Knowledge & Data exam training

Welcome!

1. Which of the following is **not** one of the proposals mentioned in the lecture?

A. Give all things a name
B. The names are addresses on the Web
C. Relations form a graph between things
D. Make explicit the meaning of things
E. Use propositional logic to represent classes and instances

2. Which of the following is true about knowledge and knowledge graphs?

A. Explicit or tacit knowledge is knowledge written in natural language
B. Explicit knowledge allows for predictable inference
C. Knowledge graphs are the only way to formally represent data
D. Knowledge graphs use URLs and tables to represent data and information

3. Consider the following formula, which is the prefix syntax:

->(∨(A,&(-(B),C)), -(∨(-D), -(E))))

What is an equivalent representation in infx syntax

A. (A ∨ (-B & C)) -> -(-D ∨ -E)
B. (B ∨ (-A & C)) -> -(A ∨ -E)
C. (A -> (B & -C)) -> -(-D ∨ -E)
D. (A ∨ (-B -> C)) & -(-D ∨ -E)
E. (A & (-B ∨ C)) -> -(-D -> -E)

4. Consider the following propositional formula: p -> (-q ∧ r), which of the following is a model.

A.   I(p)=True, I(q)=False, I(r)=True
B.   I(p)=True, I(q)=False, I(r)=False
C.   I(p)=True, I(q)=Trues, I(r)=True
D.   I(p)=True, I(q)=True, I(r)=False
E.   There is no model

5. Let KB be a knowledge base , and F a formula. Which of the following answer about entailment is true?

A. F is entailed by KB if and only if every model of KB is also a model of F
B. F is entailed by KB if and only if there is a model of KB that is also a model of F
C. If F has no model, it is always entailed by KB
D. If the knowledge base has no models, nothing is entailed

6. Let KG={(a,p,b),(b,q,a)} be a knowledge graph. Which of the following

A. (U,I) with U={1,2}, I(a)=1,I(b)=2, I(p)={(1,2)}, I(q)={(1,1)}
B. (U,I) with U={1,2}, I(a)=1,I(b)=2, I(p)={(1,2)}, I(q)={(2,2)}
C. (U,I) with U={1,2}, I(a)=2,I(b)=2, I(p)={(1,2)}, I(q)={(2,2)}
D. (U,I) with U={1,2}, I(a)=2,I(b)=2, I(p)={(1,2)}, I(q)={(2,1)}
E. (U,I) with U={1,2}, I(a)=2,I(b)=1, I(p)={(2,1)}, I(q)={(1,2)}
F. (U,I) with U={1,2}, I(a)=2,I(b)=1, I(p)={(2,1)}, I(q)={(2,2)}

7. Let KG={(Kadija,owns,MalikiTheBear), (MalikiTheBear,isa,Bear), (MalikiTheBear,likes,BearFood), (Kadija,isa,Human)} be a knowledge graph. Given the Simple Knowledge Graph Logic, which of the following knowledge graphs are entailed by this knowledge

A. {(Kadija,owns,MalikiTheBear), (Kadija,owns,Bear),(Kadija,isa,Human)}
B. {(MalikiTheBear,isa,Animal)}
C. {(Human,likes,Bear), (Kadija,likes,BearFood)}
D. {(Bear,isa,Animal), (Kadija,isa,Human), (Human,owns,MalikiTheBear)}
E. {(Kadija,owns,MalikiTheBear), (MalikiTheBear,isa,Bear), (Kadija,isa,Human)}
F. {(MalikiTheBear,likes,BearFood), (Kadija,isa,Human)}

8. Suppose only the following rule below is given:

Given a knowledge Graph KG= {(ex:A rdfs:subClassOf ex:B), (ex:A rdfs:subClassOf ex:C)}, which of the following (sets of) triples can be derived?

rdfs9	XXX rdfs:subClassOf YYY. zzz rdf:type XXX.	=>	zzz rdf:type YYY

A. solution: (ex:i1 rdf:type ex:B) and (ex:i2 rdf:type ex:B)
B. solution: (ex:i1 rdf:type ex:B) and (ex:i2 rdf:type ex:C)
C. solution: (ex:i1 rdf:type ex:C) and (ex:i2 rdf:type ex:A)
D. solution: (ex:i1 rdf:type ex:C) and (ex:i2 rdf:type ex:B)

9. Consider the following relational database with the two tables: Sailors and Ships

Sailor	First Name	Last Name	Birthdate	Wage	Ship
s1	Ramzy	Labidi	1-5-1635	20	ship001
s2	Amalia	Stuger	4-7-1678	12	ship001
s3	Maliki	Fofana	8-12-1660	18	ship002

Ship	Name	ShipType	HomeCity
ship001	Gloria		Amsterdam
ship002	Fortuna	Frigate	Zierikzee

A. Resources: s1, Labidi, 20, Amsterdam
B. Resources: s2, ship001, Frigate, Amsterdam
C. Resources: s3, Fortuna, ship002, 4-7-1600
D. Literals: Fofana, Fortuna, 20
E. Literals: s2, Labidi, ship002
F. Literals: ship003, Maliki, Zierikzee
G. Properties: hasFirstName, hasWage, hasHomeCity
H. Properties: hasBirthdate, Zierikzee, sailedOnShipName
I. Properties: hasNameJan, hasHomeCity, hasShip002

10. Consider the CSV file named "oscar winners". Which of the following triples (or set of triples) are syntactically correct representation of the information in the database as a Knowledge Graph in Turtle syntax? Consider the following prefix: @PREFIX ex: <http://example.org/>

Index	Year	Age	Name	Movie
1	1928	22	Janet Gaynor	Seventh Heaven
2	1929	37	Mary Pickford	Coquette
3	1930	28	Norma Shearer	The Divorcee
4	1931	63	Marie Dressler	Min and Bill
5	1932	32	Helen Hayes	The Sin of Madelon Claudet
6	1933	26	Katharine Hepburn	Morning Glory
7	1934	31	Claudette Colbert	It Happened One Night
8	1935	27	Bette Davis	Dangerous
9	1936	27	Luise Rainer	The Great Zuegfeld

A. <http://example.org/1> <hasFirstName> <Janet>@en
B. ex:5 ex:hasName "Helen Hayes"
C. "http://example.org/Marie"
   <http://example.org/hasLastName> ex:Dressler
D. "1928" ex:hasMovie ex:SeventhHeaven
E. ex:1 ex:hasName "Mary Pickford"
F. ex:3 ex:hasYear "1930" ;
   ex:hasMovie ex:TheDivorcee