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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : CRITICAL INFRASTRUCTURE
SECURITY
COURSE CODE : BIS 33303
PROGRAMME : 3 BIS
EXAMINATION DATE : DECEMBER 2015 / JANUARY 2016
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

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SECTION A

Instruction: Choose the BEST answer for each of the following questions.

Q1 Which of the following describes a cold site?

- A. Fully equipped and operational in a few hours
- B. Partially equipped with data processing equipment
- C. Expensive and fully configured
- D. Provides environmental measures but no equipment

(3 marks)

Q2 Which resource should we first protect when designing continuity plan provisions and processes?

- A. Physical plant
- B. Infrastructure
- C. Financial
- D. People

(3 marks)

Q3 What type of mitigation provision is utilized when redundant communications links are installed?

- A. Hardening systems
- B. Defining systems
- C. Reducing systems
- D. Alternative systems

(3 marks)

Q4 What is the end goal of Disaster Recovery Planning?

- A. Preventing business interruption
- B. Setting up temporary business operations
- C. Restoring normal business activity
- D. Minimizing the impact of a disaster

(3 marks)



Q5 Which of the following statements about Business Continuity Planning and Disaster Recovery Planning is **not** correct?

- A. Business Continuity Planning is focused on keeping business functions uninterrupted when a disaster strikes.
- B. Organizations can choose whether to develop Business Continuity Planning or Disaster Recovery Planning plans.
- C. Business Continuity Planning picks up where Disaster Recovery Planning leaves off.
- D. Disaster Recovery Planning guides an organization through recovery of normal operations at the primary facility.

(3 marks)

Q6 Which disaster recovery principle best protects your organization against hardware failure?

- A. Consistency
- B. Efficiency
- C. Redundancy
- D. Primacy

(3 marks)

Q7 Ali made a lot of backups of his company's corporate data.

Which of the following is the best way to ensure that the company's backup tapes can be restored and used at a warm site?

- A. Retrieve the tapes from the offsite facility and verify that the equipment at the original site can read them.
- B. Ask the offsite vendor to test them and label the ones that were properly read.
- C. Test them on the vendor's machine, which would not be used during an emergency.
- D. Inventory each tape kept at the vendor's site twice a month.

(3 marks)

Q8 Who give the final approval of the business continuity plan?

- A. The planning committee
- B. Representative from each department
- C. Management of the organization
- D. External authority

(3 marks)

Q9 Which are the proper steps for developing a continuity plan?

- A. Project initiation, strategy development, business impact analysis, plan development, implementation, testing, and maintenance.
- B. Strategy development, project initiation, business impact analysis, plan development, implementation, testing, and maintenance.
- C. Implementation and testing, project initiation, strategy development, business impact analysis, and plan development.
- D. Plan development, project initiation, strategy development, business impact analysis, implementation, testing, and maintenance.

(3 marks)

Q10 What is the most crucial piece for developing a business continuity plan?

- A. Business impact analysis
- B. Implementation, testing, and following through
- C. Participation from each and every department
- D. Management support

(3 marks)

Q11 In order, to get proper management support and approval of the plan, a business case must be made. Which of the following is the **least** important to this business case?

- A. Regulatory and legal requirements
- B. Company vulnerabilities to disasters and disruptions
- C. How other companies are dealing with these issues
- D. The impact the company can endure if a disaster hits

(3 marks)

Q12 Which of the following describes a structured walk-through test?

- A. It is performed to ensure that critical systems will run at the alternate site.
- B. All departments receive a copy of the disaster recovery plan and walk through it.
- C. Representatives from each department come together and go through the test collectively.
- D. Normal operations are shut down.

(3 marks)



SECTION B

Instruction: Please write the BEST answer for each of the following questions.

Q13 As part of UTHM (Batu Pahat) preparation for a possible flood scenario that would affect its daily operation, Datuk Vice Chancellor has proposed to work together with Universiti Teknologi Malaysia (UTM), Sekudai Johor Bahru to have a Mutual Assistance Agreement in the case of disaster.

Analyse **THREE (3)** possible difficulties for UTHM when considering adopting a Mutual Assistance Agreement?

(12 marks)

Q14 UTHM Enterprise System requires the usage of several sets of Application Programming Interfaces (API) from a well-known vendor. UTHM is extremely concern about its dependence on that API. Continuous support from the vendor must be made available to UTHM for another 20 years.

What can you propose to protect UTHM, in case the vendor went bankrupt?

(10 marks)

Q15 UTHM has lots of backup to be done on its TCIS databases. As it is very critical to the organization, it is necessary to have backups that is frequent enough but with less media sets to use.

Propose a reliable backup schedule that would achieve this goal.

(12 marks)



- Q16** You are concerned about the risk that a fire poses to your RM3 million power generating facility. Based upon expert opinion, you determine that there is a 3 percent chance that a fire will occur each year. Experts advise you that a fire would completely destroy your building and require you to rebuild on the same land. Ninety percent of the RM5 million value of the facility is attributed to the building and 10 percent is attributed to the land itself.
- (a) Calculate the single loss expectancy of your shipping facility to avalanches. (5 marks)
- (b) Calculate the annualized loss expectancy. (5 marks)
- Q17** UTHM Air Industries expects that it would lose RM10 million if a tornado struck its aircraft operations facility. From historical data, it is expected that a tornado might strike the facility once every 80 years.
- (a) Calculate the single loss expectancy for this scenario. (4 marks)
- (b) Calculate the annualized loss expectancy. (4 marks)



Q18 A widespread power outage in Peninsular Malaysia begin at 17:17 on 3 August 1996. The states of Peninsular Malaysia including Wilayah Persekutuan, Selangor, Putrajaya, Johor, Melaka and Negeri Sembilan lost power for several hours. The blackout was due to a transmission line near Sultan Ismail Power Station in Paka, Terengganu got tripped at 5:17 pm causing all power stations in Peninsular Malaysia to collapse resulting a massive power failure.

(a) Propose **TWO (2)** mitigation schemes that would avoid such a disaster from happening again.

(6 marks)

(b) If a government regulations were to be made for all hospital institutions, propose a regulation that would help face such disaster.

(6 marks)

-END OF QUESTION-

