



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

GEC PILOT STUDY EXEMPLAR MARKING GUIDELINE 2023 NATURAL SCIENCES: ENGLISH GRADE 9

SECTION A

- One mark per answer.
- There are no half marks.
- Tick (✓) only the correct answer and underline the incorrect answer.
- No marks should be credited for multiple answers. Underline them all.
- If there is no answer indicated skip the question.

No.	Expected answer		
1.	D	Electrostatic force.	✓
2.	C	The mass will be the same and the weight will be less.	✓
3.	D	Become the shortest object.	✓
4.	C	The force of gravity and the boy's muscular force on the bag.	✓
5.	A	10 N to the left	✓
6.	B	Electrons were transferred from the jersey to the balloon	✓
7.	A	The lemon cells have an acidic juice which acts as an electrolyte.	✓
8.	A	Electrons will flow from the anode to the cathode	✓
9.	D	An opposition against the movement of charges.	✓
10.	B	The longer the conductor the higher the resistance.	✓
11.	C	9 Ω	✓
12.	D	The voltmeter reading and the brightness of the bulb remained the same as the number of cells increased.	✓
13.	A	The flow of charges happens through multiple pathways.	✓
14.	A	All three bulbs will have the same brightness.	✓
15.	A	A ₁ and A ₄ ; A ₂ and A ₃	
16.	C	The sum of the readings in V ₁ and V ₂ will be equal to the reading in V ₃ .	
17.	C	1/3	✓
18.	C	The potential difference of the battery will be doubled.	✓
19.	C	It overloads the system which leads to power failure.	✓
20.	A	The current is supplied through the live wire to the appliance.	
21.	B	Coal.	✓
22.	B	During nuclear fission to heat water.	✓
23.	C	Solar.	✓
24.	B	79.2 kWh	✓
25.	B	Kilowatt hour	✓
26.	B	Electrons are released.	✓
27.	D	R0,84	✓
28.	A	Make use of LED light bulbs.	✓
29.	D	Panels connected to solar geysers have dangerous pollutants.	✓

No.	Expected answer					
30.	C	Semi – solid mantle.			✓	
31.	C	Hot lava → glaciers melt → floods → streamside communities.			✓	
32.	A	The lithosphere is the sphere that contains all cold, hard solid land and the semi – solid liquid under the crust.			✓	
33.	D	$4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$				
34.	A	Plutonic rocks result when magma cools and crystalizes slowly within the Earth's crust.			✓	
35.	C	Aluminium, oxygen, silicon and iron.			✓	
36.	A	Compaction and cementation	High temperature and pressure	Crystallization of magma	✓	
37.	B	78	21	0.93	0.04	✓
38.	A	Density decreases and altitude increases.			✓	
39.	D	The troposphere is the lowest layer of the atmosphere at about 15 km above the Earth.			✓	
40.	B	50 km - 80 km	-50°C - 30°C	Meteorites	✓	
41.	A	An increase in greenhouse gases causes an increase in temperature on Earth.			✓	
42.	A	$2\text{Fe}_2\text{O}_3 + 3\text{C} \rightarrow 4\text{Fe} + 3\text{CO}_2$				
43.	C	Electrolysis.			✓	
44.	B	Refining metals by cleaning them and distribution.			✓	
45.	D	Government should own the mines and use profits to improve South Africa.			✓	
46.	D	Electromagnets remove the magnetic pieces containing iron from the non-magnetic waste.			✓	
47.	A	The main sequence phase is when the pressure of gravity pulling into the star is equal to the energy pushing out of the star.			✓	
48.	B	A – white dwarf, B – black dwarf and C – black hole			✓	

SECTION B

- Do not penalize the learner for the same mistake more than once.
- There are no half marks.
- Errors committed by learners must be underlined and not indicated with a cross (X).

No.	Expected answer	Rationale/Clarification	Mark
1.	<p>they are shaped in a similar way.✓</p> <p>OR</p> <ul style="list-style-type: none"> • both have south and north poles.✓ <p>OR</p> <p>their magnetic fields stretch from the North pole to the South pole.✓</p> <p>OR</p> <ul style="list-style-type: none"> • their magnetic fields are closer or stronger at the poles and extend far apart on the side or extent into space.✓ <p>OR</p> <ul style="list-style-type: none"> • Figure A (Earth) has weaker magnetic field and Figure B (bar Magnet) has stronger magnetic field <p>OR</p> <ul style="list-style-type: none"> • the bar magnet (Figure B) attracts objects and the Earth (Figure A) attracts the moon <p>OR</p> <ul style="list-style-type: none"> • The Earth (Figure A) has a greater magnetic field than the bar magnet (Figure B) 	<p>Accept any one fact provided from the left column and any other correct responses.</p> <p>1 mark: if any one fact is stated</p>	1
2.	<p><u>Stone</u> ✓ will hit the ground first.</p> <ul style="list-style-type: none"> • The effect of air resistance is much lesser on the stone. ✓ <p>OR</p> <ul style="list-style-type: none"> • The effect of air resistance is much larger on the paper. <p>OR</p> <ul style="list-style-type: none"> • The stone is heavier (more mass) than the paper. <p>OR</p> <ul style="list-style-type: none"> • The stone has more weight than the paper due to its greater mass. 	<p>2 marks: correct answer and the correct reason</p> <p>1 mark: if only the relevant reason is provided</p>	2
3.	The independent variable is the thickness of the wires.✓	1 mark for the correct answer	1

No.	Expected answer	Rationale/Clarification	Mark
4.	$V_{TOTAL} = V_{R1} + V_{R2} + V_{R3}$ $5V = 1.5V + V_{R2} + 1.5V$ (Series circuit are potential dividers) ✓ $V_{R2} = 5V - 3V$ $V_{R2} = 2V$ ✓	2 marks: correct answer with correct unit 1 mark: correct with no unit	2
5.	<ul style="list-style-type: none"> It is very energy efficient; it can produce large amounts of energy from a very small mass of nuclear fuel. ✓ OR <ul style="list-style-type: none"> It does not depend on fossil fuels as such and therefore it does not contribute to the greenhouse effect and climate change. ✓ OR <ul style="list-style-type: none"> It is not affected by changing oil- and gas prices. ✓ It is presently a sustainable source of energy. 	Accept any correct and any other relevant responses. 1 mark: if any one fact is stated	1
6.	Troposphere ✓	1 mark: for the correct answer	1
7.	Sedimentary rocks are formed by the deposition of material on the Earth's surface and (or) within bodies of water. ✓	1 mark: any correct or relevant explanation	1
8.	<ul style="list-style-type: none"> Avoid emission of gases like methane and carbon dioxide that are harmful to the ozone layer. ✓ OR <ul style="list-style-type: none"> Minimize the use of cars to lessen the emission of carbon monoxide. ✓ 	Accept any other relevant and correct answer 1 mark: if any one fact is stated	1
9.	<ul style="list-style-type: none"> Damage to the land surface by open pit mining and deep shaft mining. ✓ OR <ul style="list-style-type: none"> Mine dumps are ugly to look at and can contain dangerous chemicals that can contaminate drinking water. ✓ OR <ul style="list-style-type: none"> Mining can also cause noise pollution as big machinery, drilling and blasting are noisy. ✓ 	Accept any other relevant and correct answer 1 mark: if any one fact is stated	1
10.	Blue, Yellow, Red ✓	1 mark for the correct order	1
(12)			