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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019**

COURSE NAME : SUSTAINABLE CONSTRUCTION
MANAGEMENT

COURSE CODE : BFC32703

PROGRAMME CODE : BFF

EXAMINATION DATE : JUNE / JULY 2019

DURATION : 3 HOURS

INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

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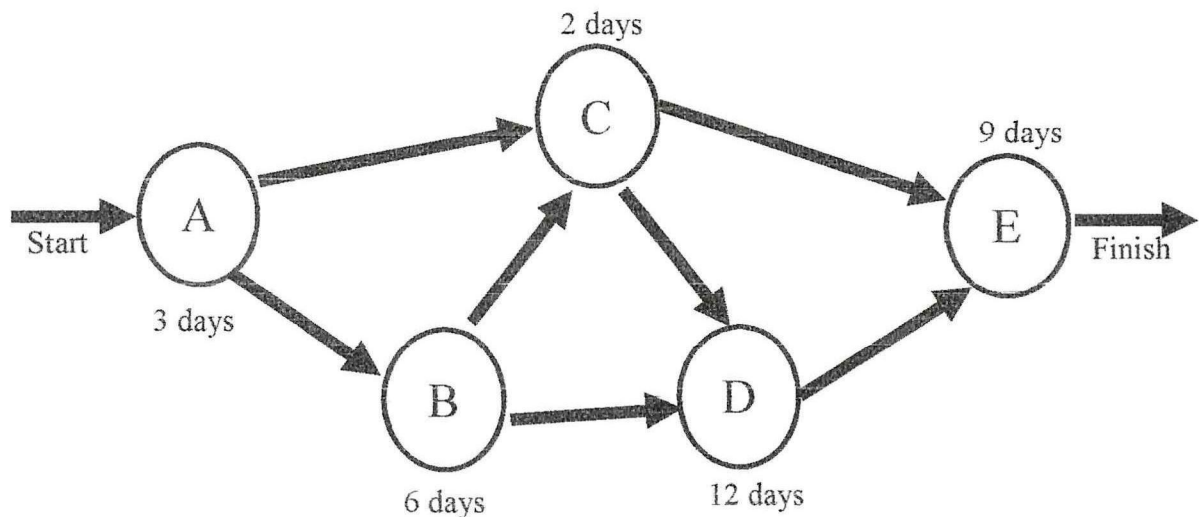
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SECTION A – CHOOSE THE CORRECT ANSWER (20 MARKS)

Q1 Choose a statement which does NOT describe sustainable development.

- A. “Creating and operating a healthy built environment based on resource efficiency and ecological design” Charles J. Kibert.
- B. “The balanced uses of resources on a global scale including physical elements, human elements, and national political context” Ronald Rovers.
- C. “Our planet has enough for everyone’s need, but not enough for everyone’s greed” Mahatma Gandhi.
- D. “The development which meets the needs of present without compromising the ability of future generation to meet their own need” Bourdeau.

Q2 In this simplified network diagram, how many paths exist, from project start to project finish?



- A. 1
- B. 4
- C. 5
- D. 6

Q3 Referring to the project network diagram in Q2, identify the critical path.

- A. Start-A-C-D-Finish
- B. Start-A-C-D-E-Finish
- C. Start-A-B-C-D-E-Finish
- D. Start-A-B-D-E-Finish

- Q4** Referring to the project network diagram in **Q2**, identify the shortest period of time in which this project may be completed.
- A. 16 days
 - B. 23 days
 - C. 26 days
 - D. 32 days
- Q5** Which of the followings actions is **NOT** in line with possible strategies for sustainable construction?
- A. Ali managed and executed indoor environmental quality measures during construction properly.
 - B. Ali identifies materials for recycling process at each phase of construction and establish methods to support the onsite recycling effort.
 - C. Ali identifies non-environmentally friendly building materials which are harmful and toxic and use it as a materials in a construction project.
 - D. Ali adopts specific procurement strategies to ensure sustainable construction requirements are addressed
- Q6** Which of the followings is/are **TRUE** about Value Management?
- I. Value Management is a systematic and innovative methodology with a multi-disciplinary approach targeted to achieve better value of construction products through decision making process
 - II. Value Management provides a very effective tool to integrate this diverse discipline and parties to work on a common goals and adopting a very structured methodology.
 - III. Value Management in many cases, the parties who involved in the planning and design development tend not to work in 'silos'.
 - IV. The fundamental contribution by the Value Management technique is to eliminate the unnecessary cost which does not contribute to the value of the services, products, systems and that obviously includes the construction projects.
- A. All of the above
 - B. II and III
 - C. I, II and IV
 - D. IV only

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- Q7** While reviewing your project network diagram, you note that an activity has an Early Start time of 3 days and a Late Start time of 12 days. How much float does this activity have?
- A. Zero, because activities on the critical path have zero slack.
 - B. + 9 days.
 - C. - 9 days.
 - D. 75%
- Q8** A risk is a chance that things will not turn out as they were intended to. These are among insurances taken for a typical construction project, **EXCEPT**?
- A. Worker's compensation and employer's liability insurance
 - B. Professional liability insurance
 - C. Comprehensive general liability insurance
 - D. Equipment floater policy
- Q9** Contractor Bina Maju Sdn Bhd has to complete a project near a river basin where the risk of flood is very high. Suggest an insurance policy which will cover damage to mobile and stationary construction equipment which is not generally subjected to vehicle registration. Not included liability and property damage insurance for cars, trucks, and other equipment subjected to the motor vehicle licensing laws.
- A. Worker's compensation and employer's liability insurance
 - B. Professional liability insurance
 - C. Comprehensive general liability insurance
 - D. Equipment floater policy
- Q10** Which of the followings are the objectives of QLASSIC implementation?
- I. To be used as a criterion to evaluate the performance of contractors based on quality of workmanship
 - II. To establish a standard quality assessment system on quality of workmanship of construction work
 - III. To assess the quality of workmanship of a construction project based on the relevant approved standard
 - IV. It provides protection to architects and engineers from liability based upon professional errors or omissions in performing design, construction management or other services
- A. I and II
 - B. I, II and III
 - C. I, II, III and IV
 - D. II, III and IV

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SECTION B – ANSWER ALL QUESTIONS (80 MARKS)

Q11 There are plenty of green building rating tools developed by organizations in Malaysia besides Green Building Index (GBI) such as Green Real Estate (GreenRE) by the Real Estate Housing Development Authority (REHDA) and the latest one is Malaysian Carbon Reduction and Environmental Sustainability Tool (MYCREST) by Construction Industry Development Board Malaysia (CIDB Malaysia). Each rating tool has its own individual characteristics and criteria which differ from the others. It is necessary for the stakeholders to have an introduction and compilation of each of their rating tools available.

- (a) Define green rating tools (1 mark)
- (b) Compare the **THREE (3)** most prominent green rating tools in Malaysia. (9 marks)
- (c) Suggest the best green rating tools to be used in the Malaysian construction industry. Justify your answer. (10 marks)

Q12 (a) Define the sustainable construction concepts. (2 marks)

(b) You have been appointed as a project manager to build a condominium in Space U8 Shah Alam, Selangor. Your client instructed you to incorporate sustainable concepts for the life cycle of the condominium project. As the project manager, explain in details the **NINE (9)** possible strategies that can be implemented throughout the overall construction project life cycle. (18 marks)

Q13 (a) Describe **THREE (3)** importances of Information and Communication Technology (ICT) to construction industry. (6 marks)

(b) Illustrate the delivery method comparison diagram for Design-Bid-Build and Design-Build in term of time consumption to complete the design, bid and construction process. (4 marks)

(c) Explain the selection criteria to be considered by any construction firm before choosing the most effective project management organizational structure. (10 marks)

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Q14 Based on the information given in **Table 1**, perform the followings :

- (a) Develop an Arrow Diagram Network (ADM) for the project and perform the Critical Path Method (CPM) calculation to determine the ES, EF, LS and LF for all activities and also the total project duration. Show the critical activities in your network. (10 marks)
- (b) Calculate the total float for each activity in the project. (2 marks)
- (c) Draw a bar chart based on calculation in **Q14 (a)** and **Q14 (b)**. (8 marks)

– END OF QUESTIONS –

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TABLE 1

Job No	Job Description	Immediate Predecessor	Duration (weeks)
0	Purchase site	-	16
1	Plan preparation	0	6
2	Excavation	1	4
3	Foundations	2	3
4	Frame	3	5
5	Electrical wiring	4	2
6	Insulation	4	1
7	Roofing	4	2
8	Ductwork and plumbing	6	4
9	Drywall installation	5,7,8	6
10	Install sliding	7	4
11	Exterior painting	10	3
12	Interior painting	9	4
13	Carpeting	12	2
14	Install interior fixtures	13	7
15	Install exterior fixtures	11	2
16	Handing over	14,15	1

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