

52. If  $\frac{x}{3} + \frac{3}{x} = 1$ , then the value of  $x^3$  is
- (a) 1 (b) 27  
(c) 0 (d) -27
53. In an examination, a student who gets 20% of the maximum marks falls by 5 marks. Another student who scores 30% of the maximum marks gets 20 marks more than the pass marks. The necessary percentage required for passing is
- (a) 32% (b) 23%  
(c) 22% (d) 20%
54. Find the missing number in the given series:  
1, 3, 9, 27, 81, ?
- (a) 216 (b) 220  
(c) 243 (d) 250

**Directions for the following 4 (four) items:**

Read the following **two passages** and answer the items that follows. Your answers to these items should be based on the passages only.

**Passage - 1**

A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions. Without keystone species, the ecosystem would be dramatically different or cease to exist altogether. While the most abundant and dominant species within a particular ecosystem is often crucial in perpetuating the ecosystem, a "keystone" species, here defined as one whose effects are much larger than would be predicted from its abundance, can also play a vital role. But because complex species interactions may be involved, identifying a keystone species by removing the species and observing changes in the ecosystem is problematic. It might seem that certain traits would clearly define a species as a keystone species; for example, *Pisaster ochraceus* is often a keystone predator because it consumes and suppresses mussel populations, which in the

absence of this starfish can be a dominant species. But such predation on a dominant or potentially dominant species occurs in systems that do as well as in systems that do not have species that play keystone roles. Moreover, whereas *P. ochraceus* occupies an unambiguous keystone role on wave-exposed rocky headlands, in more wave-sheltered habitats the impact of *P. ochraceus* predation is weak or non-existent, and at certain sites sand burial is responsible for eliminating mussels. Keystone status appears to depend on context, whether of particular geography or of such factors as community diversity (for example, a reduction in species diversity may thrust more of the remaining species into keystone roles) and length of species interaction (since newly arrived species in particular may dramatically affect ecosystems).

55. The passage mentions which of the following as a factor that affects the role of *P. ochraceus* as a keystone species within different habitats?
- (a) The degree to which the habitat is sheltered from waves  
(b) The degree to which other animals within a habitat prey on mussels  
(c) The fact that mussel populations are often not dominant within some habitats occupied by *P. ochraceus*  
(d) The size of the *P. ochraceus* population within the habitat
56. Which of the following hypothetical experiments most clearly exemplifies the method of identifying species roles that the author considers problematic?
- (a) A population of seals in an Arctic habitat is counted in order to determine whether it is the dominant species in that ecosystem,  
(b) A species of fish that is a keystone species in one marine ecosystem is