Defect prevention techniques are available to reduce the defect available in the system or product. There are many defect prevention techniques Out of these defect prevention techniques most commonly used techniques are given below. The defect prevention techniques that are given are Joint Application development (JAD), Failure Model and Effect Analysis (FMEA), Fault tree analysis (FTA).

**JAD:** It is generally used in the initial phase of the development. This phase is the stage where all the developers, designers and testers are gathered together to discuss and reduce the ambiguity in the requirements. The JAD process is dependent on the experience level of the participants. It is proved to provide high quality requirement documentation during the requirements phase.

**Failure Model and Effect Analysis:** It is used in the early stage of the development and design phases. Any defects in the initial phase are reduced by this technique to decrease recurring of the same defect in the future during further development levels. The FMEA is a proactive tool that require a lot of time and effort in order to prevent defect. Even though the effort and time taken is lot the reliability and quality of the product is improved.

**Fault Tree Analysis:** This technique is highly dependent on the cause of the defect in the system. For any FTA the knowledge and the skill for execution should be know to the participants. Boolean logic is used in this Technique to identify the combination of events that help to notice the prevention of the defect occurrence in future. IT generally considers one fault at a time which is why it takes FTA time’s to detect the all defects. The FTA is time taking but it gives the details of the defect and the operating system details and human error if there is any is also detailed.

**Advantages and Disadvantages of the Defect Prevention Techniques**:

|  |  |  |
| --- | --- | --- |
| Technique | Advantages | Disadvantage |
| JAD | * Knowledge from different people is taken. * It Alleviates a lot of defects. * Active technical and non technical it reduces the participation reduces ambiguity. | * Wrong problem can be put forword due wrong people selection. * Poor people selection criteria. * Unequal idea generation among the people due to unequal domination. |
| FMEA | * It mainly focus on prevention of the defect. * It reduces the recurring of the defect. * Identify and remove failure in earlier stage. | * Due to inexperience. * Focus on only major complex failures. * Unequal amount of participation. |
| FTA | * Graphical representation. * It can identify complex tasks. | * It is time dependent. * It is resource dependent. |

**Solution to Defect prevention and Avoidance in the final product.**

Now a day the organizations are concentrating on the defect prevention rather than the defect detection and removal of the defects. Generally, the testing is considered as the important in identification of the defects. Organizations don’t follow the the founded prevention methods but usually they try to adopt t the new defect prevention techniques.