You should spend about 20 minutes on **Questions 27-40** which are based on Reading Passage 3 below.

Timur Gareyev – blindfold chess champion

A

Next month, a chess player named Timur Gareyev will take on nearly 50 opponents at once. But that is not the hard part. While his challengers will play the games as normal, Gareyev himself will be blindfolded. Even by world record standards, it sets a high bar for human performance. The 28-year-old already stands out in the rarefied world of blindfold chess. He has a fondness for bright clothes and unusual hairstyles, and he gets his kicks from the adventure sport of BASE jumping. He has already proved himself a strong chess player, too. In a 10-hour chess marathon in 2013, Gareyev played 33 games in his head simultaneously. He won 29 and lost none. The skill has become his brand: he calls himself the Blindfold King.

B

But Gareyev's prowess has drawn interest from beyond the chess-playing community. In the hope of understanding how he and others like him can perform such mental feats, researchers at the University of California in Los Angeles (UCLA) called him in for tests. They now have their first results. 'The ability to play a game of chess with your eyes closed is not a far reach for most accomplished player,' said Jesse Rissman, who runs a memory lab at UCLA. 'But the thing that's so remarkable about Timur and a few other individuals is the number of games they can keep active at once. To me it is simply astonishing.'

C

Gareyev learned to play chess in his native Uzbekistan when he was six years old. Tutored by his grandfather, he entered his first tournament aged eight and soon became obsessed with competitions. At 16, he was crowned Asia's youngest ever chess grandmaster. He moved to the US soon after, and as a student helped his university win its first national chess championship. In 2013, Gareyev was ranked the third best chess player in the US.

D

To the uninitiated, blindfold chess seems to call for superhuman skill. But displays of the feat go back centuries. The first recorded game in Europe was played in 13th-century Florence. In 1947, the Argentinian grandmaster Miguel Najdorf played 45 simultaneous games in his mind, winning 39 in the 24-hour session.

E

Accomplished players can develop the skill of playing blind even without realising it. The nature of the game is to run through possible moves in the mind to see how they play out. From this, regular players develop a memory for the patterns the pieces make, the defences and attacks. 'You recreate it in your mind,' said Gareyev. 'A lot of players are capable of doing what I'm doing.' The real mental challenge comes from playing multiple games at once in the head. Not only must the positions of each piece on every board be memorised, they must be recalled faithfully when needed, updated with each player's

moves, and then reliably stored again, so the brain can move on to the next board. First moves can be tough to remember because they are fairly uninteresting. But the ends of games are taxing too, as exhaustion sets in. When Gareyev is tired, his recall can get patchy. He sometimes makes moves based on only a fragmented memory of the pieces' positions.

F

The scientists first had Gareyev perform some standard memory tests. These assessed his ability to hold numbers, pictures and words in mind. One classic test measures how many numbers a person can repeat, both forwards and backwards, soon after hearing them. Most people manage about seven. 'He was not exceptional on any of these standard tests,' said Rissman. 'We didn't find anything other than playing chess that he seems to be supremely gifted at.' But next came the brain scans. With Gareyev lying down in the machine, Rissman looked at how well connected the various regions of the chess player's brain were. Though the results are tentative and as yet unpublished, the scans found much greater than average communication between parts of Gareyev's brain that make up what is called the frontoparietal control network. Of 63 people scanned alongside the chess player, only one or two scored more highly on the measure. 'You use this network in almost any complex task. It helps you to allocate attention, keep rules in mind, and work out whether you should be responding or not,' said Rissman.

G

It was not the only hint of something special in Gareyev's brain. The scans also suggest that Gareyev's visual network is more

highly connected to other brain parts than usual. Initial results suggest that the areas of his brain that process visual images – such as chess boards – may have stronger links to other brain regions, and so be more powerful than normal. While the analyses are not finalised yet, they may hold the first clues to Gareyev's extraordinary ability.

H

For the world record attempt, Gareyev hopes to play 47 blindfold games at once in about 16 hours. He will need to win 80% to claim the title. 'I don't worry too much about the winning percentage, that's never been an issue for me,' he said. 'The most important part of blindfold chess for me is that I have found the one thing that I can fully dedicate myself to. I miss having an obsession.'

Questions 27-32

Reading Passage 3 has eight paragraphs, **A-H**.

Which paragraph contains the following information?

*Write the correct letter, **A-H**, in boxes 27-32 on your answer sheet.*

NB *You may use any letter more than once.*

27 a reference to earlier examples of blindfold chess

28 an outline of what blindfold chess involves

29 a claim that Gareyev's skill is limited to chess

30 why Gareyev's skill is of interest to scientists

31 an outline of Gareyev's priorities

32 a reason why the last part of a game may be difficult

Questions 33-36

Do the following statements agree with the information given in Reading Passage 3?

*In boxes **33-36** on your answer sheet, write*

TRUE *if the statement agrees with the information*

FALSE *if the statement contradicts the information*

NOT GIVEN *if there is no information on this*

33 In the forthcoming games, all the participants will be blindfolded.

34 Gareyev has won competitions in BASE jumping.

35 UCLA is the first university to carry out research into blindfold chess players.

36 Good chess players are likely to be able to play blindfold chess.

Questions 37-40

Complete the summary below

Choose **ONE WORD ONLY** from the passage for each answer.

Write the correct letter in boxes 37-40 on your answer sheet.

How the research was carried out

The researchers started by testing Gareyev's **37** ……; for example, he was required to recall a string of **38** …… in order and also in reverse order. Although his performance was normal, scans showed an unusual amount of **39** …… within the areas of Gareyev's brain that are concerned with directing attention. In addition, the scans raised the possibility of unusual strength in the parts of his brain that deal with **40** …… input.