

Aptitude, 2018 EC, entrance exam, version 1

Grade 12 · Aptitude · 2018 E.C.

MARKING KEY — CONFIDENTIAL

Time allowed: 120 minutes

Questions: 41

Total marks: 41

1. SCHOLAR : KNOWLEDGE :: (1)

A. ✓ Artist : creativity

B. Judge : courtroom

C. Farmer : harvest

D. Doctor : hospital

Answer: A

A scholar is the person whose whole stock in trade is knowledge. An artist stands in exactly that relation to creativity: it is the quality the work is made of. Doctor and hospital looks close because a doctor is a professional too, but a hospital is the place the work happens, not the quality inside the work. Judge and courtroom fails the same way, and farmer and harvest names a physical product rather than a quality.

2. WHISPER : SHOUT :: (1)

A. Walk : stumble

B. ✓ Drizzle : downpour

C. Speak : lecture

D. Glance : observe

Answer: B

Whisper and shout are the same act, speaking, at a low and then a high intensity. Drizzle and downpour are the same act, rain falling, at a low and then a high intensity, so the difference is degree in both pairs. Speak and lecture is the tempting choice, but a lecture is a different kind of event with an audience and a plan, not only louder speaking.

3. THIRST : DRINK :: (1)

A. ✓ Hunger : eat

B. Fatigue : sleep

C. Curiosity : question

D. Grief : weep

Answer: A

Thirst is the body's need and drinking is the act that ends it. Hunger and eating is the same shape: a bodily need for taking something in, and the exact act that satisfies it. Fatigue and sleep is close, and many students pick it, but sleeping is rest rather than taking something into the body, so hunger and eat is the tighter match to thirst and drink.

4. OPTIMIST : HOPE :: (1)

A. ✓ Pessimist : despair

B. Realist : fantasy

C. Scholar : ignorance

D. Artist : canvas

Answer: A

An optimist is the person whose outlook is built on hope. A pessimist is the mirror image, with the outlook built on despair, so the pair keeps person to the feeling that defines the outlook. Realist and fantasy is the trap, because a realist is a type of outlook too, but a realist is defined by refusing fantasy, so that pair is an opposite rather than a match.

5. DROUGHT : FAMINE :: (1)

A. ✓ Flood : destruction

B. Rain : harvest

C. Sun : warmth

D. Wind : breeze

Answer: A

Drought is the natural event and famine is the harm that follows from it. Flood and destruction has the same cause and effect shape: a natural event and the damage it brings. Rain and harvest is also cause and effect, but the result there is a benefit, and the first pair is a harm, so it breaks the pattern.

6. Based on musical instrument family classification, choose the odd one out: (1)
- A. Oboe
B. Clarinet
C. Flute
D. ✓ Violin

Answer: D

Oboe, clarinet and flute belong to the woodwind family: the player blows air through the instrument to make the sound. A violin is played by drawing a bow across strings, so it sits in the string family and is the odd one out. The flute tempts people because a modern flute is metal, but the family is decided by how the sound is made, not by the material.

7. Based on emotional valence (positive vs. negative meaning), choose the odd one out: (1)
- A. Joyful
B. Elated
C. Ecstatic
D. ✓ Melancholy

Answer: D

Joyful, elated and ecstatic all name happiness, rising in strength as you go along the list. Melancholy names a quiet sadness, so its valence is negative while the other three are positive. Ecstatic can look like the odd one because it is the most extreme word, but strength of feeling is not the test here. Direction of feeling is.

8. Despite the heavy rains, the farmers remained _____ that their crops would survive, drawing on generations of experience with the land. (1)
- A. doubtful
B. ✓ hopeful
C. indifferent
D. anxious

Answer: B

The sentence turns on 'despite'. It sets the heavy rains against what the farmers feel, so the blank needs a feeling that runs against worry, and 'generations of experience with the land' says where that feeling comes from. 'Hopeful' does both jobs. 'Anxious' fits the rains, but then 'despite' has nothing to contrast and the sentence falls apart.

9. The young woman's speech was both _____ and _____; she moved the audience to tears while also challenging them to take immediate action. (1)
- A. boring .. lengthy
B. confusing .. vague
C. ✓ inspiring .. persuasive
D. humorous .. careless

Answer: C

The second half of the sentence defines the two blanks. Moving an audience to tears is inspiring, and challenging them to take immediate action is persuasive, so C matches both halves in the right order. 'Humorous and careless' is tempting because a speech can be funny, but nothing here says she made them laugh, and 'careless' contradicts a speech that moved people.

10. Many Ethiopian students find themselves _____ between respecting traditional values and _____ the opportunities that modern education provides. (1)
- A. ✓ struggling .. embracing
B. choosing .. rejecting
C. hesitating .. ignoring
D. deciding .. abandoning

Answer: A

The sentence places two things that pull in different directions side by side: traditional values and the chances modern education opens. 'Struggling between' names that pull, and 'embracing' fits chances a student wants to take. 'Choosing and rejecting' is tempting, but it says the students have already settled the matter, while the sentence shows them still caught in the middle.

11. The novel's protagonist was a _____ character—firm in her convictions yet responsive to changing circumstances. (1)
- A. simple . . rigid . . closed
B. ✓ **complex . . steadfast . . adaptable**
C. ordinary . . confused . . open
D. predictable . . weak . . resistant

Answer: B

The description after the dash tells you what word belongs in the blank: firm in her convictions yet responsive to changing circumstances. Holding both of those at once is what makes a character complex, and 'steadfast' and 'adaptable' are the exact words for firm and responsive. 'Predictable, weak, resistant' is the opposite of responsive, so it fails on the second half of the description.

12. After weeks of meticulous preparation, the debate team was ready to _____ their arguments with confidence. (1)
- A. withdraw
B. ✓ **present**
C. question
D. abandon

Answer: B

After weeks of meticulous preparation, the team is ready to do something with the arguments it has built, and arguments are presented. 'Question' is tempting because debaters do question, but you question the other side's arguments, while the sentence says 'their arguments'.

13. The success of the village's new irrigation project _____ on the community's willingness to _____ together and maintain the system collectively. (1)
- A. ✓ **depends . . work**
B. fails . . compete
C. relies . . argue
D. hinges . . struggle

Answer: A

'The success of the project depends on' is the natural pairing, and what the community has to do together is work. 'Relies' also fits the first blank, which is why it draws people, but its partner word 'argue' undoes it: a project does not succeed because neighbours argue together while maintaining a system.

14. PREDICTABLE — Choose the word most nearly similar in meaning: (1)
- A. unforeseeable
B. ✓ **foreseeable**
C. random
D. uncertain

Answer: B

Predictable describes something you can tell in advance. 'Foreseeable' says the same thing: able to be seen coming. 'Unforeseeable' is the trap because it shares nearly all its letters with the answer, but the prefix 'un' reverses the meaning, and the question asks for the similar word, not the opposite.

15. ILLEGIBLE — Choose the word most nearly similar in meaning: (1)
- A. readable
B. understandable
C. ✓ **unreadable**
D. clear

Answer: C

Illegible describes handwriting or print that cannot be read. The prefix 'il' cancels 'legible', so the match is 'unreadable'. 'Understandable' is the tempting choice because reading and understanding feel close, but illegible is about the shapes on the page, not about the meaning behind them.

16. SUBMERGE — Choose the word most nearly opposite in meaning:

(1)

- A. immerse
- B. ✓ emerge
- C. sink
- D. plunge

Answer: B

Submerge means to go under the surface of a liquid, so its opposite is to come up out of it, which is 'emerge'. 'Immerse' is the trap: it differs from 'emerge' by a letter or two, but immerse means to put something fully into a liquid, which makes it a synonym of submerge rather than its opposite.

17. POSTPONE — Choose the word most nearly opposite in meaning:

(1)

- A. delay
- B. ✓ advance
- C. defer
- D. suspend

Answer: B

To postpone is to move an event to a later time, so the opposite is to move it to an earlier one, which is 'advance'. 'Defer' is the trap because it is the least familiar word on the list and unfamiliar words feel like the answer. Defer means to put off, which is what postpone already means.

18. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025.

The primary purpose of this passage is to:

- A. criticize the Ethiopian government for failing to extend the power grid
- B. ✓ describe how solar technology is transforming rural Ethiopian communities
- C. argue that kerosene lamps are superior to solar lighting
- D. promote urban migration as a solution to energy poverty

Answer: B

The passage moves through what rural life was like under kerosene, what solar home systems changed for one family, and what those changes opened up for clinics, farming and small businesses. That is a description of a transformation, which is B. Option A is tempting because paragraph 1 calls the grid 'a distant dream', but the passage never blames the government. It uses the missing grid to set the scene.

19. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025. According to the passage, solar home systems in rural Ethiopia typically include all of the following EXCEPT:

- A. a rooftop panel
B. a battery
C. ✓ a television set
D. LED lights

Answer: C

Paragraph 2 lists what a typical system holds: a small rooftop panel, a battery, LED lights and a phone charger. A television set never appears, so C is the item that does not belong. Read the question carefully, because it asks for the EXCEPT: the three items that do appear in the list are the wrong answers here.

20. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025. The author's attitude toward the adoption of solar technology in rural Ethiopia can be described as:

- A. skeptical and doubtful
B. critical and dismissive
C. indifferent and neutral
D. ✓ positive and supportive

Answer: D

Word choice carries the attitude. The author calls the impact 'transformative' and closes by calling solar energy 'a catalyst for broader rural development', and the one voice quoted describes what improved for her family. That is positive and supportive. 'Indifferent and neutral' tempts people because the piece reads like a report, but a neutral writer would not reach for words that praise.

21. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025.

The passage suggests that the introduction of solar technology has created new economic opportunities such as:

- A. factory jobs in cities and elsewhere
- B. ✓ **Phone charging and solar technician training**
- C. kerosene distribution networks
- D. government employment program

Answer: B

Paragraph 3 names the new work outright: women starting small businesses charging phones, and young people training as solar technicians. That is option B. 'Factory jobs in cities' is tempting because it sounds like development, but the passage is about work created inside the villages, and it never mentions factories.

22. *The Garden in Our Heads* 1. The human brain has been called the most complex structure in the known universe. (1) With approximately 86 billion neurons, each connected to thousands of others, it creates a network whose possible configurations exceed the number of atoms in existence. Until recently, we could only speculate about how this remarkable organ works. 2. That is changing. Advances in neuroimaging—such as fMRI and EEG—now allow scientists to observe the living brain in action. What researchers are discovering challenges long-held assumptions. The old model suggested that specific functions resided in fixed locations. But the reality appears far more dynamic: when a person speaks or remembers, multiple brain regions activate in coordinated patterns that shift constantly based on context. 3. Perhaps most fascinating is neuroplasticity—the brain's ability to reorganize itself throughout life. Scientists once believed that after childhood, the brain became fixed. We now know that learning a new skill or adapting to a new environment can physically reshape neural connections. The brain of a London taxi driver shows measurable growth in navigation regions; a musician's brain differs in areas controlling fine motor skills. 4. This understanding carries profound implications for education. If brains can change, then intelligence is not simply fixed at birth. Teaching methods, environment, and effort all matter. Dr. Hanna Mekonnen, an Ethiopian neuroscientist, explains: "The brain is not a computer that arrives pre-wired. It's more like a garden that grows according to how it's tended. With the right conditions, growth is always possible." Source: Adapted from research published in the *Journal of Neuroscience* and interviews with African neuroscientists, 2022-2024.

According to the passage, the traditional view of the brain as having fixed locations for specific functions is best described as:

- A. completely accurate and well-supported
- B. ✓ **an oversimplification of a more complex reality**
- C. irrelevant to understanding brain function
- D. a recent scientific discovery

Answer: B

Paragraph 2 sets out the old model, in which each function sat in a fixed location, and then says the reality 'appears far more dynamic', with several regions working together in patterns that keep shifting. So the old view is not called false. It is called too simple for what is really happening, which is B. Option A fails because the passage says the new findings challenge that view.

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According to the passage, what evidence supports neuroplasticity?

- A. Brain scans showing identical structures across all people
- B. The fact that brain size never changes after childhood
- C. ✓ **Observable brain changes in taxi drivers and musicians**
- D. Research showing intelligence is completely genetic

Answer: C

Paragraph 3 gives the evidence directly: a London taxi driver's brain shows measurable growth in the navigation regions, and a musician's brain differs where fine motor control sits. Both are brains reshaped by what the person practised, which is what neuroplasticity claims. Option B is the reverse of the passage, which says the old belief in a fixed adult brain has been overturned.

24. *The Garden in Our Heads* 1. The human brain has been called the most complex structure in the known universe. (1) With approximately 86 billion neurons, each connected to thousands of others, it creates a network whose possible configurations exceed the number of atoms in existence. Until recently, we could only speculate about how this remarkable organ works. 2. That is changing. Advances in neuroimaging—such as fMRI and EEG—now allow scientists to observe the living brain in action. What researchers are discovering challenges long-held assumptions. The old model suggested that specific functions resided in fixed locations. But the reality appears far more dynamic: when a person speaks or remembers, multiple brain regions activate in coordinated patterns that shift constantly based on context. 3. Perhaps most fascinating is neuroplasticity—the brain's ability to reorganize itself throughout life. Scientists once believed that after childhood, the brain became fixed. We now know that learning a new skill or adapting to a new environment can physically reshape neural connections. The brain of a London taxi driver shows measurable growth in navigation regions; a musician's brain differs in areas controlling fine motor skills. 4. This understanding carries profound implications for education. If brains can change, then intelligence is not simply fixed at birth. Teaching methods, environment, and effort all matter. Dr. Hanna Mekonnen, an Ethiopian neuroscientist, explains: "The brain is not a computer that arrives pre-wired. It's more like a garden that grows according to how it's tended. With the right conditions, growth is always possible." Source: Adapted from research published in the *Journal of Neuroscience* and interviews with African neuroscientists, 2022-2024.

Dr. Hanna Mekonnen's comparison of the brain to a garden primarily emphasizes that:

- A. brains are beautiful but fragile
- B. ✓ **neural development requires proper conditions and care**
- C. gardens grow better in some climates than others
- D. brain research is still in its early stages

Answer: B

Dr Mekonnen contrasts a computer that arrives pre-wired with a garden that 'grows according to how it's tended', and adds that 'with the right conditions, growth is always possible'. The comparison is about care and conditions producing growth, which is B. Option A talks about beauty and fragility, and the quotation raises neither.

25. *The Garden in Our Heads* 1. The human brain has been called the most complex structure in the known universe. (1) With approximately 86 billion neurons, each connected to thousands of others, it creates a network whose possible configurations exceed the number of atoms in existence. Until recently, we could only speculate about how this remarkable organ works. 2. That is changing. Advances in neuroimaging—such as fMRI and EEG—now allow scientists to observe the living brain in action. What researchers are discovering challenges long-held assumptions. The old model suggested that specific functions resided in fixed locations. But the reality appears far more dynamic: when a person speaks or remembers, multiple brain regions activate in coordinated patterns that shift constantly based on context. 3. Perhaps most fascinating is neuroplasticity—the brain's ability to reorganize itself throughout life. Scientists once believed that after childhood, the brain became fixed. We now know that learning a new skill or adapting to a new environment can physically reshape neural connections. The brain of a London taxi driver shows measurable growth in navigation regions; a musician's brain differs in areas controlling fine motor skills. 4. This understanding carries profound implications for education. If brains can change, then intelligence is not simply fixed at birth. Teaching methods, environment, and effort all matter. Dr. Hanna Mekonnen, an Ethiopian neuroscientist, explains: "The brain is not a computer that arrives pre-wired. It's more like a garden that grows according to how it's tended. With the right conditions, growth is always possible." Source: Adapted from research published in the *Journal of Neuroscience* and interviews with African neuroscientists, 2022-2024.

Based on the passage, which statement would the author most likely agree with?

- A. Intelligence is determined at birth and cannot change.
- B. ✓ **Educational approaches should consider the brain's capacity for change.**
- C. Neuroimaging has solved all mysteries about how the brain works.
- D. Only children's brains are capable of neuroplasticity.

Answer: B

Paragraph 4 draws the conclusion for the reader: if brains can change, then intelligence is not fixed at birth, and teaching methods, environment and effort all matter. A writer who says that would agree that teaching should take the brain's capacity for change into account. Option C goes further than the passage does, since the passage says neuroimaging lets scientists watch the living brain, not that every mystery is solved.

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The passage implies that the practical value of neuroplasticity research for Ethiopian education lies in:

- A. proving that some students simply cannot learn
- B. ✓ **encouraging teaching methods that build neural pathways**
- C. replacing teachers with brain scanners
- D. focusing exclusively on early childhood education

Answer: B

Neuroplasticity says that learning a skill physically reshapes neural connections. For a school, the useful consequence is that the way you teach can build those connections, which is B. Option D is tempting because the passage mentions childhood, but it mentions it in order to reject the old idea that the brain stops changing after childhood.

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In the context of the passage, the word 'profound' most nearly means:

- A. shallow and unimportant
- B. ✓ deep and significant
- C. confusing and unclear
- D. temporary and brief

Answer: B

'Profound' introduces the paragraph that says intelligence is not fixed at birth and that teaching, environment and effort all matter. Those are far reaching consequences, so profound here means deep and significant. 'Shallow and unimportant' is the exact opposite, and choosing it would make the paragraph that follows pointless.

28. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025. --- *The Garden in Our Heads* 1. The human brain has been called the most complex structure in the known universe. With approximately 86 billion neurons, each connected to thousands of others, it creates a network whose possible configurations exceed the number of atoms in existence. Until recently, we could only speculate about how this remarkable organ works. 2. That is changing. Advances in neuroimaging—such as fMRI and EEG—now allow scientists to observe the living brain in action. What researchers are discovering challenges long-held assumptions. The old model suggested that specific functions resided in fixed locations. But the reality appears far more dynamic: when a person speaks or remembers, multiple brain regions activate in coordinated patterns that shift constantly based on context. 3. Perhaps most fascinating is neuroplasticity—the brain's ability to reorganize itself throughout life. Scientists once believed that after childhood, the brain became fixed. We now know that learning a new skill or adapting to a new environment can physically reshape neural connections. The brain of a London taxi driver shows measurable growth in navigation regions; a musician's brain differs in areas controlling fine motor skills. 4. This understanding carries profound implications for education. If brains can change, then intelligence is not simply fixed at birth. Teaching methods, environment, and effort all matter. Dr. Hanna Mekonnen, an Ethiopian neuroscientist, explains: "The brain is not a computer that arrives pre-wired. It's more like a garden that grows according to how it's tended. With the right conditions, growth is always possible." Source: Adapted from research published in the *Journal of Neuroscience* and interviews with African neuroscientists, 2022-2024.

Which of the following themes is common to both passages?

- A. Traditional methods are always superior to modern innovations.
- B. ✓ **Scientific advances meet basic human needs.**
- C. Rural communities resist all forms of change and development.
- D. Government intervention is the only path to progress.

Answer: B

The first passage shows solar technology answering the need for light, clean air and safe vaccine storage. The second shows brain science answering the need for better teaching. In both, the advance earns its place by what it does for people, which is B. Option A tempts readers because both passages respect local realities, but neither one claims that tradition beats innovation.

29. *The Solar Revolution in Rural Ethiopia* 1. In the remote villages of Ethiopia's Rift Valley, where the national power grid remains a distant dream, a different kind of energy revolution is taking root. For generations, families relied on kerosene lamps—flaming, expensive, and hazardous—to extend their days beyond sunset. Children studied by dim, smoky light, their eyes straining and their lungs absorbing toxic fumes. Women walked kilometers to mill grain, and health posts stored vaccines in unreliable kerosene refrigerators. Energy poverty was simply a fact of life. 2. That reality is now changing, driven by the falling cost of solar technology and innovative distribution models. Companies like Bio Lite and d.light have partnered with Ethiopian microfinance institutions to make solar home systems affordable for rural families. A typical system includes a small rooftop panel, a battery, LED lights, and a phone charger—all for less than the cost of one year's kerosene. For Alemitu, a mother of five in the Oromia region, the impact has been transformative: "My children can now study after dark. I charge my phone at home instead of walking two hours to town. We breathe clean air." 3. The implications extend beyond individual households. Solar-powered water pumps are enabling small-scale irrigation, extending growing seasons and increasing food security. Solar-powered refrigerators allow health clinics to store vaccines safely. And perhaps most significantly, solar energy is creating new economic opportunities—women are starting small businesses charging phones, and young people are training as solar technicians. What began as a solution to energy poverty is becoming a catalyst for broader rural development. Source: Adapted from reports by the International Renewable Energy Agency (IRENA) and field observations in Ethiopian rural communities, 2023-2025. --- *The Garden in Our Heads* 1. The human brain has been called the most complex structure in the known universe. With approximately 86 billion neurons, each connected to thousands of others, it creates a network whose possible configurations exceed the number of atoms in existence. Until recently, we could only speculate about how this remarkable organ works. 2. That is changing. Advances in neuroimaging—such as fMRI and EEG—now allow scientists to observe the living brain in action. What researchers are discovering challenges long-held assumptions. The old model suggested that specific functions resided in fixed locations. But the reality appears far more dynamic: when a person speaks or remembers, multiple brain regions activate in coordinated patterns that shift constantly based on context. 3. Perhaps most fascinating is neuroplasticity—the brain's ability to reorganize itself throughout life. Scientists once believed that after childhood, the brain became fixed. We now know that learning a new skill or adapting to a new environment can physically reshape neural connections. The brain of a London taxi driver shows measurable growth in navigation regions; a musician's brain differs in areas controlling fine motor skills. 4. This understanding carries profound implications for education. If brains can change, then intelligence is not simply fixed at birth. Teaching methods, environment, and effort all matter. Dr. Hanna Mekonnen, an Ethiopian neuroscientist, explains: "The brain is not a computer that arrives pre-wired. It's more like a garden that grows according to how it's tended. With the right conditions, growth is always possible." Source: Adapted from research published in the *Journal of Neuroscience* and interviews with African neuroscientists, 2022-2024.

Both passages suggest that meaningful transformation requires:

- A. abandoning traditional practices entirely
- B. importing solutions from developed countries without adaptation
- C. ✓ **integrating new technologies with local conditions and needs**
- D. waiting for government support before taking action

Answer: C

Solar systems worked because they were priced and financed for rural families through Ethiopian microfinance, and the brain research is presented through an Ethiopian scientist applying it to Ethiopian classrooms. In both passages the new thing is fitted to the place it lands, which is C. Option B is the opposite of that, since importing without adaptation is what neither passage describes.

30. The elder advised the young man: "When you follow the path of your fathers, you learn to walk with their wisdom." This proverb suggests that: (1)
- A. young people should never question their elders
 - B. ✓ **traditional knowledge offers valuable guidance**
 - C. walking is the only way to learn
 - D. fathers always know the best routes

Answer: B

The path of the fathers stands for what earlier generations learned, and walking it means being guided by that learning. So the proverb presents inherited knowledge as useful guidance, which is B. Option A goes further than the proverb does: it forbids questioning elders, while the line says only that following the path teaches you something.

31. The proverb "Don't count your chickens before they hatch" teaches us to: (1)
- A. avoid raising poultry
 - B. ✓ **Wait for certainty before celebrating**
 - C. count carefully to avoid mistakes
 - D. expect every egg to produce a chick

Answer: B

Not every egg hatches, so counting chicks while they are still eggs means claiming a result you do not yet hold. The lesson is to wait until the outcome is certain before you celebrate. Option C reads the proverb literally, as advice about counting carefully, but the chickens and the eggs stand for any expected result.

32. The committee _____ for three hours before finally reaching a unanimous decision on the new school policy. (1)
- A. ✓ **debated**
 - B. was debated
 - C. were debating
 - D. have debated

Answer: A

The committee did the debating, so the verb has to be active, and the debating finished before the decision was reached, so the simple past 'debated' is right. 'Was debated' is passive, which would mean somebody else debated the committee. 'Have debated' is present perfect and does not sit with an action that is over and measured in hours.

33. All successful farmers in the region understand soil composition. Beka understands soil composition. Therefore: (1)
- A. Beka is definitely a successful farmer
 - B. ✓ **Beka may or may not be a successful farmer**
 - C. Beka cannot be a successful farmer
 - D. only successful farmers understand soil

Answer: B

The first sentence says every successful farmer understands soil. It does not say that only successful farmers understand it. So learning that Beka understands soil puts him in the larger group, which may also hold people who are not successful farmers. He may be one, he may not, which is B. Option A reverses the statement and reads it as 'everyone who understands soil is a successful farmer'.

34. If the length of a rectangle increases by 20% and the width decreases by 20%, then the area changes by: (1)
- A. No change
 - B. ✓ **4% decrease**
 - C. 4% increase
 - D. 8% decrease

Answer: B

Call the original area $L \times W$. The new length is $1.2L$ and the new width is $0.8W$, so the new area is $1.2 \times 0.8 \times LW = 0.96LW$. That is 96% of the old area, which is a 4% decrease. 'No change' is the trap: the two 20% moves look as if they cancel, but the increase and the decrease are taken on different numbers, so they do not.

35. If 8 workers can finish a job in 12 days, how many workers are needed to finish the same job in 6 days (assume each person works at the same rate)? (1)

A. 12
B. 14
C. ✓ 16
D. 18

Answer: C

Measure the job in worker-days. Eight workers for twelve days is $8 \times 12 = 96$ worker-days of effort. To do the same 96 worker-days in six days you need $96 \div 6 = 16$ workers. Option A, 12, comes from carrying the number of days into the answer. Halving the time doubles the workers instead, and $8 \times 2 = 16$.

36. A team of 5 students met for a discussion. Each student shook hands once with each other. How many handshakes take place? (1)

A. 120
B. ✓ 10
C. 25
D. 20

Answer: B

A handshake needs two people out of the five, and the same two people shake hands once. So the count is the number of pairs, $\frac{5 \times 4}{2} = 10$. Option D, 20, is what you get from 5×4 , which counts every handshake twice, once from each person's side.

37. A train running at 54 km/hr crosses a pole in 12 seconds. Length of the train is: (1)

A. 150 meter
B. 160 meter
C. ✓ 180 meter
D. 200 meter

Answer: C

Crossing a pole means the train travels its own length. Change the speed to metres per second first: $54 \times \frac{5}{18} = 15$ m/s. Then the length is $15 \times 12 = 180$ m. The tempting mistake is to leave the speed in km/hr and multiply by the 12 seconds, which mixes two different units and gives a meaningless number, so do the conversion before anything else.

38. Eight years ago, a mother's age was four times her daughter's age. Eight years from now, the mother's age will be twice her daughter's age. What is the current age of the mother? (1)

A. ✓ 40
B. 48
C. 56
D. 64

Answer: A

Let the mother's age now be M and the daughter's be D . Eight years ago, $M - 8 = 4(D - 8)$. Eight years from now, $M + 8 = 2(D + 8)$. The first gives $M = 4D - 24$. Putting that into the second, $4D - 24 + 8 = 2D + 16$, so $2D = 32$ and $D = 16$, which makes $M = 40$. Check it: eight years ago they were 32 and 8, and $32 = 4 \times 8$; in eight years they will be 48 and 24, and $48 = 2 \times 24$. Option B, 48, is the mother's age eight years from now, not her age today.

39. The table shows the number of different categories of electronic devices sold by a company over five years (in thousands). Year | Laptops | Tablets | Smartphones | Smart watches | Headphones | Total
2013 | 120 | 80 | 350 | 60 | 190 | 800
2014 | 150 | 95 | 420 | 75 | 210 | 950
2015 | 170 | 110 | 460 | 90 | 230 | 1060
2016 | 200 | 130 | 520 | 105 | 260 | 1215
2017 | 230 | 150 | 610 | 120 | 290 | 1400 (1)

For which category was the percentage increase in sales from 2014 to 2015 the maximum?

A. Headphones
B. Laptops
C. ✓ Smart watches
D. Tablets

Answer: C

Work out the percentage rise from 2014 to 2015 for each category. Smart watches: $\frac{90-75}{75} = 20\%$. Tablets: $\frac{110-95}{95} \approx 15.8\%$. Laptops: $\frac{170-150}{150} \approx 13.3\%$. Headphones: $\frac{230-210}{210} \approx 9.5\%$. Smart watches rise the most. Headphones tempt you because they added 20 thousand units against the smart watches' 15, but the question asks for percentage, and 20 out of 210 is a far smaller share than 15 out of 75.

40. The table shows the number of different categories of electronic devices sold by a company over five years (in thousands). Year | Laptops | Tablets | Smartphones | Smart watches | Headphones | Total 2013 | 120 | 80 | 350 | 60 | 190 | 800 2014 | 150 | 95 | 420 | 75 | 210 | 950 2015 | 170 | 110 | 460 | 90 | 230 | 1060 2016 | 200 | 130 | 520 | 105 | 260 | 1215 2017 | 230 | 150 | 610 | 120 | 290 | 1400 (1)

If the same percentage increase in smartphone sales from 2016 to 2017 continues for 2018, approximately how many smartphones will be sold in 2018?

- A. 690 thousand
B. ✓ 715 thousand
C. 730 thousand
D. 740 thousand

Answer: B

First find the rise from 2016 to 2017: $\frac{610-520}{520} = \frac{90}{520} \approx 17.3\%$. The question says that same percentage continues, so apply it to the 2017 figure: $610 \times 1.173 \approx 715.6$, which is about 715 thousand. Option A, 690 thousand, would mean a rise of only about 13%, which is not the rate the table gives. Note that a percentage taken on the larger 2017 base adds about 105 thousand, not the 90 thousand added the year before.

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The number of smart watches sold in 2015 is what percentage of the headphones sold in 2016?

- A. 30%
B. 40%
C. 36%
D. ✓ 34.6%

Answer: D

Smart watches sold in 2015 were 90 thousand, and headphones sold in 2016 were 260 thousand. So the answer is $\frac{90}{260} \times 100 = 34.6\%$. Option C, 36%, is what rounding too early gives you, so carry the division out: $90 \div 260 = 0.346$. The other common slip is taking both figures from the same year, when the question deliberately names 2015 for one and 2016 for the other.

— END OF MARKING KEY —