

**Marks**  
**3**

- Phenylketonuria is an inherited disorder in which phenylacetic acid,  $\text{C}_6\text{H}_5\text{CH}_2\text{COOH}$ , (simplified here to HPac) accumulates in the blood. If untreated, it can cause mental retardation and death. A study of the acid shows that the pH of a 0.12 M HPac solution is 2.60. What is the  $\text{p}K_{\text{a}}$  of phenylacetic acid?

Answer: