6. [7 points] For each of the questions below, circle **all** of the available correct answers. You must circle at least one choice to receive any credit. No credit will be awarded for unclear markings. No justification is necessary.

a. [3 points] Which $F(x)$ are antiderivatives of $f(x) = e^{x^2}$ with $F(3) = 5$ for $x > 0$?
Note: due to a typo in the original exam (corrected here), a student's answer to option IV did not impact their score.

I. $F(x) = \displaystyle\int_0^{x^2} e^u \, du + 5$ II. $F(x) = \displaystyle\int_3^x 5e^{u^2} \, du$

III. $F(x) = \dfrac{1}{x^2} e^{x^2} + 5$ IV. $\boxed{F(x) = \displaystyle\int_{x^2}^9 -\dfrac{1}{2\sqrt{u}} e^u \, du + 5}$

V. $\boxed{F(x) = \displaystyle\int_3^x e^{u^2} \, du + 5}$ VI. $F(x) = \dfrac{e^{x^2}}{2x} - \dfrac{e^9}{6} + 5$

b. [2 points] Suppose $f(x)$ is an odd function. Which values of b make the following equation true?
$$\int_{-\pi}^b \sin(f(x)) \, dx = 0$$

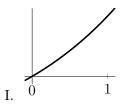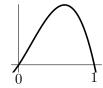I. $\boxed{b = -\pi}$ II. $b = 0$ III. $\boxed{b = \pi}$ IV. $b = \frac{3\pi}{2}$ V. $b = 2\pi$

c. [2 points] Which of the following could be the graph of $f(x) = \displaystyle\int_x^{x^3} e^{\sqrt[3]{u}} \, du$?