



**UNIVERSITI KUALA LUMPUR  
Malaysia France Institute**

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**FINAL EXAMINATION  
JAN 2010 SESSION**

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**SUBJECT CODE** : FIB 36102  
**SUBJECT TITLE** : PROJECT MANAGEMENT  
**LEVEL** : BACHELOR  
**TIME / DURATION** : 9.00am – 11.30am  
( 2 ½ HOURS )  
**DATE** : 04 MAY 2010

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper **CAREFULLY**.
  2. This question paper is printed on both sides of the paper.
  3. Please write your answers on the answer booklet provided.
  4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
  5. This question paper consists of **TWO (2)** sections. Section A and B. Answer all questions in Section A. For Section B, answer **TWO (2)** question only.
  6. Answer all questions in English.
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**THERE ARE 8 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.**

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**SECTION A (Total: 60 marks)****INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

Refer to Time Chart I which is shown in Table 1:

Table 1: Time Chart (WBS) I

Activity	Description	Preceded by	Time (weeks)
A	Develop new product	-	16
B	Design packaging	-	8
C	Organise production	A	8
D	Obtain materials	A	4
E	Trial production run	C,D	6
F	Obtain packaging	B	4
G	Organise test marketing	D	2
H	Package and distribute test batch	E,F	4
I	Test market	E, F,G	6
J	Assess results and recommend marketing policy	I,H	8

- (a) Construct a network logic diagram using Precedence Diagramming Method (AON: Activity-On-Node format). (4 marks)
- (b) Construct a network logic diagram using Arrow Diagramming Method (AOA: Activity-On-Arrow format) (6 marks)
- (c) Using the answer from (Q1.b) – AOA format
- i. List out all the possible path activities. (4 marks)
  - ii. Identify the Critical Path and determine the total duration of the project. (3 marks)
  - iii. If this project must be finished in (40 weeks) write a short recommendation explaining which activities may have to be done more quickly? (3 marks)

**Question 2**

(a) In Project Resource Allocation, briefly define the difference between “Normal” time/cost combination versus “Crash” time/cost combination (4 marks)

(b) From the following CPM (Normal and Crash - time in day) as shown in Table 2:

i. Construct a network logic diagram (AOA format) and identify the critical path? (4 marks)

ii. Determine the total duration and the total cost of the project (Normal time cost combination)? (4 marks)

iii. By implementing the “Crash” time/cost combination, demonstrate the reduction of total networking (using AOA diagram and Gantt chart) and propose the shortest total duration which can be reduced? Calculate the total cost of the project? (8 marks)

Table 2: CPM (Normal & Crash)

Activity	Precedence	Duration, Periods (normal, crash)	Cost (normal, crash)	Slope (Cost / Period)
P	-	1,1	RM 10,10	-
Q	P	3,2	RM 40,80	40/-1 = - 40
R	Q	2,1	RM 20, 80	60/-1 = - 60
S	Q	2,2	RM 20, 20	-
T	Q	4,1	RM 30, 120	90/-3 = - 30
U	R	3,1	RM 10, 80	70/-2 = - 35

**Question 3**

Given the optimistic estimate ( $t_o$ ), most likely estimate ( $t_m$ ) and pessimistic estimate ( $t_p$ ) as shown in Table 3, based on the positively skewed beta probability distribution in PERT (Project Evaluation & Review Technique),

(a) Calculate:

- i. Expected activity duration( $t_e$ ). (4 marks)
- ii. Standard deviation ( $\sigma_e$ ) of the expected duration. (2 marks)
- iii. Variance ( $\sigma_e$ )<sup>2</sup> of the expected duration. (2 marks)

(b) Assuming that the critical Path is **A-D-J = 21.5 days** (refer to Appendix A1 and A2 – Areas under the standard normal curve):

- i. What is the probability the project will be completed before the scheduled time ( $T_s$ ) of 24 days (*nearest estimated number*)? (4 marks)
- ii. What is the probability the project will be completed before the scheduled time ( $T_s$ ) of 20 days (*nearest estimated number*)? (4 marks)

(Note: Students are required to copy Table 3 in the answer booklet, as shown below)

(c) Describe two (2) main differences between “Critical Path Method” and “PERT – Program Evaluation Review Technique” (4 marks)

Table 3 – Time Chart II

Activity	Optimistic time $t_o$	Most Likely time $t_m$	Pessimistic time $t_p$	EXPECTED TIME ( $t_e$ )	Standard Deviation $\sigma_e$	Variance $(\sigma_e)^2$
A	5	11	11			
B	10	10	10			
C	2	5	8			
D	1	7	16			
E	4	4	10			
F	4	7	10			
G	2	2	2			
H	1	6	8			
I	3	8	19			
J	1	4	7			

Appendix A1

AREAS UNDER THE STANDARD NORMAL CURVE  
(Z – Negative Value)

Z VALUE	PROBABILITY	Z VALUE	PROBABILITY
-2.0	0.02	+2.0	0.98
-1.5	0.07	+1.5	0.93
-1.0	0.16	+1.0	0.84
-0.7	0.24	+0.7	0.76
-0.5	0.31	+0.5	0.69
-0.3	0.38	+0.3	0.62
-0.1	0.46	+0.1	0.54

Appendix A2

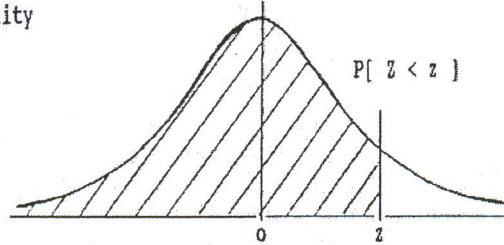
AREAS UNDER THE STANDARD NORMAL CURVE

STANDARD STATISTICAL TABLES

1. Areas under the Normal Distribution

The table gives the cumulative probability up to the standardised normal value  $z$  i.e.

$$P[ Z < z ] = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} \exp(-\frac{1}{2}z^2) dz$$



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5159	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7854
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8804	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9773	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9865	0.9868	0.9871	0.9874	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9924	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9980	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
z	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90
P	0.9986	0.9990	0.9993	0.9995	0.9997	0.9998	0.9998	0.9999	0.9999	1.0000

**Question 6**

**PROJECT RISK MANAGEMENT**

- (a) Briefly describe four (4) major components of the "Risk Management" process?  
(6 marks)
- (b) List down and briefly describe four (4) common "Risk identification" methods?  
(4 marks)
- (c) Briefly describe four (4) common strategies and techniques to manage or to treat risks?  
(4 marks)
- (d) Briefly describe four (4) common key forces that have changed the way projects are managed, compared to twenty years back?  
(6 marks)

**END OF QUESTIONS**