Final Test Paper

Ⅰ. Concepts Explanation（20 points, 4 points for each）

(1). What's the levels of Reuse-based software engineering?

(2). What are the steps of the risk management process?

(3). What are Milestone and Deliverable?

(4). What's SWEBOK? How many KAs (knowledge areas) in SWEBOK V3? List the first 5 KAs in SWEBOK V3.

(5). What are the Benefits of software reuse?

II. Answer Questions（30points, 5points for each）

(1). When we talk about managing people in project management, different personality types should be taken into account. Please list three kinds of "Personality types". What should you consider personality types when selecting staff?

(2). What are the two aspects you should consider when you conduct 'Risk analysis'? You can get a list of risks after 'Risk identification' and 'Risk analysis', respectively, what's the difference between the two lists?

(3). What are the elements of a component model?

(4). What are the Factors affecting software pricing?

(5). A number of design choices have to be made to develop integrated application systems. What are these choices?

(6). What are the benefits of software reuse?

Ⅲ. Case analysis（20points）

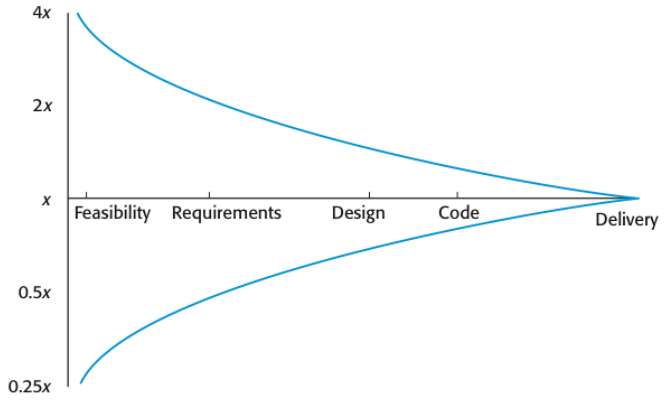
Assume that you are working in a company that develops Intelligent Terminal systems. The company wishes to enter the growing market of Mobile Application to help people live conveniently, e.g. for helping elderly and disabled people live independently.
You are appointed to be the project manager and lead a team of 6-8 developers to develop a new product which mainly includes wearable equipment (Hardware) as well as some Mobile Apps (Software).
Please describe it in detail on how to carry out your project in a systematic and organized way based on theories and practice of software engineering, especially 'Project Management' concerns(individual motivation, team spirit, group composition) you have learned in this course.

Ⅳ. Analyze and answer questions (30 points）

(1) (6points) What are the three types of component composition? Describe them in graphical ways.

(2) (6points) What are the two kinds of related interfaces for a component? Please draw a diagram expressed in UML notation, and these two kinds of interfaces can be fitted with each other.

(3) (6points)
The following diagram describes Estimate uncertainty for project planning. Horizontal axis means project progresses(stage), Vertical axis means the range of the actual effort as measured.



(a) (3points) If the initial estimate of effort required is *x* months of effort, what's the range of the actual effort as measured when the system was delivered according to the above diagram?
(b) (3points) During development planning, what's the change trend of estimates as the project progresses(goes on)?

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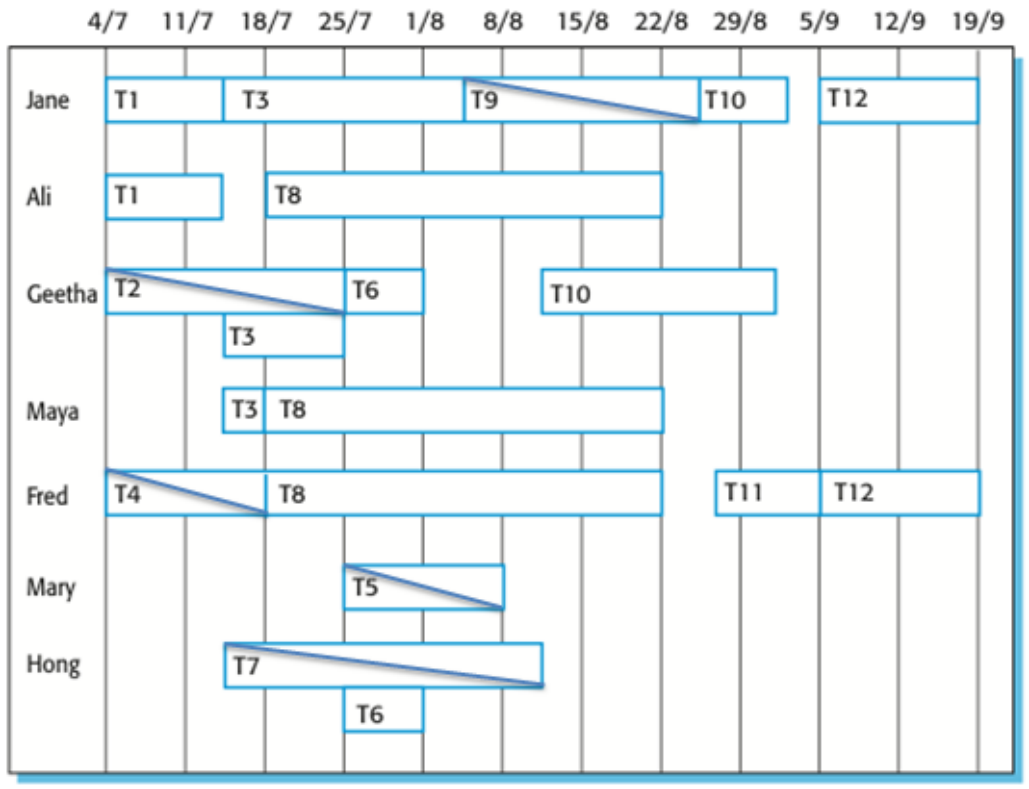
(4) **(12points)**
A hypothetical set of tasks is created as shown in the following table, it shows tasks estimated effort, duration, and task interdependencies.

Task	Effort (person-days)	Duration (days)	Dependencies
T1	15	10	
T2	8	15	
T3	20	15	T1 (M1)
T4	5	10	
T5	5	10	T2, T4 (M3)
T6	10	5	T1, T2 (M4)
T7	25	20	T1 (M1)
T8	75	25	T4 (M2)
T9	10	15	T3, T6 (M5)
T10	20	15	T7, T8 (M6)
T11	10	10	T9 (M7)
T12	20	10	T10, T11 (M8)

The following diagram shows staff allocation.



Answer the following questions:

(1) **(2points)** Which task(s) is(are) T5 dependent on? And what does it mean?
(2) **(4points)** Then what we should do to restrict dependencies?
(3) **(2points)** What do the diagonal lines stand for?
(4) **(4points)** Why T3 is assigned to three staff members(Jane, Geetha and Maya) and not just a member?