1. If the regression model is Salary = 30 + 20X1 + 0.007X2 - 30X3 + 0.001X1X2 + 10X1X3 and if we calculate the starting salary for non technical and technical positions.

For Non Technical positions get X3=0, so then -30X3 and 10X1X3 will equal to 0 and will leave the salary at:

Salary = 30 + 20X1 + 0.07X2+0.01X1X2

For Technical positions we get X3 =1:

Salary = 30 + 20X1 + 0.07X2 + 0.01X1X2 + 10X1 - 30

If the GPA is greater than 3 then X1 will add the term 10X1 - 30 and will be greater than 1, so then the salary will be greater than the non technical salary.

From these observations, the correct answer is option 3 since if we have a fixed value of Age and GPA then technical positions will earn more on average than Non-technical positions when the GPA is high enough.

1. Non Technical Salary = 30 + 20X1 + 0.07X2+0.01X1X2

Salary = 30 + 20 \* 4 + 0.07\*27 + 0.01\*2\*27 = 112.99K

Technical Salary = 30 + 20X1 + 0.07X2 + 0.01X1X2 + 10X1 - 30

Salary = 30 + 20\*4 + 0.07\*27 +0.01\*4\*27 + 10\*4 - 30 = 122.97K