

COLLEGE OF ENGINEERING, PUNE
(An Autonomous Institute of Govt. of Maharashtra)

ESE – Nov-Dec, 2012

(CT 411) Software Testing and Quality Assurance

Class: - B.Tech (Information Technology)

Year: - 2012-13

Semester: - VII

Duration: - 3 Hours

Max. Marks: - 50

Instructions:

- 1. All the Questions are compulsory.**
 - 2. Pl write in brief preferably in bulleted format. Underline the most important part of your answers.**
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- Q.1**
- A)** Give one example in which black box testing might give the impression that everything is OK while white box tests might uncover an error. **[03]**
 - B)** Give one example in which white box testing might give the impression that everything is OK while black box tests might uncover an error. **[03]**
 - C)** Provide two most important reasons why the Configuration Management Activity is important **[02]**
 - D)** Explain use of eye gazing tool **[02]**
- Q.2.**
- A)** In your own words, describe difference between verification and validation. **[02]**
 - B)** Who should perform validation test – software developer or software user? Justify your answer. **[02]**
 - C)** Explain the terms governance in a line or two with an example. **[03]**

D) Explain the terms SLA in a line or two with an example. **[03]**

Q.3. A) What activities constitute maintenance – explain in a line each. **[03]**

B) Which activities are different in software development as compared to maintenance? Give the three most important differences **[03]**

C) Provide four pros and cons of choosing Software Testing Career. **[04]**

Q.4. A) What are limitations and assumptions of the Halstead software Science? Compute the following metric for the following piece of code; (Volume: $V = N \log_2 n$, Difficulty: $D = (n_1 / 2) * (N_2 / n_2)$, Effort: $E = V * D$ and Time to understand / implement (sec): $T = E/18$). What does the constant 18 connote? **[6]**

```
void sort ( int *a, int n ) {  
    int i, j, t;  
    if ( n < 2 ) return;  
    for ( i=0 ; i < n-1; i++ ) {  
        for ( j=i+1 ; j < n ; j++ ) {  
            if ( a[i] > a[j] ) {  
                t = a[i];  
                a[i] = a[j];  
                a[j] = t;  
            }  
        }  
    }  
}
```

B) If you have to select four testing techniques, what would they be and why? **[4]**

Q.5. A) What are four measurement scales? Pl give an example of each of them. **[4]**

B) Pl explain Deming Principle – Stop Depending on

C) Pl explain Contradictions in TRIZ. Pl give an example of a solution based on that. Pl refer to the list of contradicting features. [2]

S.N.	Contradiction Features	S.N.	Contradiction Features	S.N.	Contradiction Features
1	Weight of moving object	17	Temperature/ Energy used by moving object	33	Ease of operation/ Compatibility/ compactability
2	Weight of stationary object	18	Illumination Intensity/ Power	34	Ease of repair/ Ease of Operation
3	Length/ Angle of moving object	19	Use of energy by moving object/ Stress or Pressure	35	Adaptability or versatility/ Reliability / robustness
4	Length/ Angle of stationary object	20	Use of energy by stationary object/ Strength	36	Device complexity/ Repairability
5	Area of moving object	21	Power/ Stability	37	Difficulty of detecting and measuring/ Security
6	Area of stationary object	22	Loss of Energy / Temperature	38	Extent of automation/ Safety/ vulnerability
7	Volume of moving object	23	Loss of substance/ Illumination or Intensity	39	Productivity/ Aesthetic / Appearance
8	Volume of stationary object	24	Loss of Information / I function Efficiency	40	Other Harmful effect acting on system
9	Speed / Shape	25	Loss of Time / Loss of Substance	41	Manufacturability
10	Force (Intensity) / Amount of Substance	26	Quantity of substance/the matter/ Loss of time	42	Manufacturing Precision and consistency
11	Stress or pressure /Amount of Information	27	Reliability/ Loss of Energy	43	Automation
12	Shape / Duration of Action of Moving Object	28	Measurement accuracy/ Loss of information	44	Productivity
13	Stability of the object's composition/ Duration of Action of Stationery	29	Manufacturing precision/ Noise	45	System Complexity
14	Strength/ Speed	30	Object affected harmful factors/ Harmful Emission	46	Control of Complexity
15	Duration of action of moving object/ Force or Torque	31	Object-generated harmful factors/ other harmful effect of system	47	Ability to detect / measure
16	Duration of action by stationary object/ Energy used by moving object	32	Ease of manufacture/ Adaptability/ Versatility	48	Measurement Precision