

VARC

Read the passage below and answer the questions that follow:

Before he became a science fiction writer, Frank Herbert worked several odd jobs. In 1957, while earning a living as a journalist, Herbert travelled to the state of Oregon to write an article on how the state government was using poverty grasses to stabilize the sand dunes that stretched along the coastline. Impressed by the size and scope of the Pacific Northwest, whose natural landscape seemed to dwarf even the largest cities to which he had been, Herbert never finished the writing assignment. Instead, parts of his mind began working on what would become the most influential science fiction novel in the history of the genre.

Today, we know this novel as Dune. It was originally published in 1965 and serves as the foundation for Denis Villeneuve's epic film, which was just released in cinemas around the world to both critical and commercial acclaim. It is set in a fictional and very distant future, one in which mankind has managed to colonize even the remotest corners of the galaxy. Its protagonist is Paul Atreides, the prepubescent heir to an ancient, aristocratic family that was granted stewardship of the desert planet Arrakis. Their job is to oversee the mining and export of a spacetime warping, life-extending drug known as spice melange, which can be found only on Arrakis.

When readers were first introduced to the world of Dune back in the 1960s, they quickly discovered that it was unlike any fictional universe they had yet come across. George Lucas was years away from writing the first draft of Star Wars. Science fiction was still in its infancy and usually appeared in the form of short stories that were published in pulp magazines like Amazing Stories. Generally, these stories were far more concerned with crafting a suspenseful plot or exploring an interesting idea about human nature than they were with establishing a living, breathing alternate reality. Herbert's Dune accomplished the latter without losing sight of the former.

Of course, Herbert was not the first to try his hand at constructing such a reality. More than a decade before he published his magnum opus, the British linguist and fantasy writer J.R.R. Tolkien had already beaten him to it. Tolkien's The Lord of the Rings trilogy expanded the borders of Middle-earth as they had been outlined in his earlier work, The Hobbit. But where Tolkien drew inspiration from English and Gaelic folklore, Herbert's academic interests lay elsewhere. The source material he transformed into Dune was found not in myth but in history. Those familiar with Dune can pinpoint numerous connections between Herbert's imagination and the real world that stimulated it. Since the story takes

place in a future version of our actual universe, it only makes sense that the societies portrayed in *Dune* should bear traces of their present-day counterparts. In *Dune*, the planets colonized by humanity are organized into a feudal system called the Landsraad — a word borrowed from Danish meaning “land council.” Herbert’s choice to use a foreign term as opposed to an English one hints at the possibility that the book’s galactic empire is Scandinavian in origin, or at the very least based on European feudalism.

1. It can be inferred from the passage that Herbert's 1957 trip to Oregon was:

- A. a professional failure that forced him to abandon journalism and pursue fiction writing.
- B. a pivotal event that shifted his creative focus from a specific journalistic topic to a larger thematic concept.
- C. the first time he had visited the Pacific Northwest to research ecological stabilization.
- D. primarily intended as a research trip to gather ideas for a science fiction novel.

2. According to the passage, a primary distinction between the world-building of Herbert and Tolkien is:

- A. the prior existence of *The Hobbit* as a foundation for Tolkien’s trilogy.
- B. the medium in which their stories were initially published.
- C. the nature of the academic disciplines that served as their source material.
- D. the level of critical and commercial acclaim their works received upon publication.

3. Which of the following statements is least supported by the passage?

- A. The central conflict in *Dune* revolves around the control of a unique and powerful resource.
- B. Frank Herbert’s initial inspiration for *Dune* was ecological in nature.
- C. *Dune* combined strong world-building with the plot-driven elements common to its genre.
- D. *Dune*’s narrative structure is a futuristic allegory for European feudalism.

4. All of the following are true about Frank Herbert's Dune, EXCEPT:

- A. It was originally serialized in pulp magazines before being published as a novel in 1965.
- B. It was written before George Lucas began work on the Star Wars franchise.
- C. It was inspired by Herbert’s exposure to the vast natural landscapes of Oregon.
- D. It depicts a future where humanity has colonized distant parts of the galaxy.

5. *There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.*

Sentence: Roundabouts are an alternative to traffic lights and stop signs in which the road forms a circle at an intersection.

Paragraph: ____ (1) ____ . Our commutes often leave us feeling like we're going in circles. ____ (2) ____ . But what if I told you that literally driving in circles is the best, safest, and most efficient form of civil engineering? ____ (3) ____ . Instead of coming to a complete stop before going straight or turning, cars enter and move clockwise through the circle, yielding to those already in motion but otherwise maintaining some level of speed before exiting in their desired direction. ____ (4) ____ . Though visually similar, roundabouts are different from traffic circles, which have larger medians and lower capacities.

- A. Option 1
- B. Option 2
- C. Option 3
- D. Option 4

6. *The four sentences (labelled 1, 2, 3 and 4) given below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer.*

1. Most of the running injuries are absent in cultures where shoes are not customarily worn at all.
2. Normally, runners with fancy shoes can these days expect a 30–80% chance of an injury.
3. Over the past several years, the importance of our feet has been overlooked for the comfort and luxury of wearing shoes.
4. Through the reappearance of walking and running as healthy activities, the significance of strong feet is again becoming a matter of concern.

7. *Five jumbled-up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.*

1. The Maldives has a distinctive culture that it works hard to protect.
2. The Maldives is a tiny nation of some 500,000 people, next door to the most populous country in the world.
3. In some ways, the importance of the India factor in Maldives politics should be seen as inevitable.
4. A strong adherence to Islam should be seen as an expression of the country's unique identity as much as a declaration of faith.
5. But even among informed Maldivians, there is also disquiet that Indian officials went beyond normal diplomatic protocols in their dealings with the former government.

8. *There is a sentence that is missing in the paragraph below. Look at the paragraph and decide where (option 1, 2, 3, or 4) the following sentence would best fit.*

Sentence: Obviously, in the very short term, a city's supply of hotel rooms is fixed.

Paragraph: The first lesson from the Edinburgh episode is that rising demand and constrained housing supply inevitably lead to some people being displaced from their homes. ____ (1) ____ . When there's a sudden spike in demand, prices for that finite number of rooms shoot up. ____ (2) ____ . When this happened in Edinburgh, Scottish Swifties had two options; spend more of their income on now-higher-priced hotels or economize on hotel costs by staying at a lower-quality hotel. ____ (3) ____ . Some of them will opt for the lower-quality rooms, raising prices for those too and giving budget tourists with more limited means the same options: pay up or downgrade. ____ (4) ____ .

- A. Option 1
- B. Option 2
- C. Option 3
- D. Option 4

9. *The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.*

In 2019 and 2020, researchers in southwest China unearthed a roughly 55,000-year-old Quina system: a prehistoric tool-making kit previously associated with the Middle East and Neanderthal sites in Europe. As detailed in a study published Monday in the journal *Proceedings of the National Academy of Sciences*, the discovery of a Quina system in China disputes the notion that eastern Asia remained stagnant during the Middle Paleolithic. "This is a big upset to the way we think about that part of the world in that period of time," study co-author Ben Marwick, an archaeologist at the University of Washington, says in a statement. "It really raises the question of what else people were doing during this period that we haven't found yet? How is this going to change how we think about people and human evolution in this area?"

- A. Through the discovery of the Quina system, researchers in southwest China have confirmed that Neanderthals once lived in Asia.
- B. The Quina system was previously unknown in any part of the world before its discovery in China.
- C. The discovery of the Quina system in China challenges existing beliefs about technological stagnation in eastern Asia during the Middle Palaeolithic.
- D. The recent discovery of the Quina system in China proves that human evolution in eastern Asia was identical to that in Europe.

10. *Five jumbled-up sentences (labelled 1, 2, 3, 4 and 5), related to a topic, are given below. Four of them can be put together to form a*

coherent paragraph. Identify the odd sentence and key in the number of that sentence as your answer.

1. In Vedantic thought, Krishn lifting the mountain is not an external miracle but an inner revelation.
2. The villagers bowed not just to Krishn, but to the very mountain that had protected them – a living symbol of divine refuge.
3. When Indra's pride collapsed, the thunder ceased, and sunlight returned.
4. For seven days and nights, the rain fell without pause, yet no one was harmed.
5. Under that mountain, time seemed to stand still – fear melted into faith.



DILR

In a country called Primistan, the currency is called Abhajya (@) and is available in exactly five denominations — @ 2, @ 3, @ 5, @ 7 and @ 11. Each of the five persons, Pranav, Reena, Ian, Mushtaq and Emily had notes of exactly one denomination with them, and no two persons among the five had notes of the same denomination. On a particular day, the five people visited a bookstore and each of them purchased a different book. The amounts that Pranav, Reena, Ian, Mushtaq and Emily paid the shopkeeper were @ 42, @ 105, @ 165, @ 70 and @ 75, respectively. Further, the number of notes that each person gave the shopkeeper was distinct. However, the amount that each person paid the shopkeeper was more than the price of the book that they purchased. Therefore, the shopkeeper returned the excess amounts to each in the form of three notes each, of three different denominations, which were different from those in which the person had paid the shopkeeper.

11. *What was the total number of notes paid to the shopkeeper?*
12. *Who paid the highest number of notes to the shopkeeper?*
A. Reena
B. Ian
C. Mushtaq
D. Emily
13. *Which of the following cannot be the price of the book purchased by Ian?*
A. 149
B. 150
C. 151
D. 153
14. *What could be the price of the costliest book purchased by Emily?*
15. *Which of the following is not true regarding the price of the book purchased by Pranav?*
A. The price of the book he purchased is a multiple of 3
B. The price of the book he purchased is a multiple of 5
C. The price of the book he purchased is a multiple of 8
D. The price of the book he purchased is a prime number
16. *Which of the following statements is sufficient to find the price of the book that Reena purchased?*
A. The price of the book she purchased is a multiple of 4
B. The price of the book she purchased is an odd number
C. The price of the book she purchased is less than 90
D. None of the above

A, B, C, D and E are five boys who live in a 10-storey building (excluding the ground floor). Each boy lives on a different floor, and none of them lives on the ground floor. All of them enter the lift on the ground floor, and each one presses the buttons for exactly 2 floors, such that all 10 buttons (floors 1-10) are pressed. None of them presses the button for his own floor. The following information is also known:

1. C lives above A but below D, and E lives below D but above B.
2. There are exactly 2 floors between the floors of B and A, and exactly one floor between the floors of C and E, where none of the five stay.
3. The floor numbers pressed by B are perfect square numbers.
4. A pressed the button for C's floor, B pressed the button for D's floor, C pressed the button for E's floor, D pressed the button for A's floor, and E pressed the button for B's floor.
5. The difference between the floor numbers pressed by E is the floor number of C.
6. The difference between the floor numbers pressed by D is a perfect square number.
7. A pressed consecutive floor numbers.
8. B pressed the buttons for the floors that are above his floor.

17. Who lives on a floor that is between the floors whose buttons he pressed?

- A. A
- B. B
- C. C
- D. E

18. Who lives on the 8th floor?

- A. A
- B. D
- C. C
- D. No One

19. Who pressed the button for the first floor?

- A. D
- B. B
- C. C
- D. E

20. Which of these is not a vacant floor?

- A. 10
- B. 4
- C. 2
- D. 7

QA

21. A container is filled with a pure chemical. From this container, 15 litres of chemical are withdrawn and replaced with water. This process is repeated one more time. The resulting mixture is then sold at the cost price of pure chemical, thereby making a profit of 125%. What is the initial capacity of the container in litres?

22. How many real values of x satisfy the below equation:

$$(\sqrt{3}+\sqrt{2})^x + (\sqrt{3}-\sqrt{2})^x = 10?$$

23. If a , b , and c are positive integers and $25!^{5!} = 3^a * 5^b * c$. What is the sum of a and b for the smallest possible value of c ?

- A. 2040
- B. 1800
- C. 2160
- D. 1920

24. A non-flying insect needs to travel from the bottom corner to the diagonally opposite top corner of a cubical room. The side of the room is 4 meters. What will be the minimum distance that the insect needs to travel?

- A. 12
- B. $4\sqrt{3}$
- C. $4\sqrt{5}$
- D. $4\sqrt{6}$

25. The ratio of the sum of all terms to that of the odd terms in a GP of an even number of terms is 8:1. Find the ratio of the 15th term to the 12th term.

- A. 729
- B. 512
- C. 343
- D. 216

26. A construction team has some workers who can build a housing project in 11 days. However, the team lays off 4 workers every alternate day starting from the third day, and hires 3 new workers every alternate day starting from the fourth day. If the project is finished in 20 days, find the original number of workers in the team.

27. How many distinct integers satisfy the inequality $\frac{|x+1|(x^2-6x+90)}{x^2-3x-10} < 0$?

- A. 4
- B. 5
- C. 6
- D. 7

28. Find the number of odd factors of 3080.

29. In a circle of radius 11 cm, CD is a diameter. AB is a chord of length 20.5 cm. If AB and CD intersect at a point E inside the circle and CE has a length of 7 cm, then the difference of the lengths of BE and AE is

- A. 0.5 cm
- B. 1 cm
- C. 1.5 cm
- D. 2.5 cm

30. Three brothers, Ram, Laxman, and Bharat, give 10%, 12.5%, and 16.66% of their salary, respectively, to their mother as a Diwali gift. Laxman and Ram's salaries are the same, and the difference in the amounts that they gave to their mother is Rs. 800. The total amount given by Ram and Laxman is Rs. 3000 more than Bharat's amount. The total amount given by the three sons is what percentage of their total salary?

- A. 11.4%
- B. 12.78%
- C. 13.85%
- D. 13.12%

