



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (*EXTERNAL*)

Academic Year 2006/2007 – 2nd Year Examination – Semester 4

IT4202 – Software Project Management
PART 1 - Multiple Choice Question Paper

18th August, 2007
(ONE HOUR)

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is English.
- The paper has **25** questions and **8** pages.
- All questions are of the MCQ (Multiple Choice Questions) type.
- All questions should be answered.
- Each question will have 5 (five) choices with **one or more** correct answers.
- All questions will carry equal marks.
- There will be a penalty for incorrect responses to discourage guessing.
- The mark given for a question will vary from -1 (*All the incorrect choices are marked & no correct choices are marked*) to +1 (*All the correct choices are marked & no incorrect choices are marked*).
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**

1) Which of the following is/are **not** desirable for persons to become effective project managers?

- (a) being proactive and planning for problems before they occur
- (b) focussing always on the successful finish of the project
- (c) spending time on things which are important for the project
- (d) leading by example
- (e) the concept: "Customer is not the King"

2) Assume that you are a project manager of a software development company and have been asked to evaluate a set of projects to select a suitable one for implementation. Which of the following is/are true?

- (a) Any proposed project must be evaluated within the context of the company's overall business objectives.
- (b) The total evaluation need not take into account the problem of funding the cash flows needed for the project.
- (c) While a project's Internal Rate of Return (IRR) might indicate a profitable project, future earnings from the project might be far less reliable than earnings from say, investing with a bank.
- (d) You must not neglect your own career needs when selecting a project for the company.
- (e) Cost-benefit analyses as well as risk evaluations should be carried out to select suitable projects.

3) Two projects need to be evaluated to select one for implementation. Year-based cash flow forecasts (in Rupees) of the two projects are as follows.

Year	Project 1	Project 2
0	-400,000	-100,000
1	200,000	30,000
2	200,000	30,000
3	600,000	100,000

Which of the following is/are true?

- (a) Net profit of Project 1 is Rs.600,000 while the net profit of Project 2 is Rs.60,000.
- (b) Net profit of Project 1 is Rs.600,000 while the net profit of Project 2 is Rs.100,000.
- (c) Project 2 has the shorter pay back period.
- (d) Return on investment for Projects 1 and 2 are 50% and 20% respectively.
- (e) Since Project 1 looks attractive when compared with Project 2, it must be chosen without wasting effort on other considerations.

4) Which of the following is/are true?

- (a) Money received in the future is worth less than the same amount of money in hand now.
- (b) The present value of any future cash flow may be obtained by applying the formula
$$\text{present value} = \text{value in year } t / (1 + r)^t$$
where r is the discount rate expressed as a decimal value and t is the number of years into the future that the cash flow occurs.
- (c) If the cash flow projection of a project at the end of the second year is Rs.100,000, with a discount factor of 0.8264, the discounted cash flow at the end of the second year is Rs.82,640.
- (d) The *net present value* for a project is obtained by discounting **only** the positive cash flows and summing the discounted values.
- (e) When calculating the net present value for software projects, the discount rate should be chosen to reflect the present interest rates plus some premium to reflect the risks inherent in software projects.

Questions 5 and 6 are based on the following information.

Following are some items which can be included in project related documents.

- A. project title
- B. signatures of key stakeholders
- C. staff roles and responsibilities
- D. project manager's name and contact details
- E. objectives of the project
- F. breakdown of work involved in the project
- G. description of project deliverables
- H. statement of what constitutes project success
- I. project start and end dates
- J. a summary of the planned approach to manage the project

- 5) From the item list given, the *Project Charter* should ideally include (in order of appearance in the document)

- (a) A, I, D, E, J, C and B.
- (b) B, A, J, F, E, C and H.
- (c) J, D, F, B, C, E and H.
- (d) B, C, A, E, F, G and H.
- (e) F, J, C, H, G, A and E.

- 6) From the item list given, the *Scope Statement* should ideally include (in order of appearance in the document)

- (a) A, B, C, D and E.
- (b) A, D, C, G and I.
- (c) E, I, F, D and C.
- (d) E, I, B, C and D.
- (e) A, E, G, H and B.

- 7) Following are some activities involved in planning a project where some activities can be repetitive.

- A. creating the statement of scope
- B. cost estimation
- C. cost budgeting
- D. analyzing the different options in implementing the project
- E. creating the network diagram
- F. work breakdown
- G. risk analysis
- H. resource planning

A correct order of the above activity usage is

- (a) A, B, C, D, G, E, F and H.
- (b) A, D, F, G, F, E, H, B and C.
- (c) H, C, F, G, D, A, E and B.
- (d) F, H, D, A, C, B, E and G.
- (e) A, E, D, F, B, C, F, G and H.

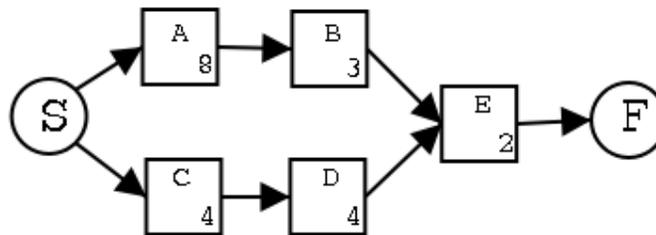
- 8) This question involves filling the blanks in the following paragraph about the Work Breakdown Structure (WBS).

Generating a WBS involves identifying the main or high level **...(A)...** required to complete a project and then breaking each of these down into a set of lower level **...(B)...** When preparing a WBS, **...(C)...** must be given to the level of **...(D)...** of the structure. Lot of **...(E)...** will result in a large number of small tasks which will be difficult to manage, whereas little **...(F)...** will provide insufficient details for project **...(G)...**

The most suitable words for **A,B,C,D,E,F** and **G** respectively are

- | |
|---|
| <ul style="list-style-type: none"> (a) control, controls, permission, security, security, security, safety (b) tasks, tasks, consideration, detail, detail, detail, control (c) documents, documents, authorization, clarity, clarity, clarity, understanding (d) detail, projects, control, authorization, approval, approval, success (e) scope, scopes, approval, understanding, understanding, understanding, satisfaction |
|---|

Questions 9, 10 and 11 are based on the following network diagram.



Note: The letters S and F indicate the Start and Finish of a project and the numbers inside the nodes indicate the activity durations in days.

- 9) Earliest start dates of activities A,B,C,D and E are

- | |
|---|
| <ul style="list-style-type: none"> (a) 0, 8, 0, 4 and 8 respectively. (b) 0, 8, 0, 4 and 11 respectively. (c) 8, 3, 4, 4 and 2 respectively. (d) 8, 11, 4, 8 and 10 respectively. (e) 8, 11, 4, 8 and 11 respectively. |
|---|

- 10) Latest finish dates of activities A,B,C,D and E are

- | |
|---|
| <ul style="list-style-type: none"> (a) 8, 11, 4, 8 and 11 respectively. (b) 8, 11, 7, 11 and 13 respectively. (c) 8, 3, 4, 4 and 2 respectively. (d) 8, 5, 4, 8 and 10 respectively. (e) 8, 11, 4, 8 and 8 respectively. |
|---|

- 11) Which of the following is/are true?

- | |
|--|
| <ul style="list-style-type: none"> (a) The activities A, B and E have floats of zero. (b) The critical path of the network is S,A,B,E,F. (c) The latest start dates of activities A and C are 0 and 3 respectively. (d) Estimated project completion date is 13. (e) Application of more resources to activity D may help to finish the project sooner. |
|--|

- 12) The probability of a risk occurring is called the *risk likelihood* and the effect that the resulting problem will have on the project, if it occurs, is called the *risk impact*. The importance of the risk is called the *risk value* and is calculated as follows:

$$\text{risk value} = \text{risk likelihood} * \text{risk impact}$$

Assume that you are doing the risk value assessment for a particular project for a client company.

Listed below are some of the risks which you are considering.

- A. changes in requirements during coding
- B. specifications take longer than expected
- C. staff sickness affecting non-critical path activities
- D. staff sickness affecting critical path activities
- E. coding takes longer than expected
- F. testing demonstrates errors or deficiencies in design
- G. new company management cancelling the project (Note that there are rumours of a management change in the client company)

For each of the above risks, you plan to assign a risk impact value on a scale of 1 to 5 where scores of 5 are for risks having the highest impact on the project.

Suitable risk impact values for the above risks are

- | | |
|---------------------------------------|---------------------------------------|
| (a) A-1, B-5, C-4, D-3, E-1, F-1, G-1 | (b) A-1, B-4, C-5, D-1, E-1, F-2, G-1 |
| (c) A-2, B-4, C-5, D-2, E-1, F-1, G-2 | (d) A-4, B-3, C-1, D-5, E-4, F-4, G-4 |
| (e) A-2, B-5, C-4, D-1, E-2, F-2, G-1 | |

- 13) The following two groups **I** and **II** are connected to risk management in that **I** contains risks and **II** some management strategies. A matching of the items in group **I** with appropriate ones in group **II** is required.

- | I | II |
|--|---|
| A. key people leaving the project | P. good design of program |
| B. developing the wrong software functions | Q. good change control procedures; incremental development |
| C. performance shortfalls in program | R. staff training |
| D. requirement creep | S. prototyping |
| E. externally supplied components bad | T. inspections |
| F. development technically too difficult | U. having a second person to be familiar with another person's work |

A correct matching is

- | | |
|----------------------------------|----------------------------------|
| (a) A-P, B-Q, C-R, D-S, E-T, F-U | (b) A-S, B-P, C-R, D-Q, E-U, F-T |
| (c) A-R, B-S, C-T, D-U, E-Q, F-P | (d) A-U, B-S, C-P, D-Q, E-T, F-R |
| (e) A-T, B-R, C-P, D-U, E-S, F-Q | |

- 14) *Function points* can be used in project cost estimation. Some examples of function points are

- | |
|---|
| (a) number of inputs into a system. |
| (b) number of outputs from a system. |
| (c) number of stakeholders involved in the project. |
| (d) number of files to be maintained in the system. |
| (e) number of days required to do the project . |

15) Which of the following is/are true with regard to project cost estimations?

- (a) It is beneficial for companies to keep records of past project data to help in new project cost estimations.
- (b) In COCOMO, the equation to compute the nominal effort in a project is

$$\text{nominal_effort} = c \times \text{size}^k,$$
 where *nominal_effort* is given in person-months, *size* is measured in kdsi (thousands of delivered source code instructions), *c* and *k* are constants.
- (c) The values for the constants in the nominal effort estimation formula of COCOMO depends on the classification of the system into either *organic*, *embedded* or *semi-detached* project types.
- (d) In COCOMO, easily developed systems fall into the *organic* class while the systems that are not very simple to develop fall into the *embedded* class and those that come between the two classes fall into the *semi-detached* class.
- (e) In COCOMO, the actual development effort is computed using the formula

$$\text{actual_effort} = \text{nominal_effort} \times \text{dem}$$
 where *dem* is the product of the 15 cost drivers.

16) A project manager is using COCOMO to estimate the cost of a payroll system development project. He has found that the multiplication of the product, computer and project cost drivers result in 1. Only personnel attributes differ and the organization uses the following table to take this into account.

Attribute	Very low	Low	Nominal	High	Very high
ACAP (Analyst capability)	1.46	1.19	1.00	0.86	0.71
AEXP (Application experience)	1.29	1.13	1.00	0.91	0.82
PCAP (Programmer capability)	1.42	1.17	1.00	0.80	0.70
VEXP (Operating system experience)	1.21	1.10	1.00	0.90	-
LEXP (Programming language experience)	1.14	1.07	1.00	0.95	-

The analyst assigned for the project is regarded as having low quality. The implementation language selected for the project is Java and the operating system platform is linux. The programmers are also of low quality but have high experience on payroll systems development. However, Java is totally a new language to them as they have up to now developed only Visual Basic applications. However, the programmers are very familiar with linux.

A good choice for the 15 cost driver multiplier for this project is

- (a) $1 * 1.19 * 0.91 * 1.17 * 0.90 * 1.14.$
- (b) $1 * 0.86 * 1.00 * 1.00 * 1.21 * 1.00.$
- (c) $1 * 1.46 * 1.29 * 0.70 * 1.00 * 1.07.$
- (d) $1 * 0.71 * 0.82 * 1.42 * 1.10 * 0.95.$
- (e) $1 * 1.00 * 1.13 * 0.80 * 1.10 * 1.00.$

17) Assume that according to a plan, purchasing an un-interruptible power supply (UPS) was to cost Rs.2000 and was to take one week. However, although the UPS was supplied in a week, it actually cost Rs.4000. The **earned value**, **cost variance**, **schedule variance**, **cost performance index** and the **schedule performance index** of the activity of purchasing the UPS respectively are

- (a) Rs.4000, 0, 2000, 100%, 1%
- (b) Rs.4000, 2000, 4000, 75%, 100%
- (c) Rs.2000, 2000, 0, 50%, 100%
- (d) Rs.2000, 4000, 0, 50%, 50%
- (e) Rs.6000, 4000, 2000, 25%, 50%

18) Delayed projects can often be brought on track by

- (a) shortening non-critical path activity times.
- (b) shortening critical path activity times.
- (c) relaxing some of the precedence constraints.
- (d) adding new precedence constraints.
- (e) adding new activities which prolong the critical path.

19) Which of the following is/are **not** true with regard to project control?

- (a) Planning a project is pointless unless the execution of the plan is monitored.
- (b) Costs as well as time need to be monitored in a project.
- (c) Progress in a project can never be measured based on the delivery of project products.
- (d) It is beneficial to have frequent stand-up meetings between the project manager and all his team leaders to quickly communicate what is most important on the project.
- (e) In earned value management, *Planned Value* (budget) refers to the portion of the approved cost estimate planned to be spent on an activity during a given period.

20) This question involves filling the blanks in the following paragraph that deals with quality control.

Quality control involves monitoring specific project **...(A)...** to ensure that they comply with the relevant quality **...(B)...** while identifying ways to improve quality. The main outputs of this process are *acceptance decisions*, *rework* and *process adjustments*. *Acceptance decisions* determine if the **...(C)...** or services produced as a part of the project will be accepted or rejected. *Rework* is action to bring rejected **...(D)...** into compliance with product **...(E)...** or other stakeholder expectations. *Process adjustments* correct or prevent further quality **...(F)...** based on quality control measurements.

The most suitable words for **A,B,C,D,E** and **F** respectively are

- (a) results, standards, products, items, requirements, problems.
- (b) standards, results, expectations, questions, values, issues.
- (c) issues, expectations, standards, problems, values, standards.
- (d) expectations, issues, values, standards, results, items.
- (e) items, values, problems, requirements, issues, products.

21) Which of the following is/are true with regard to quality management?

- (a) It is not important for the top management to be concerned about quality.
- (b) Fishbone (Ishikawa) diagrams could be used to help find the root cause of quality problems.
- (c) Finding the root cause of a quality problem is never beneficial to provide a successful solution to it.
- (d) Quality of a product can be defined based on *conformance to requirements* and *fitness for use*.
- (e) Determining the needs and expectations of the customer are not essential to produce a quality product.

22) The general approach in personnel recruitment involves *creating a job specification, creating a job holder profile, obtaining applicants, examining CVs, interviewing and checking on the references*. Which of the following is/are **not** true?

- (a) The job holder profile should contain the qualities, qualifications, education and experience required for the job.
- (b) When placing advertisements to obtain applicants, it is good to examine the job holder profile to identify the medium most likely to reach the largest number of potential applicants at the least cost.
- (c) It is good not to give enough information in the advertisement (like salary, location, job scope, and any essential qualifications).
- (d) Some formal scoring system for the candidates' qualities being judged should be devised and interviewers should then decide scores individually which are then compared.
- (e) Interviews can be used to confirm the statements in the candidates' CVs.

23) Which of the following is/are **not** likely to improve staff motivation?

- (a) good work environment
- (b) staff not getting regular feedback from the manager on how they are progressing
- (c) staff not knowing their responsibilities but getting blamed for mistakes
- (d) thoughtful job design so that the staff is given more responsibility
- (e) honest and fair management

24) *Fixed price contracts* and *time and materials contracts* are two types of contracts. Which of the following is/are true?

- (a) Supplier in a fixed price contract is likely to quote a higher price in a tender to allow for contingencies which can occur.
- (b) Supplier in a fixed price contract is likely to have the motivation to manage the delivery of the system in a cost-effective manner.
- (c) It is usually expensive to modify the requirements in fixed price contracts.
- (d) The quality of the software can suffer in time and materials contracts.
- (e) Customer has to absorb all expenses associated with poorly defined or changing requirements in time and materials contracts.

25) Assume that you as a project manager have decided to procure a piece of software required for your project from a supplier that was successful in the tender. You are now making the contract to be signed with the supplier. Which of the following should be included in the contract?

- (a) list of any equipment and software to be supplied
- (b) services to be provided (e.g., training, installation, maintenance)
- (c) details of who is going to own the software
- (d) acceptance procedures
- (e) timetable for delivery, the price and the payment method
