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Mid Term Fall 2012

1: why we need metrics? 2 marks
Answer:- (Page 66)
Metrics give you a better insight into the state of the process or product. These insights are not the problems but just the *indicators* of problems. A software engineers collects measures and develops metrics and indicators.

2: Degree of Rigor? 2 marks
Answer:- (Page 96)
To determine the set of tasks to be performed the type of the project and the degree of rigor required needs to be established. The degree of rigor can also be categorized as Casual, Structured, Strict, or Quick Reaction.

3: uses of control chart. 3 marks
Answer:- (Page 75)
We have to determine whether the trend is statistically valid or not. We also need to determine what changes are meaningful. A graphical technique known as control charts is used to determine this. Control charts are of two types: moving range control chart and individual control chart.

4: if the bugs are fix then what will effect on quality of software? 5 marks
Answer:- (Page 75)
Defect repair/maintenance is considered to be any activity that supports the release functionality specification and it may a fix for some bugs or some maintenance to enhance the performance of the application.

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2. Effort validation. 2
Answer:- (Page 93)
Every project has a defined number of staff members. As time allocation occurs, the project manager must ensure that no more than the allocated number of people has been scheduled at any given time.

3. do you think Flexibility and maintainability is same thing. tell reason. 3
Answer:- Click here for detail
No, these are not the same things because System flexibility describes the ease of expanding the product with new feature sets and capabilities. System maintainability, on the other hand, describes the ease of coding bug repairs and adding minor features. Both are determined by the architecture and techniques used to create the code and resulting quality of the code.

4. If spoilage is decreasing then what effect on maintainability. 3
Answer:- (Page 68)
A cost oriented metric used to assess maintainability is called Spoilage. It is defined as the cost to correct defects encountered after the software has been released to the users. Spoilage cost is plotted against the overall project cost as a function of time to determine whether the overall maintainability of software produced by the organization is improving.

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Define "baseline data"?
Answer:- (Page 72)
 In order to use the data for estimation and drawing conclusions, it must be base-lined. In the baseline, data from past projects is collected, cleaned, and put in a database. Such metrics baseline is used to reap benefits at the process, project, and product level.

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Differentiate between casual and structured rigor. 2 marks

Answer:- (Page 96)

• Casual

All process framework activities are applied, but only a minimum task set is required. It requires reduced umbrella tasks and reduced documentation. Basic principles of SE are however still followed.

• Structured

In this case a complete process framework is applied. Appropriate framework activities, related tasks, and umbrella activities (to ensure high quality) are also applied. SQA, SCM, documentation, and measurement are conducted in streamlined manner.

Can we guarantee 100% risk free software development i.e. can we develop a software without risk by following some software procedure? Comment it. 5 marks

Answer:- Click here for detail

Let's be clear: there's no such thing as risk free software. You can't do anythingwithout taking some risk. But what's easy to overlook, is that not doing something is a risk, too.

Not fixing a bug runs the risk that its more serious than you thought; more prevalent than you thought; that it could happen to an important customer, someone in the press, or a highly valued customer – with real revenue risk. You run the risk that it collides with another, as yet unknown bug, potentially multiplying the pain. Sometimes not releasing feels like the safest thing to do – but you're releasing software because you know something is wrong.

So what you gonna do? No business wants to accept risk, you have to mitigateit somehow. The simple, easy and wrong thing to do is to add more process. The braver decision, the right decision, is to make it easy to undo any mistakes.

Do you agree with the statement that ILFs and EIFs are both user identifiable group of data? Comment it. 3 marks

Answer:- (Page 42)

Yes, both are user identifiable group of logically related data. The primary intent of an ILF is to hold data maintained through one or more elementary processes of the application being counted. The primary intent of an EIF is to hold data referenced through one or more elementary processes within the boundary of the application counted. This means an EIF counted for an application must be in an ILF in another application.

Given the data, draw a moving range control chart in order to explain whether the process is stable or unstable? 5 marks

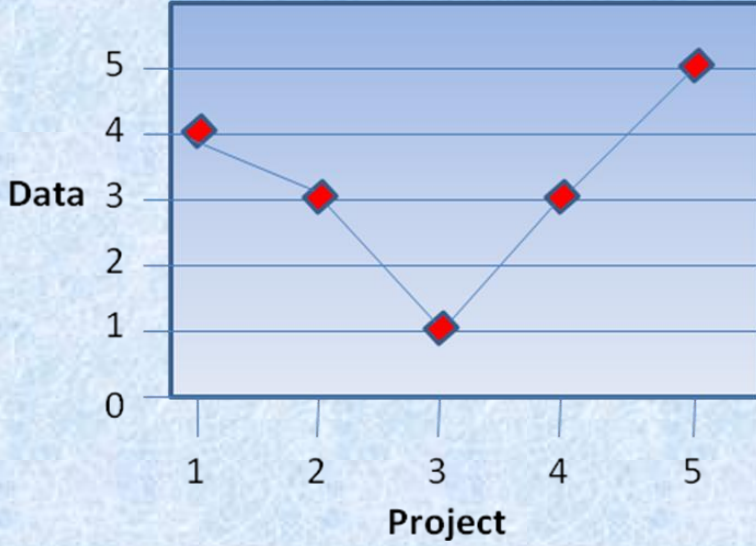| project:	1	2	3	4	5
Data:	4	3	1	3	5

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

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Answer:-

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Question No 1:
What is meant by Risk Projection?
Answer:- (Page 88)
Risk projection is concerned with risk estimation. It attempts to rate risks in two ways:
Likelihood and consequences. There are four risk project activities. These are:
• Establish a scale that reflects the perceived likelihood of risk
• Delineate the consequences
• Estimate impact
• Note the overall accuracy of risk projection

Question No 2:
Can we count a single logical file of both EIF and ILF for same application?
Answer:- Click here for detail
 A logical file cannot be counted as both an ILF and EIF for the same application. If the data group satisfies
both rules, count as an ILF.

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Question No 3:
Discuss the role of interdependency and time allocation to fulfill a realistic project schedule?
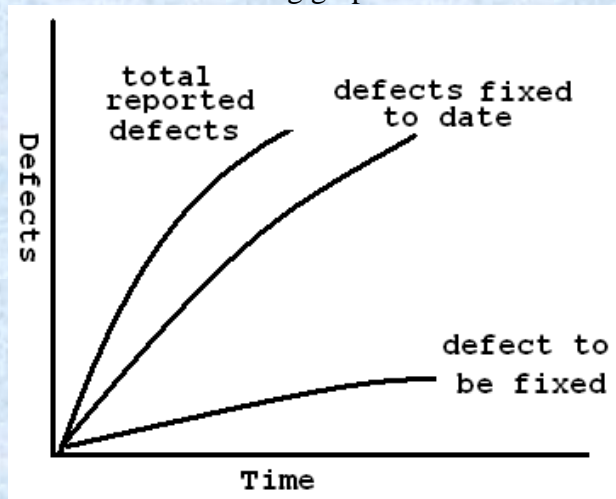**Answer:- (Page 92)**
• Interdependency
The interdependency of each compartmentalized activity or task must be determined. Some tasks must occur in sequence while others can occur in parallel. Some activities cannot commence until the work product produced by another is available.

• Time allocation
Each task to be scheduled must be allocated some number of work units (e.g. person-days of effort). In addition, each task must be assigned a start date and an end date which is a function of the interdependencies and number of resources.

Question No 4:
Consider the following graph?

See the graph and notify us product is stable or not
Answer:- (Page 78)
Product is in unstable condition as gap between the defects reported and defects fixed is increasing.

Question No 5:
$N_f = 25$, $N_{nf} = 5$ and $N_{ui} = 10$
Calculate the lack of ambiguity in the given requirement

Question No 6:
Discuss some of the factor that will consider when deciding about whether to develop the project from scratch or from 3rd party components (off the shelf software)
Answer:- Click here for detail
There are many factors to consider when deciding whether to use third party components in a project. It is essential to consider and try to quantify each of these for your own particular situation before making the build vs. buy choice. Only by doing so can you truly compare the total cost of ownership of each approach.

Developer costs

This is the cost of developer time to implement a certain set of functionality. For components you have the cost to evaluate the component and integrate it into an application. Generally speaking these costs will be much smaller than the cost to implement the functionality on your own.

Note: A major factor in the buy vs. build decision is often psychological rather than economic, where developers want to build features simply because it is more fun. Without a good economic analysis, this choice can raise costs to the point where a project fails completely.

Feature costs

When you build your own component, you can build it to implement the exact feature set you require. With third party components the component may lack a feature that leads to a reduction in the functionality of your application. This reduction in functionality may result in costs in the form of reduced sales, or competitive disadvantage.

On the other side, a component will often implement features you do not use. While these features have no direct costs, they do increase the overall cost of deploying the component because they demand additional time to learn and add complexity to the component.

Time to market costs

Deploying a third party component is dramatically faster than building your own. You should estimate the amount of time it would cost to develop the feature on your own and estimate the impact of the delay on the overall profitability of the project. In many cases this will turn out to be a major factor in the decision.

Product Costs

The actual cost of a third party component is typically an insignificant factor in the total cost of ownership of a component.

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Define Compartmentalization with context of project schedule. (2)
Answer:- (Page 92)
The project must be compartmentalized into a number of manageable activities and tasks.
To accomplish compartmentalization, both the product and process are decomposed.

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In order to assess the overall project risks, what questions need to be addressed? Give any five? (3)

Answer:- (Page 86)

In order to assess the overall project risks, the following questions need to be addressed:

• Have top software and customer managers formally committed to support the project?

• Are end-users committed to the project and the system/product to be built?

• Are requirements fully understood?

• Have customers been involved fully in requirement definition?

• Do end-users have realistic expectations?

• Does the software team have right mix of skills?

• Are project requirements stable?

• Does the project team have experience with the technology to be implemented?

• Is the number of people on the project team adequate to do the job?

Three External input counting rules (3)

Answer:- (Page 52)

• The data or control information is received from outside the application boundary.

• At least one ILF is maintained if the data entering the boundary is not control information that alters the behavior of the system.

• For the identified process, one of the following three statements must apply:

    o Processing logic is unique from the processing logic performed by other external inputs for the application.

    o The set of data elements identified is different from the sets identified for other external inputs for the application.

    o The ILFs or EIFs referenced are different from the files referenced by other external inputs in the application.

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1. Why software Engineers use measure? 2 marks

Answer:- (Page 66)

A good software engineer would adopt mechanisms to measure the quality of the analysis and design models, the source code, and the test cases.

At the project level, the primary focus is to measure errors and defects and derive relevant metrics such as requirement or design errors per function point, errors uncovered per review hour, errors per thousand lines of code.

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2. What do you mean by degree of rigor? 2 marks
Answer:- Rep

3. in order to assess overall project risks, which questions need to be asked (Any Five) ? 3 marks
Answer:- Rep

4. how can we develop individual control vu solutions dot com chart using moving range Control chart? 3 marks

5. Interdependency of each compartmentalized activity or task must b determined? If interdependency is not determined than what impact will be on overall project? 5 marks
  Answer:- (Page 92)
The interdependency of each compartmentalized activity or task must be determined. Some tasks must occur in sequence while others can occur in parallel. Some activities cannot commence until the work product produced by another is available.

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Q1 baseline data : 2marks
Answer:- Rep

Q2 project projection: 2 marks
Answer:- (Page 88)
Risk Projection
Risk projection is concerned with risk estimation. It attempts to rate risks in two ways:
Likelihood and consequences. There are four risk project activities. These are:
• Establish a scale that reflects the perceived likelihood of risk
• Delineate the consequences
• Estimate impact
• Note the overall accuracy of risk projection

Q4 How design of a software is measured quantitatively: 3 marks
Answer:- (Page 71)
The quality of the architectural design can be measured by measuring its complexity as shown below:
– Structural complexity $S = (f_{out})_2$
– Data complexity $D = v/(f_{out} + 1)$ • 'v' is the number of input and output variables
– System complexity $C = \Sigma \, (S_i + D_i)$

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1) Difference b\w generic and product specific risks 2 marks
Answer:- (Page 86)
Generic risks are threats to every project whereas *Product specific risks* are specific to a particular project.

2) What is EIF? 2 marks
Answer:- (Page 42)
An external interface file (EIF) is a user identifiable group of logically related data or control information referenced by the application, but maintained within the boundary of another application.

3)Responsibilities of project manager 3 marks
Answer:- (Page 28)
In order to plan and run a project successfully, a project manager needs to worry about the following issues:
1. Product quality: what would be the acceptable quality level for this particular project and how could it be ensured?
2. Risk assessment: what would be the potential problems that could jeopardize the project and how could they be mitigated?
3. Measurement: how could the size, productivity, quality and other important factors be measured and benchmarked?
4. Cost estimation: how could cost of the project be estimated?
5. Project schedule: how could the schedule for the project be computed and estimated?
6. Customer communication: what kind of communication with the customer would be needed and how could it be established and maintained consistently?
7. Staffing: how many people with what kind of resources would be needed and how that requirement could be fulfilled?
8. Other resources: what other hardware and software resources would be needed for the project?
9. Project monitoring: how the progress of the project could be monitored?

4)Types of risks 3 marks
Answer:- (Page 86)
Each project is faced with many types of risks. These include:

• Project risks
– Will impact schedule and cost
– Includes budgetary, schedule, personnel, resource, customer, requirement problems

- Technical risks
– Impact the quality, timelines, and cost
– Implementation may become difficult or impossible
– Includes design, implementation, interface, verification and maintenance problems
– Leading edge technology

- Business risks
– Marketability
– Alignment with the overall business strategy
– How to sell
– Losing budget or personnel commitments

5) Give appropriate RETS for a situation 5 marks
In a human resource management an employee is
- Employee
Permanent
Contract
-Employee
Married
Single

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وہ لوگ مبارک ہیں جو الفاظ سے نصیحت نہیں کرتے بلکہ عمل سے کرتے ہیں

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