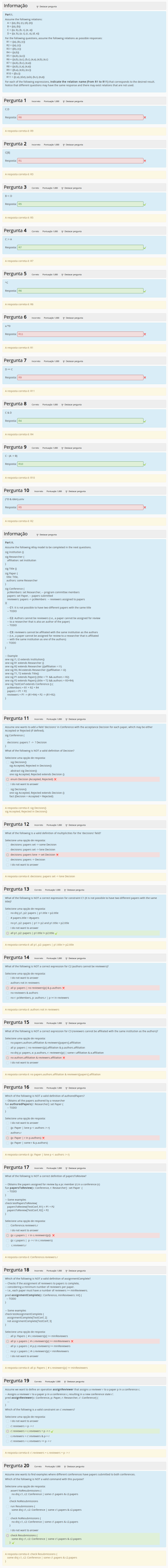

Informação

Part I.

Assume the following relations:

A = {(a), (b), (c), (d), (e)}
B = {(a), (b)}
C = {(a, b), (b, c), (e, a)}
D = {(a, b), (a, c), (c, a), (d, e)}

For the following questions, assume the following relations as possible responses:

R1 = {(a), (b), (c)}
R2 = {(a), (c)}
R3 = {(b), (c)}
R4 = {(a,b)}
R5 = {(a,b), (a,c)}
R6 = {(a,b), (a,c), (b,c), (e,a), (e,b), (e,c)
R7 = {(a,b), (b,c), (e,a)}
R8 = {(a,b), (c,a), (e,a)}
R9 = {(b,a), (e,b), (e,c)}
R10 = {(b,c)}
R11 = {(c,a), (d,e), (a,b), (b,c), (e,a)}

For each of the following expressions, **indicate the relation name (from R1 to R11)** that corresponds to the desired result. Notice that different questions may have the same response and there may exist relations that are not used.

Pergunta 1

Incorreto Pontuação 1,000

C.D

Resposta: R6 ✗

A resposta correta é: R9

Pergunta 2

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C[B]

Resposta: R1 ✗

A resposta correta é: R3

Pergunta 3

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B <: D

Resposta: R5 ✓

A resposta correta é: R5

Pergunta 4

Correto Pontuação 1,000

C :> A

Resposta: R7 ✓

A resposta correta é: R7

Pergunta 5

Correto Pontuação 1,000

^C

Resposta: R6 ✓

A resposta correta é: R6

Pergunta 6

Incorreto Pontuação 1,000

a.*D

Resposta: R11 ✗

A resposta correta é: R1

Pergunta 7

Incorreto Pontuação 1,000

D ++ C

Resposta: R9 ✗

A resposta correta é: R11

Pergunta 8

Correto Pontuação 1,000

C & D

Resposta: R4 ✓

A resposta correta é: R4

Pergunta 9

Correto Pontuação 1,000

C - (A -> B)

Resposta: R10 ✓

A resposta correta é: R10

Pergunta 10

Incorreto Pontuação 1,000

(^D & iden).univ

Resposta: R5 ✗

A resposta correta é: R2

Informação

Part II.

Assume the following Alloy model to be completed in the next questions.

```
sig Institution {}

sig Researcher {
  affiliation: set Institution
}

sig Title {}

sig Paper {
 title: Title,
 authors: some Researcher
}

sig Conference {
  pcMembers: set Researcher, -- program committee members
  papers: set Paper, -- papers submitted
  reviewers: papers -> pcMembers  -- reviewers assigned to papers
}{
  -- C1: It is not possible to have two different papers with the same title
  -- TODO

  -- C2: Authors cannot be reviewers (i.e., a paper cannot be assigned for review
  -- to a researcher that is also an author of the paper)
  -- TODO

  -- C3: reviewers cannot be affiliated with the same institution as the authors
  -- (i.e., a paper cannot be assigned for review to a researcher that is affiliated
  -- with the same institution as one of the authors)
 -- TODO

}

-- Example
one sig I1, I2 extends Institution{}
one sig R1 extends Researcher {}
one sig R2 extends Researcher {}{affiliation = I1}
one sig R3, R4 extends Researcher {}{affiliation = I2}
one sig T1, T2 extends Title{}
one sig P1 extends Paper{} {title = T1 && authors = R2}
one sig P2 extends Paper{} {title = T2 && authors = R3+R4}
one sig TestConf extends Conference {} {
  pcMembers = R1 + R2 + R4
  papers = P1 + P2
  reviewers = P1 -> (R1+R4) + P2 -> (R1+R2)
}
```

Pergunta 11

Incorreto Pontuação 1,000

Assume one wants to add a field 'decisions' in Conference with the acceptance Decision for each paper, which may be either Accepted or Rejected (if defined).

```
sig Conference {
  ...
  decisions: papers ?  ->  ? Decision
}
```

What of the following is NOT a valid definition of Decision?

Selecione uma opção de resposta:

- ○ sig Decision{}
  sig Accepted, Rejected in Decision{}
- ○ abstract sig Decision{}
  one sig Accepted, Rejected extends Decision {}
- ● enum Decision {Accepted, Rejected} ✗
- ○ I do not want to answer
- ○ sig Decision{}
  one sig Accepted, Rejected extends Decision {}
  fact {Decision = Accepted + Rejected}

A resposta correta é: sig Decision{}
sig Accepted, Rejected in Decision{}

Pergunta 12

Incorreto Pontuação 1,000

What of the following is a valid definition of multiplicities for the 'decisions' field?

Selecione uma opção de resposta:

- ○ decisions: papers set -> some Decision
- ○ decisions: papers set -> lone Decision
- ● decisions: papers lone -> set Decision ✗
- ○ decisions: papers -> Decision
- ○ I do not want to answer

A resposta correta é: decisions: papers set -> lone Decision

Pergunta 13

Correto Pontuação 1,000

What of the following is NOT a correct expression for constraint C1 (it is not possible to have two different papers with the same title)?

Selecione uma opção de resposta:

- ○ no disj p1, p2: papers | p1.title = p2.title
- ○ # papers.title = #papers
- ○ no p1, p2: papers | p1 != p2 and p1.title = p2.title
- ○ I do not want to answer
- ● all p1, p2: papers | p1.title != p2.title ✓

A resposta correta é: all p1, p2: papers | p1.title != p2.title

Pergunta 14

Incorreto Pontuação 1,000

What of the following is NOT a correct expression for C2 (authors cannot be reviewers)?

Selecione uma opção de resposta:

- ○ I do not want to answer
- ○ authors not in reviewers
- ● all p: papers | no reviewers[p] & p.authors ✗
- ○ no reviewers & authors
- ○ no r: pcMembers, p: authors.r | p->r in reviewers

A resposta correta é: authors not in reviewers

Pergunta 15

Incorreto Pontuação 1,000

What of the following is NOT a correct expression for C3 (reviewers cannot be affiliated with the same institution as the authors)?

Selecione uma opção de resposta:

- ○ no papers.authors.affiliation & reviewers[papers].affiliation
- ○ all p: papers | no reviewers[p].affiliation & p.authors.affiliation
- ○ no disj p: papers, a: p.authors, r: reviewers[p] | some r.affiliation & a.affiliation
- ● no authors.affiliation & reviewers.affiliation ✗
- ○ I do not want to answer

A resposta correta é: no papers.authors.affiliation & reviewers[papers].affiliation

Pergunta 16

Incorreto Pontuação 1,000

Which of the following is NOT a valid definition of authoredPapers?

```
-- Obtains all the papers authored by a researcher
fun authoredPapers[r: Researcher]: set Paper {
  -- TODO
}
```

Selecione uma opção de resposta:

- ○ I do not want to answer
- ○ {p: Paper | lone p <: authors :> r}
- ○ authors.r
- ● {p: Paper | r in p.authors} ✗
- ○ {p: Paper | some r & p.authors}

A resposta correta é: {p: Paper | lone p <: authors :> r}

Pergunta 17

Incorreto Pontuação 1,000

What of the following is NOT a correct definition of papersToReview?

```
-- Obtains the papers assigned for review by a pc member (r) in a conference (c)
fun papersToReview[c: Conference, r: Researcher] : set Paper  {
  -- TODO
}
-- Some examples
check testPapersToReview{
  papersToReview[TestConf, R1] = P1 + P2
  papersToReview[TestConf, R2] = P2
}
```

Selecione uma opção de resposta:

- ○ Conference.reviewers.r
- ○ I do not want to answer
- ● {p: c.papers | r in c.reviewers[p]} ✗
- ○ {p: c.papers | p -> r in c.reviewers}
- ○ c.reviewers.r

A resposta correta é: Conference.reviewers.r

Pergunta 18

Incorreto Pontuação 1,000

Which of the following is NOT a valid definition of assignmentComplete?

```
-- Checks if the assignment of reviewers to papers is complete,
-- considering a minimum number of reviewers per paper.
-- I.e., each paper must have a number of reviewers >= minReviewers.
pred assignmentComplete[c: Conference, minReviewers: Int] {
 -- TODO
}

-- Some examples
check testAssignmentComplete {
  assignmentComplete[TestConf, 2]
  not assignmentComplete[TestConf, 3]
}
```

Selecione uma opção de resposta:

- ○ all p: Papers | # c.reviewers[p] >= minReviewers
- ● all p: c.papers | # c.reviewers[p] >= minReviewers ✗
- ○ all p: c.papers | # p.(c.reviewers) >= minReviewers
- ○ no p: c.papers | # c.reviewers[p] < minReviewers
- ○ I do not want to answer

A resposta correta é: all p: Papers | # c.reviewers[p] >= minReviewers

Pergunta 19

Correto Pontuação 1,000

Assume we want to define an operation **assignReviewer** that assigns a reviewer r to a paper p in a conference c.

```
-- Assigns a reviewer r to a paper p in a conference c, resulting in a new conference state c'.
pred assignReviewer[c: Conference, p: Paper, r: Researcher, c': Conference] {
  ...
}
```

Which of the following is a valid constraint on c'.reviewers?

Selecione uma opção de resposta:

- ○ I do not want to answer
- ○ c'.reviewers = p -> r
- ● c'.reviewers = c.reviewers + p -> r ✓
- ○ c.reviewers = c'.reviewers & p-> r
- ○ c'.reviewers = c.reviewers ++ p -> r

A resposta correta é: c'.reviewers = c.reviewers + p -> r

Pergunta 20

Correto Pontuação 1,000

Assume one wants to find examples where different conferences have papers submitted to both conferences.

Which of the following is NOT a valid command with this purpose?

Selecione uma opção de resposta:

- ○ assert NoResubmissions {
   no disj c1, c2: Conference | some c1.papers & c2.papers
  }
  check NoResubmissions
- ○ run Resubmissions {
   some disj c1, c2: Conference | some c1.papers & c2.papers
  }
- ○ check NoResubmissions {
   no disj c1, c2: Conference | some c1.papers & c2.papers
  }
- ○ I do not want to answer
- ● check Resubmissions {
   some disj c1, c2: Conference | some c1.papers & c2.papers
  } ✓

A resposta correta é: check Resubmissions {
 some disj c1, c2: Conference | some c1.papers & c2.papers
}