UNIVERSIDADE FEDERAL FLUMINENSE

ESCOLA DE ENGENHARIA

PROGRAMA DE PÓS-GRADUAÇÃO EM ENGENHARIA DE PRODUÇÃO

PROVA DE COMPREENSÃO EM INGLÊS (PCI)

CADERNO DE QUESTÕES

Janeiro/2020

INSTRUÇÕES

NÃO ABRA ESTE CADERNO DE QUESTÕES ANTES DE AUTORIZADO.

Você terá o máximo de 45 (quarenta e cinco) minutos para responder as 10 (dez) questões de múltipla escolha deste caderno. Marque as suas respostas no **QUADRO DE RESPOSTAS DO PCI** com caneta na cor Azul ou Preta. Comece preenchendo o cabeçalho com o seu nome, número de identidade e assinatura. Caso alguma prova não apresente **todos** esses elementos, será atribuído nota 0 (zero) à mesma. Apenas os quadros de respostas serão corrigidos. Caso alguma questão não tenha sua resposta assinalada no respectivo quadro de respostas, a resposta desta questão será considerada ERRADA. Qualquer sinal no quadrinho será interpretado como uma indicação de resposta. Tome cuidado para não marcar duas ou mais respostas para mesma questão. Caso isso aconteça, a resposta dessa questão será considerada ERRADA.

Nome do(a) Candidato(a):_____

Identidade: _____ Assinatura: _____

QUADRO DE RESPOSTAS DO PCI

Indique **no quadro abaixo**, com caneta **AZUL** ou **PRETA**, as respostas **CORRETAS**

	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										

Text I

"This paper presents an industry equilibrium model where firms have a choice to engage in corporate social responsibility (CSR) activities. We model CSR as an investment to increase product differentiation that allows firms to benefit from higher profit margins. The model predicts that CSR decreases systematic risk and increases firm value and that these effects are stronger for firms with high product differentiation. We find supporting evidence for our predictions. We address a potential endogeneity problem by instrumenting CSR using data on the political affiliation of the firm's home state." – Rui Albuquerque et al, 2019, Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence, *Management Science*, 65, 10, 4451-4469.

1. Mark the only claim that is supported by the previous text:

(A) Firms with low product differentiation do not benefit from corporate social responsibility.
(B) Corporate social responsibility is a requirement to achieve a high product differentiation.
(C) Using data on the political affiliation of the firm's home state increases the endogeneity problem.
(D) Firms with low systematic risk have a higher value.
(E) Firms with high product differentiation benefit more from corporate social responsibility.

Text II

"… This study focuses on the impact of noise peaks on surgical teams' communication during 109 long abdominal surgeries. We related measured noise peaks during 5-min intervals to the amount of observed communication during the same interval. Results show that noise peaks are associated with less case-relevant communication; this effect is moderated by the level of surgical experience; case-relevant communications decrease under high noise peak conditions among junior, but not among senior surgeons. However, case-irrelevant communication did not decrease under high noise level conditions, rather there was a trend to more case-irrelevant communication under high noise peaks ..." – Sandra Keller et al, 2016, Noise peaks influence communication in the operating room. An observational study, *Ergonomics*, 59, 12, 1541-1552.

2. Mark the only completion that is supported by the previous text: Under high noise peaks, it was observed that …

(A) neither case-relevant nor case-irrelevant communications decreased among junior surgeons.
(B) there was a trend to more communication among surgeons.
(C) there was no reduction on the amount of case-relevant communications among senior surgeons.
(D) there was no reduction on the amount of case-relevant communications among junior surgeons.
(E) both case-relevant and case-irrelevant communications decreased among junior surgeons.

Text III

"… Exploiting banking regulations in Peru and utilizing currency movements, we show that consumers who face a credit rating downgrade due to bad luck experience a three-year reduction in financing. Consumers respond to the shock by paying down their most troubled loans, but nonetheless end up more likely to exit the credit market …" – Mark Garmaise et al, 2017, Consumer Default, Credit Reporting, and Borrowing Constraints, *The Journal of Finance*, 72, 5, 2331-2368.

3. Mark the only claim that is supported by the previous text:

(A) The effect of credit rating downgrades in Peru disappears when the consumer pays its most troubled loans.
(B) Peruvian consumers who pay their most troubled loans are more likely to exit the credit market.
(C) Peruvian consumers who pay their most troubled loans experience a three-year reduction in financing.
(D) Consumers that experience a three-year reduction in financing exploit banking regulations in Peru.
(E) Bad luck is one of the reasons for the Peruvian consumers to exit the credit market.

Text IV

"Designing modern call centers requires an understanding of callers' patience and abandonment behavior. Using a Cox regression analysis, we show that callers' abandonment behavior may differ based on their contact history, and changes across their different contacts. We control for caller heterogeneity using a two-step grouped-fixed effect method. This analysis shows that differences in callers' abandonment behavior are not only driven by their heterogeneity but also by differences in their beliefs about their delays affected by their contact history ..." – Seyed Emadi et al, 2018, Customer Learning in Call Centers from Previous Waiting Experiences, *Operations Research*, 66, 5, 1189-1456.

4. Mark the only claim that supported by the previous text:

(A) A long call center delay may affect the callers' patience in the next contacts.
(B) A high caller heterogeneity increases the abandonment rate.
(C) A high caller heterogeneity decreases the abandonment rate.
(D) The contact history fully explains the callers' abandonment behavior.
(E) The caller heterogeneity affects the callers' beliefs about their delays.

Text V

"… This study aims to analyze how job accessibility and mixed land use satisfy housing consumers' needs. Particularly, this study investigates housing consumers' willingness to pay for these two features by using housing prices and rents in the Chicago metropolitan area. In order to deal with endogeneity between land use and housing prices and spatial autocorrelation between housing prices, spatial econometric models are used with instrumental variables. Interestingly, our findings show that an increase in job accessibility leads to an increase in housing prices, whereas it is not related to rents. We also found that mixed land use decreases housing prices, but increases rents." – Danya Kim et al, 2019, The Effect of Land Use on Housing Price and Rent: Empirical Evidence of Job Accessibility and Mixed Land Use, *Sustainability*, 11(3), 938.

5. Mark the only claim that is supported by the previous text for the Chicago metropolitan area:

(A) Both features considered in the paper cause an increase in rents.
(B) Every increase in housing prices coincide with an increase in rents.
(C) Spatial econometric models create endogeneity between land use and housing prices.
(D) Housing prices tend to be higher in places with non-mixed land use.
(E) Housing consumers that prefer mixed land use are not likely to be satisfied.

Text VI

"… The key question analyzed in the paper is how consumer heterogeneity affects the home bias of trade in different countries. The key finding here is that the heterogeneity in tastes and incomes of consumers can provide a substantial influence on degree of home bias in trade but only in combination with high transportation costs." – Alexander Osharin et al, 2018, Heterogeneity of consumer preferences and trade patterns in a monopolistically competitive setting, *Journal of Economics*, 125, 3, 211–237.

6. Mark the only claim that is supported by the previous text:

(A) Heterogeneity in tastes and incomes of consumers decrease the degree of home bias in trade.
(B) If the transportation costs are high, heterogeneity in tastes and incomes of consumers affects the degree of home bias in trade.
(C) A high degree of home bias in trade increases the transportation costs.
(D) The heterogeneity in tastes affects the income of consumers.
(E) The degree of home bias in trade is a combination of heterogeneity in tastes with incomes of consumers.

Text VII

"… In this paper, we investigate how from a theoretical viewpoint a recombination operator will affect a multi-objective EA (EA = evolutionary algorithm). First, we employ artificial benchmark problems: the Weighted LPTNO problem (a generalization of the well-studied LOTZ problem), and the well-studied COCZ problem, for studying the effect of recombination. Our analysis discloses that recombination may accelerate the filling of the Pareto front by recombining diverse solutions and thus help solve multi-objective optimization. Because of this, for these two problems, we find that a multi-objective EA with recombination enabled achieves a better expected running time than any known EAs with recombination disabled …" – Chao Qian et al, 2013, An analysis on recombination in multi-objective evolutionary optimization, *Artificial Intelligence*, 204, 99-119.

7. Mark the only claim that is **NOT** supported by the previous text for the two artificial benchmark problems employed:

(A) Enabling a recombination operator in any known EAs improves its expected running time.
(B) Accelerating the filling of the Pareto front helps to solve multi-objective optimization.
(C) Any known EAs with recombination disabled achieves a worse expected running time than the referred multi-objective EA with recombination enabled.
(D) Recombining diverse solutions may accelerate the filling of the Pareto front.
(E) The expected running time of the referred multi-objective EA is better with recombination enabled than disabled.

Text VIII

"We offer a new perspective on competitive dynamics research by analyzing firms' reactions to groups of rivals, both at the industry and the strategic group level. We propose that firms observe a buildup of rival actions and perceive increasing 'competitive pressure' to respond, which results in greater action volume. Data on the German mobile telephony supports our argument: the volume of firms' actions is influenced by a buildup of actions by multiple rivals, and firms react more strongly to rivals in their own strategic group." – Leon Zucchini et al, 2019, Competitive pressure: competitive reactions at the group-level, *Industry and Innovation*, 26, 6, 643-666.

8. Mark the only claim that is **NOT** supported by the previous text:

(A) Firms' actions may stimulate reactions from their rivals.
(B) Reactions to firms that belong to the same strategic group tend to be stronger.
(C) Firms that belong to different strategic groups tend not to be rivals.
(D) The greater is the number of actions from rivals, the stronger is the firm's reaction.
(E) The 'competitive pressure' over a firm results from a buildup of rival actions.

Text IX

"… A methodology is developed to analyze the complex trade-off between the contributions of preventive maintenance to the system performance. It is shown that preventive maintenance should be scheduled not to optimize the performance for each machine individually; its scheduling is best considered from the perspective of the manufacturing system as a whole. The analysis also reveals the importance of considering machine speeds when optimizing the choice of maintenance policy." – Mohamed-Chahir Fitouhi et al, 2017, Performance evaluation of a two-machine line with a finite buffer and condition-based maintenance, *Reliability Engineering & System Safety*, 166, 61-72.

9. Mark the only claim that is **NOT** supported by the previous text:

(A) Considering the machine speeds and the manufacturing system as a whole may lead to a better choice of maintenance policy.
(B) It is important to consider the machine speeds when optimizing the performance for each machine individually.
(C) A good choice of maintenance policy depends on analyzing the trade-off between the contributions of preventive maintenance to the system performance.
(D) Scheduling preventive maintenance from the perspective of the manufacturing system as a whole is better than from the perspective of individual machines.
(E) The chosen maintenance policy may not be good if the performance is optimized for each machine individually.

Text X

"… We identify the causal impact of schedule regularity on productivity by leveraging data from a Vietnamese university where freshmen were randomly assigned into highly-varying course schedules. Some schedules had consistent start times across the week, while others had extreme shifts in daily start times. Though we find a robust relationship between schedules and self-reported sleep, we precisely estimate no discernible differences in achievement across students with differing start time variability …" – Lester Lusher et al, 2019, Does schedule irregularity affect productivity? Evidence from random assignment into college classes, *Labour Economics*, 60, 115-128.

10. Mark the only claim that is supported by the previous text:

(A) Students with highly-varying course schedules had lower achievements.
(B) Students with less self-reported sleep had higher achievements.
(C) Students with consistent start times had highly-varying course schedules.
(D) The extreme shifts in daily start times affected the students' self-reported sleep.
(E) The extreme shifts in daily start times affected the students' achievements.