



First Semester Examination
2020/2021 Academic Session

February 2021

EAA483 – Construction Management

Duration : 1 hour

Please check that this examination paper consists of **TWENTY TWO (22)** pages of printed material before you begin the examination.

Instructions : Answer **ALL** questions on **OMR FORM**. Ensure that your OMR form is complete [with your index number, course code, answers to the questions, etc.]. Use only a 2B pencil on your OMR form.

1. Projects can be expressed as
 - (i). Fixed period of time which has a start and end date
 - (ii). Involvements of various departments and disciplines
 - (iii). routine
 - (iv). Limited by time, cost, resources, and performance specifications.
 - A. (i), (ii), (iii) only
 - B. (i), (ii) (iv) only
 - C. (i), (ii) only
 - D. (i), (iii), (iv) only
 - E. All the above

2. A project lifecycle are depicted from the following phases
 - A. Defining, Planning, Executing Stages
 - B. Defining, Planning, Delivering Stages
 - C. Defining, Planning, Executing, Delivering Stages
 - D. Planning, Executing, Delivering Stages
 - E. Planning, Delivering Stages

Questions 3 -5 refers to Figure 1

| RIBA Plan of Work | | | | | | | | | | | |
|-------------------|---|-------------------|---------------|------------------|------------------------|---------------------|---------------|--------------|--------------------|-------------------|----------|
| BRIEFING | | SKETCH PLANS | | WORKING DRAWINGS | | | | CONSTRUCTION | | POST CONSTRUCTION | |
| A | B | C | D | E | F | G | H | J | K | L | M |
| Inception | | Outline Proposals | Scheme Design | | Production Information | Bills of Quantities | Tender Action | | Operations at Site | | Feedback |

Figure 1

3. For RIBA Plan of Works; Activity B is described as
- A. Organisation
 - B. Detailed Design
 - C. Project Planning
 - D. Feasibility
 - E. Conception
4. For RIBA Plan of Works; Activity E is described as
- A. Organisation
 - B. Detailed Design
 - C. Project Planning
 - D. Feasibility
 - E. Conception
5. In RIBA Plan of works for Scheme Design, the activities are managed by
- (i). Architect
 - (ii). Engineers
 - (iii). Surveyor
 - (iv). Contractor
- A. (i), (ii), (iv) only
 - B. (i), (ii), (iii) only
 - C. (ii), (iii), (iv) only
 - D. (i), (iii), (iv) only
 - E. All the above

6. A Nominated Sub Contractor (NSC) are contractors employed as they are
- A. Appointed by the Main Contractor
 - B. Nominated by the Client as a Sub Contractor for the Main Contractor
 - C. Appointed by tender by contractor
 - D. Nominated by the Client as a Sub Contractor answerable to the Client only
 - E. Nominated by the Main Contractor for the Client to Appoint as a Sub Contractor under the Main Contractor
7. A Domestic Sub Contractor (DSC) are contractors employed as they are
- A. Appointed by the Main Contractor
 - B. Nominated by the Client as a Sub Contractor for the Main Contractor
 - C. Nominated by the Client as a Sub Contractor answerable to the Client only
 - D. Appointed by client
 - E. Nominated by the Main Contractor for the Client to Appoint as a Sub Contractor under the Main Contractor
8. Choose which of the following are categorised as package deals;
- (i). Contract With Contractors Design
 - (ii). Design And Build (D and B)
 - (iii). Turnkey
 - (iv). Engineering, Procurement and Construction (EPC)
 - (v). Management contract
- A. (i), (ii), (iii) only
 - B. (i), (ii),(iii), (iv) only
 - C. (i), (ii), (iv), (v) only
 - D. (i), (iii), (iv), (v) only
 - E. All the above

9. Choose the most appropriate reason for concession contracts.
- (i). Government projects
 - (ii). It involves large public sector projects.
 - (iii). It can generate a reliable revenue over a long period of time
 - (iv). Availability of suitable financiers, competent private companies conversant with and having the resources to undertake the contract.
- A. (i), (ii), (iii) only
B. (i), (ii),(iii), (iv) only
C. (ii), (iii), (v) only
D. (i), (iii), (iv) only
E. All the above
10. In organisations, the following skills for a Top Management are best demonstrated in the order of
- A. Technical, Human Relationships, Conceptual order of skills
B. Human Relationships, Conceptual order of skills
C. Human Relationships, Technical, Conceptual order of skills
D. Technical, Human Relationships, Conceptual skills
E. Conceptual Skills Human Relationships, Technical order of skills
11. The continuous chain of activities from the start to end of the project, which has no float and is the longest time describes the
- A. path
B. critical activities
C. critical path
D. Non critical path
E. Activities

12. If the difference between early finish and late finish is equal to zero, then it is expressed as
- A. Float
 - B. non critical
 - C. critical
 - D. independent float
 - E. duration
13. If the difference between the early start and late start is not equal to zero, then it is expressed as
- A. float
 - B. non critical
 - C. critical
 - D. independent float
 - E. duration
14. Critical Path (CPM) is a numerical analysis method generally identified as
- A. synthesising the various concepts
 - B. built of activities
 - C. built on time estimates
 - D. built on activities and time estimates
 - E. built on a combination of concepts, activities and time estimates

Questions 15 – 17 refer to Figure 2.

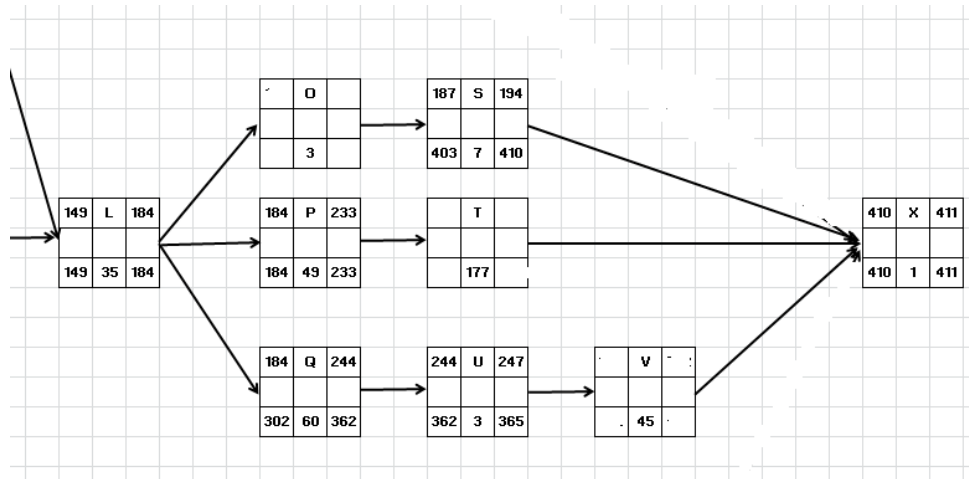


Figure 2

15. Determine the values for ES, EF, LS and LF for Activity O.

- A. ES = 184, EF =187, LS = 400, LF = 403
- B. ES = 400, EF =403, LS = 184, LF = 187
- C. ES = 403, EF =187, LS = 400, LF = 184
- D. ES = 403, EF =400, LS = 187, LF = 184
- E. ES = 187, EF =184, LS = 403, LF = 400

16. Determine the values ES, EF, LS and LF for Activity V.

- A. ES = 365, EF =410, LS = 247, LF = 292
- B. ES = 247, EF =410, LS = 365, LF = 292
- C. ES = 247, EF =292, LS = 365, LF = 410
- D. ES = 365, EF =292, LS =247, LF = 410
- E. ES = 410, EF =365, LS =292, LF = 247

17. Determine the float for activity T.
- A. 118
B. 0
C. 296
D. 117
E. 295
18. If an activity has an Optimistic time $t_o = 6$, Likely time $t_l = 8$, and Pessimistic time $t_p = 11$, calculate the Expected time t_E .
- A. $t_E = 9.67$
B. $t_E = 9.87$
C. $t_E = 7.17$
D. $t_E = 8.17$
E. $t_E = 8.67$
19. For the activities in Path shown in **Table 1**, calculate the total Expected time.

Table 1

| | Activity | Optimistic time t_o | Likely time t_l | Pessimistic time t_p |
|------|----------|-----------------------|-------------------|------------------------|
| Path | 1 - 2 | 6 | 8 | 11 |
| | 2 - 6 | 4 | 8 | 14 |
| | 6 - 7 | 7 | 10 | 15 |

- A. $\Sigma t_E = 26.34$
B. $\Sigma t_E = 26.83$
C. $\Sigma t_E = 27.00$
D. $\Sigma t_E = 28.33$
E. $\Sigma t_E = 28.83$

20. Fast tracking is a compression technique where it describes
- A. overlapping activities that would normally be done in sequence
 - B. putting more resources for activity
 - C. sequencing the activities that are normally done in parallel
 - D. changing the critical activity into non critical activity
 - E. Further sequencing the activities
21. Crashing is a compression technique where it describes.
- A. reduce the duration as much as possible with no increase of cost
 - B. Increase the duration as much as possible
 - C. reduce the duration as much as possible with possibility of an increase in cost
 - D. reduce the cost by reducing the duration
 - E. increase the duration
22. Choose the following terms commonly used for a Gantt Chart.
- (i). Activities/Tasks
 - (ii). Duration
 - (iii). Milestone
 - (iv). Time
- A. (i), (ii), (iii) only
 - B. (i), (iii), (iv) only
 - C. (ii), (iii), (iv) only
 - D. (i), (ii), (iv) only
 - E. All the above

23. In Stages of Contract Management, choose the correct order
- A. Planning, Implementation, Pre Contract, Contract, Post Contract
 - B. Planning, Pre Contract, Contract, Pre-renewal Contract, Post Contract
 - C. Planning, Implementation, Pre Contract, Handover, Contract, Pre-renewal Contract, Post Contract
 - D. Planning, Implementation, Contract, Post Contract
 - E. Implementation, Pre Contract, Handover, Contract, Pre-renewal Contract, Post Contract
24. Choose the correct definition for a Lump Sum or Fixed Price Contracts.
- A. The price of a fixed contract can be changed
 - B. The owner and the contractor agree for the contractor to perform additional work that falls outside the scope of the original work with no extra compensation
 - C. The owner and the contractor agree for the contractor to remove certain work from the original scope of work with no reduction in tendered sum.
 - D. Contractor agrees to perform the work specified and described in the contract for a fixed price
 - E. Contractor agrees to perform the work specified and described in the contract with changes not agreed

25. For Cost Plus Contract Variations, choose from the following which is/are correct
- (i). Cost plus Fixed Percentage Contract – Compensation is based on a percentage of the cost;
 - (ii). Cost plus Fixed Fee Contract – Compensation is based on a fixed sum independent the final project cost. The owner agrees to reimburse the contractor’s actual costs, regardless of amount, and in addition pay a negotiated fee independent of the amount of the actual costs;
 - (iii). Cost plus Fixed Fee with Guaranteed Maximum Price Contract – Compensation is based on a fixed sum of money. The total project cost can exceed an agreed upper limit;
 - (iv). Cost plus Fixed Fee with Bonus Contract – Compensation is based on a fixed sum of money. A bonus is given if the project is finished below budget, ahead of schedule, etc.;
 - (v). Cost plus Fixed Fee with Guaranteed Maximum Price with Bonus Contract – Compensation is based on a fixed sum of money. The total project cost can exceed an agreed upper limit and a bonus is given if the project is finished below budget, ahead of schedule, etc.; and
 - (vi). Cost plus Fixed Fee with Arrangement for Sharing Any Cost Savings Contract – Compensation is based on a fixed sum of money. Any cost savings are shared with the buyer and the contractor.
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- A. (i), (ii), (iii), (iv) only
 - B. (i), (ii), (iii), (v) only
 - C. (i), (ii), (iv) (vi) only
 - D. (i), (ii), (v), (vi) only
 - E. All are correct

26. Choose the correct contractual terms as stated in the Contract Act.
- A. Offer, Acceptance, Consideration, Capacity, Certainty of Contract
 - B. Offer, Acceptance, Consideration, Intention to create legal relation, Capacity, Freedomt
 - C. Offer and Acceptance, only
 - D. Offer, Acceptance, Freedom onlyt
 - E. Offer, Acceptance, Consideration, Intention to create legal relation, Capacity, Freedom, Certainty of Contract
27. A Contract may be described by
- (i). Writing
 - (ii). orally
 - (iii). conduct
 - (iv). by any combination of such.
- A. (i), (ii), (iii) only
 - B. (i), (iii), (iv) only
 - C. (i), (ii), (iv) only
 - D. (ii), (iii), (iv) only
 - E. All the above
28. Capacity as to age as describe under ACT 21 is
- A. Attained the age of 18 years old
 - B. Below 18 years old
 - C. Attained the age of 21 years old
 - D. More than 18years old
 - E. Attained the age of 19years old

29. Causes of variation orders are related to instructions from
- (i). client
 - (ii). consultant
 - (iii). contractor
 - (iv). sub contractor
 - (v). other changes
- A. (i), (ii), (iii), (iv) only
B. (i), (ii), (iii), (v) only
C. (ii), (iii), (iv) and (v) only
D. (iii), (iv) and (v) only
E. All the above
30. The Extension of Time (EOT) clause in the contract document describe
- (i). the completion date of a construction project to be adjusted, and if necessary extend the scheduled completion date, normally due to delays, whilst offering protections to the client.
 - (ii). a mechanism for the completion date of a construction project to be adjusted
 - (iii). the allowance the construction period to be extended due to unforeseen circumstances where the a delay is generally the contractor's fault
 - (iv). to help contractor to escape from paying LAD
- A. (i), (ii), (iii) only
B. (i), (ii), (iv) only
C. (i), (ii) only
D. (ii), (iii), (iv) only
E. All the above

31. Estimate the Cost Variance.

- A. 0
- B. 9
- C. 8
- D. 7
- E. 6

32. Estimate the Schedule Variance.

- A. +20
- B. +19
- C. +18
- D. +17
- E. +16

33. Estimate the Cost Performance Index.

- A. 0.97
- B. 0.98
- C. 0.99
- D. 0.96
- E. 0.95

34. Estimate the Schedule Performance Index.

- A. 1.07
- B. 1.06
- C. 1.05
- D. 1.04
- E. 1.03

35. From Questions 31-34, the project can be described as
- A. Over budget
 - B. Behind Budget
 - C. On the budget
 - D. Less Budget
 - E. None of them
36. Describe the correct term for the Value Management (VM) measurement of work you planned to have accomplished at a given point in time.
- A. BCWP
 - B. ACWS
 - C. BCWS
 - D. ACWS
 - E. None of them
37. At any point in time, the SPI indicates exactly how far ahead or behind schedule you are on your project.
- A. True
 - B. False
 - C. Not sure
38. If BCWP is 20 pm and ACWP is 15 pm, solve the value for CPI.
- A. 0.75
 - B. 1.33
 - C. 1.0
 - D. 0.0
 - E. None of the above

39. If BCWP is 27 pm, BCWS is 25 pm, it can be interpreted that you are probably.
- A. Over budget
 - B. Behind Budget
 - C. On the budget
 - D. Less Budget
 - E. None of the above
40. Value Management (VM) in construction industry can be described as to improve the value of project administrating issue such as function, ideas, performance evaluation, solution and other alternatives.
- A. True
 - B. False
 - C. Not sure
41. Identify the basic description of health & safety in construction.
- A. Preventing people from being harmed by work
 - B. Encourage practitioners to overrule rules and regulations
 - C. Cost saving preferences in choosing the correct method
 - D. Part of the obligations addressed in construction contract
 - E. Avoiding workers on site from being affected by construction activities
42. Common accidents at construction sites are exemplified by
- A. Fires
 - B. Chemical spills
 - C. Crane collapse
 - D. Falls from heights
 - E. All of the above are correct

43. The Construction Industries Development Board (CIDB) has identified some major causes of accidents at construction sites which could result in death or serious injuries to workers. The list of causes is/are
- A. One
 - B. Three
 - C. Five
 - D. Six
 - E. Seven
44. Choose which of the following statements is not true about the causing factors for accidents at construction sites.
- A. Reckless operations by workers due to insufficient supervision
 - B. Safe methods
 - C. Disobedience of rules & regulation
 - D. Employer's poor safety awareness
 - E. All of the above are correct
45. Personal Protective Equipment (PPE) obliges the provision of the following gear on construction sites. From the following list, choose which is not provided.
- A. Safety helmets
 - B. Safety harnesses
 - C. Gloves
 - D. Hearing protection
 - E. Eye protection

46. Choose which of the following statement(s) is/are true on the Personal Protective Equipment (PPE) regulation.
- A. Properly assessed before use
 - B. Maintained and stored properly
 - C. Provide with instructions
 - D. Used correctly by employees
 - E. All of the above are correct
47. Choose which of the following Occupational Safety and Health (OSHA) ACT being enforced by the Department of Safety and Health (DOSH) on all construction projects in Malaysia.
- A. ACT 421
 - B. ACT 435
 - C. ACT 451
 - D. ACT 415
 - E. ACT 455
48. Choose which of the following regulation is placed under OSHA 1994.
- A. Safety and Health Committee Regulations, 1996
 - B. Safety and Health Officer Regulations, 1998
 - C. Control of Construction Major Accident Hazards Regulations, 1996
 - D. Employers' Safety and Health General Policy Statements (Exception) Regulations, 1994
 - E. Quality Health and Safety Regulations, 1997

49. Identify the definition for fall hazard.
- A. Properly covered or protected floor holes and openings
 - B. A worker could be caught inside of or in between different objects
 - C. Anything at your worksite that could cause you to lose your balance
 - D. You are at risk when working at a height of five feet or more
 - E. None of the above is correct
50. Identify how struck by hazard occurs at work site.
- A. Cave-in for unprotected workers
 - B. Trapped in between materials and an immovable structure
 - C. Working around heavy machinery and equipment
 - D. Working below elevated work surfaces
 - E. Suspended load materials moved below you
51. Identify how Total Quality Management (TQM) works or practiced.
- A. Refinement of current approach from feedback
 - B. Focuses on adopt and adapt approaches from benchmarking
 - C. Ignore on the recommendations made by stakeholders
 - D. Accept the suggestions from shareholders
 - E. None of the above is correct
52. State the number of key sequential activities involved in TQM
- A. One
 - B. Two
 - C. Three
 - D. Four
 - E. Five

53. Identify the key principle of Quality Assurance (QA).
- A. Customer always right
 - B. Profit-oriented based product
 - C. Right at first time
 - D. Produce according to design
 - E. Client's specification-based services
54. Identify the aim of Quality Assurance (QA).
- A. Process used to create services
 - B. Process used to create deliverables
 - C. Machineries used to create products
 - D. Standards used to monitor and control output
 - E. Standards use to ensure quality deliveries
55. State the number of parameters used for Continuous Quality Improvement (CQI).
- A. Two
 - B. Four
 - C. Six
 - D. Eight
 - E. Ten

56. Identify the function of regulatory compliance in CQI.
- A. Make sure all OSHA acts are being addressed comprehensively
 - B. All Standard Operating Procedure (SOP) of CIDB is adhered
 - C. All legislations and guidelines related to the services offered are identified
 - D. All legislations and guidelines related to the services offered are implemented
 - E. None of the above is correct
57. Lean CQI is interpreted as the
- A. Process of reducing non-value added activities
 - B. Framework that deals with supply chain management
 - C. Provides long term procedures for improvement purposes
 - D. Reduces waste to improve product delivery
 - E. All of the above are correct
58. Choose the correct definition for Quality Control (QC).
- A. Entertains customer's or client's complaints
 - B. Minimizes construction cost
 - C. Enhances the sustainability of product
 - D. Ensures an on-time project delivery
 - E. Warrants product delivery meets the desired specification

59. State the number of types of Quality Control (QC) are there in practice.
- A. One
 - B. Two
 - C. Three
 - D. Four
 - E. Five
60. Identify when does the irregular control of QC usually being implemented in practice.
- A. At each different stage of construction project
 - B. Whenever statistical analysis and sampling theory are carried out
 - C. At every stage in the production cycle
 - D. When a customer complains about a product.
 - E. None of the above is correct

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ANSWER SCHEME

| | | | | | |
|----|---|----|---|----|---|
| 1 | B | 21 | C | 41 | A |
| 2 | C | 22 | E | 42 | E |
| 3 | D | 23 | C | 43 | D |
| 4 | B | 23 | D | 44 | B |
| 5 | B | 25 | C | 45 | D |
| 6 | B | 26 | E | 46 | E |
| 7 | A | 27 | E | 47 | D |
| 8 | B | 28 | A | 48 | A |
| 9 | C | 29 | E | 49 | C |
| 10 | E | 30 | B | 50 | D |
| 11 | C | 31 | A | 51 | A |
| 12 | C | 32 | A | 52 | D |
| 13 | A | 33 | A | 53 | C |
| 14 | E | 34 | A | 54 | B |
| 15 | A | 35 | A | 55 | C |
| 16 | C | 36 | C | 56 | C |
| 17 | B | 37 | B | 57 | A |
| 18 | D | 38 | B | 58 | E |
| 19 | D | 39 | A | 59 | C |
| 20 | A | 40 | A | 60 | D |