1. $\boxed{\text{D}}$

2. $\boxed{\text{A}}$

3. $\boxed{\text{B}}$

4. $\boxed{\text{A}}$

5. $2^{-(2k+1)} - 2^{-(2k-1)} + 2^{-2k} = 2^{-2k-1} - 2^{-2k+1} + 2^{-2k} = 2^{-2k}(2^{-1} - 2^1 + 1) = 2^{-2k}(-2^{-1}) = -2^{-(2k+1)}$. $\boxed{\text{C}}$

6. Let $y = 3^z$, so then we have $y^2 + 9 = 10y \Rightarrow y^2 - 10y + 9 = 0 \Rightarrow (y-9)(y-1) = 0$, so $y = 3^z = 9$ or $3^z = 1$, so $z = 2, 0$. So $z^2 + 1 = 2^2 + 1 = 5$ or $0^2 + 1 = 1$. $\boxed{\text{C}}$

7. There was a typo of the problem. It should have read $\left(\frac{1}{16}\right) a^0 + \left(\frac{1}{16a}\right)^0 - 64^{-1/2} - (-32)^{-4/5}$. Then it equals $2^{-4} + 1 - (2^6)^{-1/2} - (-2^5)^{-4/5} = 2^{-4} + 1 - 2^{-3} - 2^{-4} = 1 - 2^3 = 1 - \frac{1}{8} = \frac{7}{8}$. $\boxed{\text{D}}$

8. $\boxed{\text{C}}$

9. $\boxed{\text{D}}$

10. Notice the arithmetic sequence $\frac{1}{7}, \frac{3}{7}, \frac{5}{7}, \ldots \frac{2n+1}{7}$. First thing we need to do is rewrite the term $\frac{2n+1}{7}$ because it makes us start with $n = 0$ and I want to start with $n = 1$. So we replace n with $n - 1$ and simplify: $\frac{2(n-1)+1}{7} = \frac{2n-1}{7}$. Okay, so now we have the arithmetic sequence $\frac{1}{7}, \frac{3}{7}, \frac{5}{7}, \ldots \frac{2n-1}{7}$ in the exponents. Since they are all base 2, we add the exponents when we multiply the terms together, so $2^{1/7}2^{3/7} \ldots 2^{(2n-1)/7} = 2^{\frac{1}{7}+\frac{3}{7}+\ldots+\frac{2n-1}{7}}$. Now we need the arithmetic sum formula, which you should memorize: $S = \frac{n(a_1+a_n)}{2}$. So we can replace the exponent in our expression with the sum: $\frac{n}{2}(\frac{1}{7} + \frac{2n-1}{7}) = \frac{n}{2} \times \frac{2n}{7} = \frac{2n^2}{14}$. So now we have $2^{2n^2/14}$. We want an integer n such that the expression will be greater than 1000. We know that the smallest x such that $2^x > 1000$ is $x = 10$ (because $2^{10} = 1024$). So we want $2^10 \leq 2^{2n^2/14} \Rightarrow 10 \leq \frac{2n^2}{14} \Rightarrow 70 \leq n^2 \Rightarrow 8.3 \leq n$. So the first odd n greater than 8.3 is 9. $\boxed{\text{B}}$