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https://www.100test.com/kao_ti2020/214/2021_2022_GMAT_E8_80_83_E8_AF_95_c89_214020.htm Passage 41 It was once assumed that all living things could be divided into two fundamental and exhaustive categories. Multicellular plants and animals, as well as many unicellular organisms, are eukaryotic their large, complex cells(5) have a well-formed nucleus and many organelles. On the other hand, the true bacteria are prokaryotic cell, which are simple and lack a nucleus. The distinction between eukaryotes and bacteria, initially defined in terms of subcellular structures visible with a microscope, was ultimately carried to the molecular level. Here prokaryotic and eukaryotic cells have many features in common. For instance, they translate genetic information into proteins according to the same type of genetic coding. But even where the molecular processes are the same, the details in (15) the two forms are different and characteristic of the respective forms. For example, the amino acid sequences of various enzymes tend to be typically prokaryotic or eukaryotic. The differences between the groups and the similarities within each group made it seem certain to most biologists(20) that the tree of life had only two stems. Moreover, arguments pointing out the extent of both structural and functional differences between eukaryotes and true bacteria convinced many biologists that the precursors of the eukaryotes must have diverged from the common (25) ancestor before the bacteria arose. Although much of this picture has been sustained by

more recent research, it seems fundamentally wrong in one respect. Among the bacteria, there are organisms that are significantly different both from the cells of eukaryotes and (30) from the true bacteria, and it now appears that there are three stems in the tree of life. New techniques for determining the molecular sequence of the RNA of organisms have produced evolutionary information about the degree to which organisms are related, the time since they diverged (35) from a common ancestor, and the reconstruction of ancestral versions of genes. These techniques have strongly suggested that although the true bacteria indeed form a large coherent group, certain other bacteria, the archaebacteria, which are also prokaryotes and which resemble true (40) bacteria, represent a distinct evolutionary branch that far antedates the common ancestor of all true bacteria.

1. The passage is primarily concerned with (A) detailing the evidence that has led most biologists to replace the trichotomous picture of living organisms with a dichotomous one (B) outlining the factors that have contributed to the current hypothesis concerning the number of basic categories of living organisms (C) evaluating experiments that have resulted in proof that the prokaryotes are more ancient than had been expected. (D) summarizing the differences in structure and function found among true bacteria, archaebacteria, and eukaryotes (E) formulating a hypothesis about the mechanisms of evolution that resulted in the ancestors of the prokaryotes

2. According to the passage, investigations of eukaryotic and prokaryotic cells at the molecular level supported the conclusion that (A) most eukaryotic organisms are unicellular (B) complex cells

have well-formed nuclei (C) prokaryotes and eukaryotes form two fundamental categories (D) subcellular structures are visible with a microscope (E) prokaryotic and eukaryotic cells have similar enzymes³. According to the passage, which of the following statements about the two-category hypothesis is likely to be true? (A) It is promising because it explains the presence of true bacteria-like organisms such as organelles in eukaryotic cells. (B) It is promising because it explains why eukaryotic cells, unlike prokaryotic cells, tend to form multicellular organisms. (C) It is flawed because it fails to account for the great variety among eukaryotic organisms. (D) It is flawed because it fails to account for the similarity between prokaryotes and eukaryotes. (E) It is flawed because it fails to recognize an important distinction among prokaryotes.⁴ It can be inferred from the passage that which of the following have recently been compared in order to clarify the fundamental classifications of living things? (A) The genetic coding in true bacteria and that in other prokaryotes (B) The organelle structures of archaeobacteria, true bacteria, and eukaryotes (C) The cellular structures of multicellular organisms and unicellular organisms (D) The molecular sequences in eukaryotic RNA, true bacterial RNA, and archaeobacterial RNA (E) The amino acid sequences in enzymes of various eukaryotic species and those of enzymes in archaeobacterial species⁵. If the “ new techniques ” mentioned in line 31 were applied in studies of biological classifications other than bacteria, which of the following is most likely? (A) Some of those classifications will have to be reevaluated. (B) Many species of

bacteria will be reclassified (C) It will be determined that there are four main categories of living things rather than three. (D) It will be found that true bacteria are much older than eukaryotes. (E) It will be found that there is a common ancestor of the eukaryotes, archaeobacteria, and true bacteria.6. According to the passage, researchers working under the two-category hypothesis were correct in thinking that (A) prokaryotes form a coherent group (B) the common ancestor of all living things had complex properties (C) eukaryotes are fundamentally different from true bacteria (D) true bacteria are just as complex as eukaryotes (E) ancestral versions of eukaryotic genes functioned differently from their modern counterparts.7. All of the following statements are supported by the passage EXCEPT: (A) True bacteria form a distinct evolutionary group. (B) Archaeobacteria are prokaryotes that resemble true bacteria. (C) True bacteria and eukaryotes employ similar types of genetic coding. (D) True bacteria and eukaryotes are distinguishable at the subcellular level. (E) Amino acid sequences of enzymes are uniform for eukaryotic and prokaryotic organisms.8. The author ' s attitude toward the view that living things are divided into three categories is best described as one of (A) tentative acceptance (B) mild skepticism (C) limited denial (D) studious criticism (E) whole hearted endorsement

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