



- Systematic arrangement of calculations, neat drawings and clear answers are essential.
 - Any data not given can be reasonably assumed. The exam consists of five questions.
- All of them must be answered. All dimensions in meter.
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(Only Course Notes are allowed)

Answer the following questions:

- 1- What are the effect of concrete grade type and properties on the constructability process in construction projects?
- 2- Mention 10 different modern technological techniques or methods used in buildings, bridges or tunnels construction?
- 3- What is the meaning of the following:
 - Durability
 - Sustainability
 - Constructability
 - Salvage value
 - Life cycle cost
- 4- What are the relative between quality, performance and cost?
- 5- Value engineering, value analysis and value managements are a very over full tools in construction projects, explain?
- 6- What are the history of value engineering techniques from the origin till now?
- 7- Define the followings:
 - Value engineering
 - Value analysis
 - Value management
 - Fast diagram
 - Barito law
 - High order function
 - Low order function
 - Basic function
 - Quality basemen model
 - Fixed cost



8- If you want to buy a car, how can you use QBS to calculate the value index using the given:

1	Subaru	Forster	30.000 USD
2	Honda	RDV4	28.000 USD
3	Suzuki	Vetara	25.000 USD

9- For value engineering team selection for hospital, what are the participation of the team?

10- What are the difference between leader and manager?

PLS CIRCLE TRUE OR FALSE

11. There is never time for VE.
12. Value improvement is only used for complex engineering projects.
13. More cost can be saved the earlier the value study is performed in design.
14. Value programs are only used to correct design deficiencies.
15. Aesthetic function does not count.
16. Secondary functions do not need to be analyzed, only the basic functions need to be reviewed.
17. Worth is the least cost to perform a function to a given set of parameters.
18. An ideal team is a multidiscipline team with one or more members from each discipline.
19. The value team should work on a study continuously for only 5 days.
20. The importance of the value study is the methodology approach, not the number of steps involved
21. It is best not to involve management until the value team has reached their conclusions.
22. Brainstorming occurs first.
23. Do not question the specifications if it is a government project
24. The team must agree on each idea submitted during the speculation phase.
25. Team members should evaluate ideas during brainstorming.
26. You should not question the constraints.



27. Additional constraints can be found after the team makes a site visit.
28. FAST diagrams are useful for breaking the problem into smaller pieces and determining if the functions are even necessary.
29. A FAST diagram has a critical path.
30. How, why, and when are three questions usually answered during FAST diagram preparation.
31. The idea generation process should be separated from the evaluation phase.
32. A group rather than the individual who created them should always evaluate ideas.
33. The ideas should be viewed from the user or customer perspective.
34. Use of a computer to evaluate the ideas is much better than a human.
35. Value engineering programs can be called value analysis programs, as long as it produces the same systematic approach to problem solving and value improvement.
36. Value programs should not be introduced during the construction phase of a project because it will cause delays and probably too many other changes.
37. Life cycle costing should always be included in the analysis because the owner may not only want initial cost savings.
38. Value engineering programs are just for cost reduction.
39. Adding value is one thing the team should try to do.
40. The team cannot proceed if they do not receive the information before the study begins.
41. The team leader might choose to adjust the agenda after the first day's meeting and decide to finish one hour later than scheduled.
42. The value team can verify the original cost estimate during information gathering.
43. A cost/worth model can be used as an indicator to determine where the team might focus their efforts.
44. The manager receiving the value study should direct the original engineering team to implement the value study recommendations.
45. The value study should provide an implementation plan.
46. There is less risk implementing certain ideas.
47. After a well-done oral presentation the team does not need to submit a written report.
48. Value improvements can become an organizational behavior.



49. No matter what the value team determines the customer must live with it.
50. The lowest life cycle cost is the best value.
51. Constructability and ease of maintenance can be used as two of the many evaluation criteria that may be used when comparing two competing alternatives.
52. It is a good practice to convert the total X year life cycle cost savings to a present worth of the life cycle cost savings.
53. Do not select a project for a value study if it is not a good candidate for potential savings.
54. If the item under study has good value already then the team should not pursue it.
55. Secondary function may have the highest costs.
56. Do not question city codes.
57. During the creative phase you should try to generate the greatest number of ideas.
58. Habits, lack of time, wrong information, customs, and culture can be causes of unnecessary costs.
59. Do not judge ideas offered during the speculative phase.
60. Value engineering or analysis (VE/VA) is only as effective as an engineering discipline.
61. The value, once determined, does not change.
62. Value improvements are difficult to apply to new designs.
63. Standard designs do not require value improvement.
64. Worth is the lowest total cost of a product.
65. Pareto's Law says that 20% of the items do not need to be studied.
66. One basic function of a pipeline is to transport fluids.
67. If the product now has a longer service life after the VE study then we have better value.
68. Value teams should not question the general conditions of the specifications.
69. Performance can improve while cost is reduced.
70. Maintaining good human relations is considered crucial to the success of a value improvement study.
- 70\1. Value studies are not required for projects that are on schedule and within budget.