



SECTION 3

Questions 28-40

Read the text on pages 10 and 11 and answer Questions 28-40

Juma the Meerkat



A In the golden evening light, Juma, a young male meerkat, stares out at Africa's Kalahari desert. Juma has been watching over six pups - baby meerkats- since dawn, ignoring his own hunger as he scans the sky for eagles and the ground for jackals and snakes, all of which would kill the pupa if they found their burrow unguarded.

B Meerkats are among the most cooperative mammals on Earth. In a large meerkat group, which can have as many as forty members, six-month-old Juma would be too young to baby-sit. But with only five adults in his group, he must take his turn guarding the pups. Of the ten meerkat groups that my biology research team followed for five years, we came to know Juma and his family best. They quickly became accustomed to our presence, allowing us to follow them around their 15-square-kilometre range. Perhaps because they are prey to a large variety of birds and mammals, meerkats quickly learn to recognise danger and to ignore animals that do not pose a threat. Humans, with time and patience, generally fall into the latter category, and meerkats come to accept them completely, even climbing up our backs and taking their turns as guards from our shoulders and heads. The more they trusted us, the closer we were able to get. We collected skin and hair samples for genetic analysis, and, using boiled egg as an incentive, trained them to climb onto electronic scales every day, to be weighed.

C This long-term study grew out of my belief that meerkats might offer vital insights into the evolution of cooperation between mammals. According to evolutionary logic, an individual's success is usually measured by the number of offspring it raises, but some meerkats spend part or all of their lives helping others raise young rather than breeding themselves. Such seemingly altruistic behaviour can be found in very few mammals, but even within this select group, which includes marmosets and wild dogs, meerkats are unique in the extent and coordination of their cooperative activities. Few of our closest relatives, the great apes, cooperate with each other as extensively as meerkats.

D Meerkats' unusual system of rearing their young poses questions that go to the roots of our understanding of cooperative societies, including our own. Why do mature offspring remain in their parents' group instead of dispersing to breed? Why do they take risks and spend time and effort to help other members breed? How do group members divide their responsibilities and coordinate their contributions? And how do they ensure that all group members pull their weight? By studying meerkats, which depend on their group for survival, we gain an insight into the evolution of our own cooperative societies.

E Two years into our research, the irregular rainfall of the Kalahari failed completely, and the remaining grasses shrivelled and died in the drought. At first the meerkats hung on, but gradually