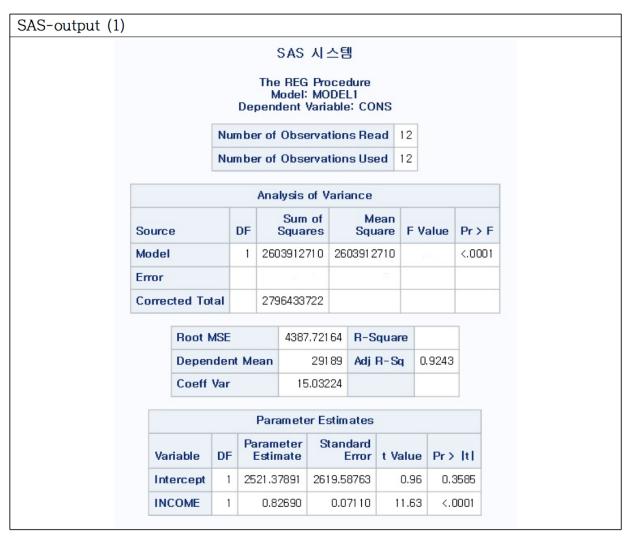
<regression 2015="" analysis="" mid-term,=""></regression>	학번:
(총 120점)	이름 (한글) :

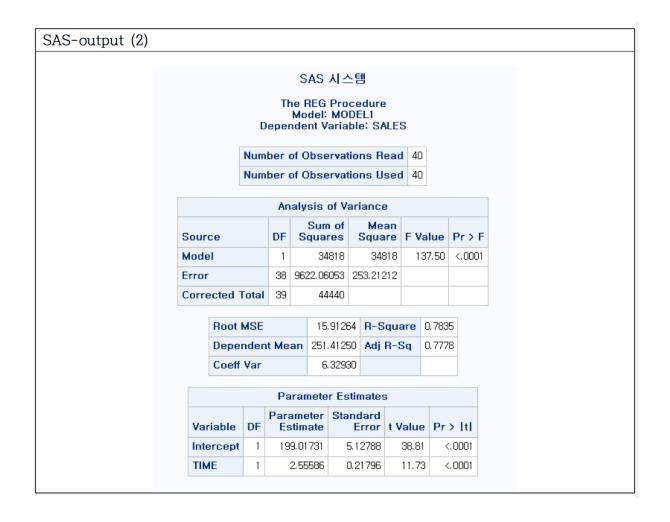
[1] The following SAS output (1) is obtained from the regression between annual incomes (INCOME) and consumptions (CONS). Fill the blanks (10 pts.)



1.1 Write the corresponding SAS code in the blank. (5 pts) proc reg data=a;

	run;		
1.2	R-Square is "Coefficient of	f D	" (5 pts)

1.3 Write the estimated regression equation (5 pts)		
1.4 Calculate the average INCOME based on the SAS Output. (5 pts)		
1.5 Construct the approximate 95% Confidence Interval for the slope using ($Z_0.025 = 1.96$, $Z_0.05=1.64$). (5 pts)		
1.6 For the hypotheses, $H_0: \beta_0 = 0, H_a: \beta_0 > 0$		
i) Write the corresponding p-value based on Output (5 pts):		
ii) Given the answer of (i), if someone has no income, how much is he going to consume ? (5pts)		
 [2] In hypothesis testing, the null hypothesis is rejected if (5 pts.) A. P-value > the significance level B. P-value < the significance level C. P-value > (the significance level) / 2 D. P-value > (the significance level) x 2 		
[3] The ABX company sells winter sports merchandise. The time (TIME) period represents the first quarter of 1994 through the ends in 2003. Dependent variable is SALES. The following is the SAS output.		



3.1 Can we say there is a linear trend about SALES? (5 pts)

(Yes or No)

3.2 Test whether the linear trend is 3.0 or not with 5% level of significance. Fill the blanks. (10 pts)

$$t_0 = \frac{((1)) - ((2))}{((3))} = ((4))$$

$$(1) = ((2))$$

$$(2) = ((3))$$

$$(3) = ((4))$$

$$t_{0.05,38} = 1.685, \quad t_{0.02538} = 2.024$$

$$(4) = ((4))$$

Therefore we (can or can't) say that the linear trend is 3.0.

proc reg data=a; model ((1)) run;	= ((2)) ;			(1) = ((2) = ()
3.4 What percentage of the	variation in SAI	LES has been	explain	ed by the regression? ((5 pts)
[4] Translate the following english term in Korean, or translate the Korean term into English one. (each 2 pts)					
4.1 Significance Level	()			
4.2 통계학	()			
4.3 L.S.E.	(L	S	Е)	
4.4 Two-Tailed Test	()			
4.5 상관계수	(C	С)		
4.6 Confidence Interval	()			
4.7 $n \ge 100$	(n is			100)	
4.8 i.i.d.	(i	and i		d)
4.9 잔차	()			
4.10 y를 x에 회귀시키다	()	

3.3 Fill the blanks in the SAS code for the above regression output. (10 pts)

[5] Fill the blanks (2 pts each / total 20 pts)

Recall that a s	is any value calculated from a sample.
Because statistics are r	, they have probability distributions called
S	

The variance of the estimate of the conditional mean of y given $x = x_m$ is equal

$$\sigma_m^2 = \sigma_e^2 \left(\frac{1}{n} + \frac{(x_m - \bar{x})^2}{(n-1)s_x^2} \right)$$

where

$$s_x^2 = \frac{1}{()} \sum_{i=1}^n \left(\right)$$

The standard _____ of the estimate of the point on the regression line is affected by the distance of the value of x_m from _____ .

The (closer or farther) the value of x_m to the mean value, the smaller the variance of the estimate, so the (less or more) accurate the estimate is expected to be. Because all least-squares lines pass through the point (,).