore, develop and revive a vibrant junior culture in South Africa's resources sector.
10. Which is why, as Orion Minerals, we are making one of the largest investments in green- and brownfields exploration this country has seen for at least 30 years. Having raised funding of some A\$12m (R113.8m) in the last two quarters of 2017 alone, mainly for advancing its South African portfolio, this FDI demonstrates our belief in the country and the sector. We estimate we contributed some R200m to South Africa's FDI during the 2017 calendar year.
11. Ours is but one example of a plethora of opportunities where we, and other junior explorers and developers, are choosing to invest. As South Africa under Ramaphosa's guidance desperately needs to attract the interest of explorers and developers, we will be competing with other jurisdictions, actively making changes to attract the expertise and investors funds. For example, India is also looking to international mining juniors to fill the void in private investment.
12. And even in the first world and one of the leading mining countries in the world, the Australian resources sector saw an \$100m investment by the federal government to encourage greenfields mineral exploration in September last year. The key benefit to exploring multi-commodity mineral deposits is that these activities will feed the increasing industrial demand created by accelerating technological innovation. This demand is reflected in the ongoing upward trend in the prices of copper, zinc, nickel and cobalt - metals found in abundance at our Northern Cape project.

Section A(Continued)

13. The electric vehicle (EV) revolution, for example, is expected to have a disruptive effect on world commodity markets. Commodities trading giant Glencore has said that forecast EV-related metal demand becomes significant from as early as 2020 - estimates are an additional 390000 tons of copper; 85000 tons of nickel and 24000 tons of cobalt will be needed.
14. The current annual consumption of zinc for car bodies alone is roughly 120000 tons, according to the IZA, and China and India are only now starting to introduce zinc in their car body manufacture to match Western quality standards. In China there are more than 20million car bodies that will need to be replaced with higher quality galvanised, erosion-resistant models over the next decade.
15. These four factors combined - a political environment-boosting investor confidence in South Africa, a wealth of unexplored minerals, a greater appreciation for the role of the junior explorers in the mining sector, and surging demand for base metals based on EV and EV batteries, among other innovations - give us the greatest confidence in the South African junior mining sector. We believe junior miners have come of age and, with the right incentives, government and investor backing, can comfortably compete with the majors in terms of finding new mineral deposits and generating wealth, while being significant contributors to job creation.

Adapted from Business Report, The Star, 08 February 2018

1. According to the writer, Mining in South Africa in the last ten years has:
A. Revived
B. Died
C. Stagnated
D. Progressed
2. The phrase “sunset industry” (Paragraph 3) means:
A. Mining is over in South Africa
B. Mining has gradually declined in South Africa
C. Mining goes up and down in South Africa
D. Mining is a golden opportunity
3. The word “voracious” in the context of paragraph 3 means:
A. Hungry
B. Furious
C. Huge
D. Diverse
4. South Africa’s foreign direct investment figures mean:
A. Cyril Ramaphosa is a strong leader
B. The economy has lost credibility
C. The World Economic Forum will bring investment
D. The Guptas have captured the country’s resources

Section A(Continued)

5. According to Dr John Bristow:
 - A. There are many S.A deposits still to be mined
 - B. The Witwatersrand Basin needs exploration
 - C. South Africa needs to market gains found in a jewel box
 - D. Ore deposits are exhausted in South Africa
6. The word “plethora” in (Paragraph 11) means:
 - A. Overabundance
 - B. Ore deposits
 - C. Shortages
 - D. Choice
7. The EV revolution means that:
 - A. People will lose their jobs
 - B. There will be an accelerated demand of metals
 - C. Petrol will be obsolete
 - D. Vehicle licences will be modified
8. The writer believes that junior miners are:
 - A. Necessary to replace older traditionalists in Mining
 - B. Fortunate to have huge Mining opportunities
 - C. Faced with the challenge of race in the Mines
 - D. Intelligent leaders of industry
9. The general tone of the article is:
 - A. Optimistic
 - B. Pessimistic
 - C. Sarcastic
 - D. Inspirational
10. After reading this article, a Mining student might feel:
 - A. Anxious that he/she lacks knowledge about EVs
 - B. Excited about the possible roles of new Mining graduates
 - C. Overwhelmed by his/her lack of knowledge about politics
 - D. Relieved that he/she chose Mining as there is money to be made in the industry
11. The article is subtitled “Positive thinking.” The relevance of this is:
 - A. Old managers must mentor junior managers
 - B. Junior managers are role models
 - C. Junior managers must never say “can’t”
 - D. Junior managers must use a mindset to face the future
12. The writer provides an example of Orion minerals to show that:
 - A. Orion’s achievements may motivate others in the industry
 - B. Orion is an important player in the industry
 - C. He is the Chief Executive of Orion
 - D. Orion has achieved huge foreign investment

Section A (Continued)

13. The writer mentions the JSE to show that:
 - A. Managers should purchase shares in companies
 - B. Canada and Australia have more miners than South Africa
 - C. Overseas companies invest in the exchange
 - D. The JSE could have more mining listed companies
14. The phrase “vibrant junior culture” (Paragraph 9) is connected to the following:
 - A. “value curve” (Paragraph 9)
 - B. “big emerging market story” (Paragraph 5)
 - C. “sunset industry” (Paragraph 3)
 - D. “significant contributors to job creation” (Paragraph 15)
15. South Africa’s “changing political climate” (Paragraph 4) is:
 - A. Relevant to Mining because of FDI
 - B. Irrelevant to Mining completely
 - C. Relevant to all aspects of the economy
 - D. Relevant to the high cost of living
16. The main reason for a positive 2018 related to the mining industry is:
 - A. A new ANC leader in 2018
 - B. EV developments in the motor industry
 - C. Technological advancements
 - D. All of the above
17. The Mining Charter referred to in the article relates to:
 - A. Restrictive regulations
 - B. Nationalisation of the Mines
 - C. Marikana strikes
 - D. Poor safety records
18. The Mining Charter, according to the writer was:
 - A. Important in giving structure to Mines
 - B. Detrimental to mining profits
 - C. Poorly compiled by a few people
 - D. A creation of the JSE
19. Which word from the article most relates to you as a potential UJ Mining Manager?
 - A. Explorer
 - B. Investor
 - C. Regulator
 - D. Developer
20. The article may be criticized as subjective reporting as:
 - A. It only focuses on Orion’s success
 - B. It only focuses on Zuma’s fall
 - C. It only focuses on junior miners
 - D. It only focuses on a revival in mining

Section A(Continued)

Question 21-30 are from your knowledge of the syllabus

21. Visualisation is a mind power tool used to:
 - A. Tap into the power of the subconscious mind
 - B. Create artistic images of a goal
 - C. Assist affirmations in their work
 - D. Assist with passing exams only
22. The success of visualisation is based on whether it is:
 - A. Long in time and frequently practiced
 - B. Intensely desired
 - C. Vividly imagined
 - D. All the above
23. Affirmations should never be
 - A. Long or short
 - B. Phrased in negative terminology
 - C. In the present tense
 - D. Based on a personal position
24. Criticism by a manager should always be given
 - A. Personally and assertively
 - B. Generally and softly
 - C. Quickly and humorously
 - D. Constructively and task related
25. Conflict management is a valuable tool to the manager as:
 - A. Anger is a dangerous emotion
 - B. Conflicts are inevitable in the workplace
 - C. Tribes are always fighting in the workplace
 - D. Issues of trust and power create fistfights
26. As a manager the best way of dealing with conflict in the workplace is to
 - A. Focus on the problematic idea not the person
 - B. Fire the troublemakers
 - C. Shout at the troublemakers
 - D. Hire an expert to coach anger management
27. A valuable tip in avoiding procrastination is to:
 - A. Prioritise important tasks
 - B. Take a few days break
 - C. Put your "to do list" on hold and meditate
 - D. Avoid answering e-mails and phone messages

Section A (Continued)

28. In dealing with a hostile audience when giving an oral presentation:
- A. Identify the troublemakers and dismiss them
 - B. Convince the troublemakers to your way of thinking
 - C. Refuse to speak until there is complete silence
 - D. Stay calm and in control of the situation
29. In writing a professional business letter always use:
- A. Business terminology and jargon
 - B. A polite and courteous tone
 - C. Bullet points for easy comprehension
 - D. Good quality paper and paid up stamps
30. Remembering people's names in the workplace is
- A. Useful but only in the context of meetings
 - B. Irrelevant as teams are too huge
 - C. Important as it recognizes individuals
 - D. Outdated as much communication is electronic

[30]

SECTION B

Write an essay of ± 1 page on one of the following topics. Indicate your rough preparation clearly. Marks will be awarded for both content and style.

1. Analyse the meaning of the writing on the wall in the book "Who moved my cheese?" (40)
- OR
2. Discuss why McGregor's X Management style can be seen as an outdated theory in current management practices in the Mining industry. (40)
- OR
3. Illustrate by example why Herzberg's hygiene factors have been labelled as cyclical, short term movers in the mining industry. Provide an example. (40)

[40]

SECTION C

1. Gary Rupert is the manager of a Mine Section. Every Tuesday he holds a lunchtime meeting to outline his department's short-term goals. On a certain Tuesday, the meeting gets out of hand. Latecomers dawdle in and there is no agenda. Pieter Van Zyl, an employee gets irritated and angrily asks why Gary Rupert has called this meeting. Gary Rupert asserts his authority by challenging Pieter Van Zyl and by calling for order. Portia Mbele gets up and makes tea whilst Sello Mamabolo reads the newspaper. Gary threatens to extend the meeting indefinitely until there is cooperation.

Write a short paragraph explaining how you would deal with the situation if you were Gary Rupert? (10)

2. Lena is the office cleaner in a department. She vacuums the offices and makes tea for the employees on a daily basis. Lena is very resentful that some of her colleagues do not know her name and address her as "you". She feels that just as she bothers to learn her colleagues' names, they should learn her full name- Lena Matsebatlela.
- a. Why does Lena feel this way about the way she is addressed? (5)
- b. Provide clear tips on how you can remember names in the workplace? (5)
3. Sipho Dube is absent every Monday after enjoying a hectic weekend. When he returns on a Tuesday, he is unapologetic and jokes around. He also persists in speaking Zulu to his friends which means that some of the team does not understand him. As you are a reasonable manager you have asked him to reduce his absenteeism and to refrain from speaking Zulu but his behaviour persists.
- a. According to McGregor, what style of management should be used to deal with this situation? Justify your answer. (5)
- b. According to Herzberg, how would you motivate Sipho Dube to be more diligent at work? (5)

[30]

GRAND-TOTAL=100
