CMR INSTITUTE OF TECHNOLOGY

USN

Internal Assessment Test 3– July. 2024

Sub:	**Fundamentals of Game Design**						Sub Code:	**22MCA423**
Date:	**27/7/2024**	**Duration:**	**90 min's**	**Max Marks:**	**50**	**Sem:**	**IV**	**Branch:**	**MCA**

Note : Answer FIVE FULL Questions, choosing ONE full question from each Module

PART I	MARKS	OBE	
		CO	RBT
1 What are interactive stories? Explain different types of events of an interactive story.	10	CO3	L2
2. Discuss Character dimensionality in detail.	10	CO4	L2
PART II			
3 What is story telling engine? Explain in detail with its organizational structure.	10	CO2,CO3	L3
4. Compare and contrast between dramatic tension and game play tension.	10	CO3	L4

PART III

5	Differentiate between linear and non linear stories.	**10**	CO3,CO4	L2
	OR			
6	Discuss how you design character physical types.	**10**	CO4	L2

PART IV

7	Illustrate the need of branching story with its structure.	**10**	CO2,CO3	L2
	OR			
8	Depict the relationship between player and avatar.	**10**	CO2,CO3	L3

PART V

9	Describe the different ways of getting an idea for the game and discuss the different principles of brain storming?	**10**	CO3	L4
	OR			
10	Define Game Concept? Discuss the various key points for transiting from Idea to game concept.	**10**	CO3	L2

1. **What are interactive stories? Explain different types of events of an interactive story.**

    An interactive story is a story that the player interacts with by contributing actions to it. A story may be interactive even if the player's actions cannot change the direction of the plot.

    An interactive story includes three kinds of events:

■ Player events are actions performed directly by the player. In addition to giving the player actions to perform as part of gameplay—actions intended to overcome challenges—you can give the player additional actions to perform as part of the story. Role-playing by talking to other characters, for example, might serve the needs of the story even if overcoming the game's challenges does not require talking. If the player's actions can affect the plot of the story and change its future, they're called dramatic actions. Some player actions are not dramatic, however: Some player events aimed at overcoming challenges may not affect the plot.

■ In-game events are events initiated by the core mechanics of the game. These events may be responses to the player's actions (such as a trap that snaps when the player steps on a particular stone) or independent of the player's actions (such as a simulated guard character checking to see that the castle doors are locked). The player might be able to intentionally cause these events to occur, to change the way they occur, or to prevent them entirely—which is part of what makes the story interactive.

■ Narrative events are events whose content the player cannot change, although he may be able to change whether they occur or not. A narrative event narrates some action to the player; he does not interact with it

2. **Discuss Character dimensionality in detail.**

    Characters may be classified into four groups: zero-, one-, two-, and three-dimensional. A character's degree of emotional sophistication and the ways in which his behavior changes in response to emotional changes determine his degree of dimensionality.

    Zero-dimensional characters exhibit only discrete emotional states. A zero dimensional character may exhibit any number of such states, but there is no continuum of states; that is, the character's emotional state never moves smoothly from one state into another or shows evidence of being in two states at the same time; there is no such thing as "mixed feelings." The nameless orcs in The Lord of the Rings feel only two emotions: hate and fear. The orcs hate the heroes and attack. whenever they feel they

outnumber their enemies, and they fear the heroes and run away whenever they feel vulnerable or outnumbered. This minimal level of emotional variability is typical of the enemies in a simple shooter game. The emotional simplicity of zero-dimensional characters can make them comic.

One-dimensional characters have only a single variable to characterize a changing feeling or attitude; in other respects their character is largely fixed. In The Lord of the Rings, the dwarf Gimli is hostile and suspicious toward elves at first, but over time his respect for the elf Legolas grows until they are boon companions. His other attitudes don't change much. The movies make him a more one-dimensional character than the book does
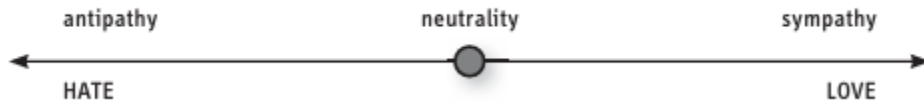

Figure 1 One-dimensional characters have a sin gle variable that describes an emotion that changes over time.

Two-dimensional characters are described by multiple variables that express their impulses, but those impulses don't conflict. Such variables are called orthogonal; that is, they describe completely different domains, which permits no emotional ambiguity. In The Lord of the Rings, Denethor is a two-dimensional character. He has a variety of strong emotions—pride, contempt, despair—but he never faces a moral dilemma. His senses of duty and tradition trump all other considerations, even when they are wildly inappropriate
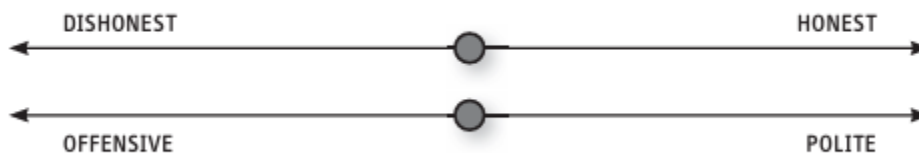

Figure 2 Two-dimensional characters have multi ple, non-conflicting impulses.

Three-dimensional characters have multiple emotional states that can produce conflicting impulses. This state of affairs distresses and confuses them, sometimes causing them to behave in inconsistent ways. Most of the major characters in The Lord of the Rings are

three-dimensional, especially those who are tempted by the Ring. Frodo and, above all, Gollum are three-dimensional; Gollum's conflicting desires have driven him mad
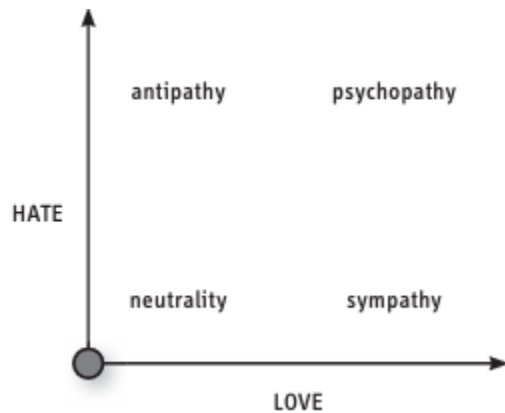

Figure 3 Three-dimensional characters can have conflicting impulses that produce inconsis tent behavior.

3. What is story telling engine? Explain in detail with its organizational structure.

To design a game that includes a story, you must interweave the gameplay—the actions taken to overcome the game's challenges—with the narrative events of the story. Narrative events must be interspersed among the gameplay events in such a way that all events feel related to each other and part of a single sequence that entertains the player. If the gameplay concerns exactly the same subject matter as the narrative—and it should, in order to present a coherent and harmonious whole—then the entire experience, play and narrative together, will feel like one continuous story.

Just as the core mechanics generate the gameplay, the storytelling engine manages the interweaving of narrative events into the game. The core mechanics oversee the player's progress through the game's challenges; the storytelling engine oversees the player's progress through the game's story. The storytelling engine and core mechanics must work together to create a single, seamless experience.
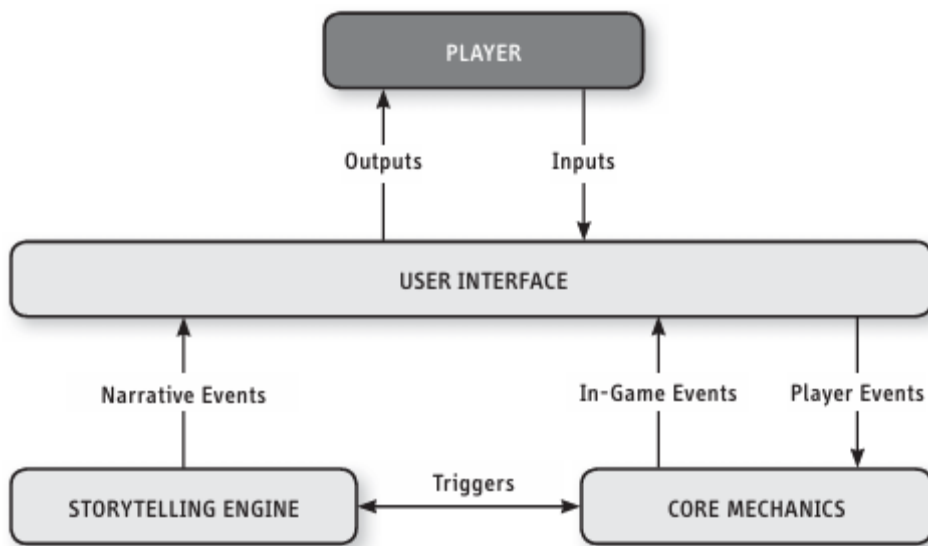
Figure 1 illustrates the relationship between the storytelling engine, core mechanics, user interface, and player.

An interactive story contains three types of events: player events, in-game events, and narrative events. The core mechanics manage the player events and in-game events, as the figure shows. The storytelling engine manages the narrative events. However, the storytelling engine does more than just play movies or cut-scenes; it also keeps track of the progress of the story and determines what part of the plot should come next.

A double-headed arrow labeled Triggers connects the storytelling engine to the core mechanics.The core mechanics may determine that the interaction should stop and the storytelling engine should present some narrative—for instance, when a player completes a level. The core mechanics send a message to the storytelling engine saying that the player finished the level and the storytelling engine should now display any interlevel narrative events. Likewise, the storytelling engine can send a trigger back to the core mechanics when a narrative event finishes (or when the player interrupts a narrative event), telling the core mechanics to resume play.

The storytelling engine doesn't sit idle during play, however. As the player progresses, the mechanics continually send triggers to the storytelling engine—that way, the storytelling engine can keep up with what's going on. If, for example, the player makes a key decision that will affect the story later on, the core mechanics inform the storytelling engine of the decision.

Similarly, during play the storytelling engine can determine that the story has reached a critical plot point and trigger the core mechanics to cause changes to the internal economy of the game. Suppose the story says, "When the avatar reaches the bridge, he will be attacked by a highwayman in a cut-scene and robbed of all his property." The core mechanics, tracking the player's progress through the game world, send a message to the storytelling engine, "The avatar has reached the bridge."

The storytelling engine detects that this is a key point, halts play, and displays a cut-scene showing the robbery. Then it transmits a message back to the core mechanics saying, "Transfer the avatar's inventory to the highwayman and resume play." Normally, the level designers do the work that actually implements such events in the game. Among the level designer's tools for level-building will be a mechanism

4. **Compare and contrast between dramatic tension and game play tension.**

DRAMATIC TENSION When a reader reads (or a viewer watches) a story, she feels dramatic tension, the sense that something important is at stake coupled with a desire to know what happens next. (Screenwriters call this conflict, but game developers use conflict to refer to the opposition of hostile forces in a game and prefer dramatic tension, which is more accurate in any case.) Dramatic tension is the essence of storytelling, whatever the medium. Cliffhangers—exciting situations at the ends of book chap ters or TV shows that remain unresolved until the next chapter or episode— increase the audience's sense of dramatic tension and ensure they stick around to see the situation resolve. At the climactic event of a story, the action turns, so that instead of the tension mounting, the tension begins to fall.

GAMEPLAY TENSION When a player plays a game, he feels gameplay tension, also a sense that something important is at stake and a desire to know what happens next. But gameplay ten sion arises from a different source than dramatic tension does; it comes from the player's desire to overcome a challenge and his uncertainty about whether he will succeed or fail. In multiplayer games, the player's uncertainty about what his oppo nents will do next also creates gameplay tension.

5. **Differentiate between linear and non linear stories.**

Linear	Non Linear
Stories that player cannot change	Stories that player can change
Requires less content than non linear	Requires more content than linear

Story telling engine is simpler in Linear	Story telling engine is complicated in non Linear
Less prone to bugs and absurdities	More prone to bugs and absurdities
Deny the player agency	Accept the player agency
Capable of creating great emotional power	Less capable of creating great emotional power

6.Discuss how you design character physical types.

HUMANOIDS NONHUMANOIDS, AND HYBRIDS:

A small number of characters appear as disembodied voices or animate objects, but they aren't included here because this section is specifically about visual design.Humanoid characters have two arms, two legs, and one head, and their bodies and faces are organized like a human's. The more you deviate from this arrangement, the less human a character seems. Truly human characters can have either realistic human proportions or exaggerated ones in a cartoon style, but if you use cartoon proportions, you should use a cartoon drawing style as well. A photorealistic human with exaggerated proportions will read as disturbingly deformed.

Nonhumanoid characters include those shaped like vehicles or machines (often indicated by the presence of metal and wheels), animals, or monsters. In the Star Wars universe, R2-D2 is clearly a machine, albeit one with endearing qualities. R2 has three legs with wheels on the bottom, a variety of mechanical appendages, and a head, but no real face.

Monsters are distinguished by such characteristics as significantly asymmetric bod ies, a different facial arrangement (eyes below the nose or jaws that move sideways, for example), and extreme proportions.

Hybrids include beings such as mermaids or human/machine combinations. Davros, the creator of the Daleks, has a humanoid torso and head but a mechanical bottom half. The Borg from Star Trek and C-3PO from Star Wars read as humanoids rather than true hybrids, however, because they still follow the rules for humans: two arms, two legs, and one head in the appropriate configuration.

CARTOONLIKE QUALITIES:

Cool characters never get too upset about anything. The essence of cool is detachment. If something irritates them, it's only for a moment. A rebellious atti tude toward authority often accompanies cool. Cool characters often wear sunglasses and their body language is languid

Tough characters exemplify physical aggression. Often male—although Lara Croft would be classed as a tough character—they are frequently drawn with exaggerated height and bulk. They use large, expansive gestures and tend to talk with their fists

Cute characters are drawn with the proportions of human babies or baby ani mals: large eyes and oversized heads. They have rounded rather than angular bodies, dress in light colors, and have a general demeanor of cheerfulness, although they may exhibit moments of irritation or determination.

Goofy characters have slightly odd proportions and funny-looking, inefficient walks and other movements. Their behavior is largely comedic. Like cool charac ters, they are seldom upset by anything for long, but their physical awkwardness means that they are definitely not cool.

HYPERSEXUALIZED CHARACTERS:

Hypersexualization refers to the practice of exaggerating the sexual attributes of men and women in order to make them more sexually appealing, at least to teenagers. Male characters get extra-broad chests and shoulders, huge muscles, prominent jaws, and oversized hands and feet. Female characters get enormous breasts, extremely narrow waists, and wide hips.

Clothing, Weapons, Symbolic Objects, and Names When designing ordinary human beings, body shape is only the beginning. In the real world, we have only a limited ability to change our bodies, so instead we express our personal style through things that we hang on the outsides of our bodies: clothing and accessories. In a video game, the player can more easily see who is who—especially important in situations requiring snap decisions, like a shooter game—if characters' clothing and props uniquely identify them. Indiana Jones wears a certain hat and khaki clothes, and he carries a bullwhip.

Sidekicks Hero characters are sometimes accompanied by sidekicks. A tough hero may travel with a cute sidekick (or vice versa) to provide some variety and comic relief. The cheerful look of Miles "Tails" Prower, the two-tailed fox who accompanies Sonic the Hedgehog, complements Sonic's expression of determination and mischief.

7. **Illustrate the need of branching story with its structure.**

   A branching story allows the player to have a different experience each time he plays the game. The story offers not one plot line but many that split off from each other at different points. As the designer, you decide on the different possible plot lines and how they relate to each other. During play, the storytelling engine keeps track of which plot line the player is following at any given time. When the story reaches a branch point—a place where the current plot line subdivides—the core mechanics must send a trigger to the storytelling

engine to tell it which of the possible CHAPTER 7 branches of the story the player will follow next.

Game events either player events or in-game events generated by the core mechanics (such as an action taken by an AI-driven NPC)—determine which branch the story will take. Player events that influence the direction of the story fall into two categories: efforts to overcome a challenge or decisions that the story asks the player to make. Branch points connected with player decisions have one branch for each option that you offer to the player. Typically, branch points associated with challenges have only two branches leading on from the branch point, one for success and one for failure, though you can also create different numbers of branches for different degrees of success if you want to. We'll consider the emo tional consequences of branches based on challenges versus those based on choices in the later section "Endings."

If an event in the game causes the plot to branch right away, that event has an immediate influence on the story. This is the most common kind of branch and the easiest to implement. The player makes an irrevocable decision—which road to take, for example—and the story promptly reflects his choice. However, sometimes the player can make a decision early in the game that influ ences a branch point much later, in which case that decision has deferred influence, or he can make a whole series of decisions throughout the game that cumulatively affect a branch point, such that his actions and decisions, taken together, have cumulative influence.

A diagram of a branching story looks somewhat like a tree, although by convention the root—the beginning of the story—appears at the top, so that the tree branches out as it goes down the page and the story goes forward in time. Figure shows a small part of the structure of a branching story.
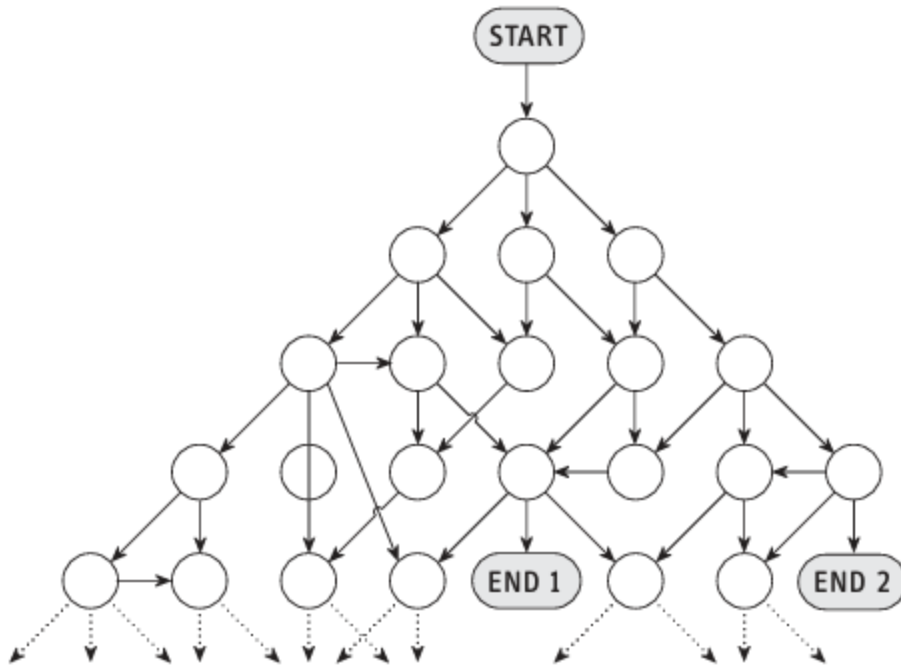
The branch points don't always have the same number of branches leading away from them. A story can branch in any number of directions at any given point.

- The branches go down or sideways, but they never go back up again. The diagram depicts the possible progress of a story, and stories always move forward in time, never backward. In the course of playing a single game, the plot never follows the same branch or passes through the same branch point twice. This enforces the rule that stories must not contain identical repeating events and helps avoid the risk of continuity errors, as discussed earlier.

- Unlike branches on a real tree, different branches can merge; that is, different plot lines can converge. Many branch points can be reached by more than one path.

- The diagram depicts two possible endings that may be reached by different paths. The complete diagram would show additional endings farther down.

- The diagram shows only one start point, but in fact a story could have several start points if the player made a key decision before the story actually began. The player might select one of several different characters to be his avatar, and that choice could determine where the story begins. Or the storytelling engine could choose from among several designated start points at random just to make the beginning different each time the player plays the game. The branching story mechanism is the classic method for creating interactive stories that give players lots of agency. Branching plot lines let you tell a story in which the player's

actions strongly affect the plot, and he can see the effect of his actions if he plays the game more than once and makes different decisions the second time through.

8.Depict the relationship between player and avatar.

The game industry uses the term avatar to refer to a character in a game who serves as a protagonist under the player's control. (The original term is Sanskrit and in the Hindu religion refers to the bodily incarnation of a god.) Most action and action adventure games provide exactly one avatar. Many role-playing games allow the player to manage a party of characters and switch control from one to another, but if winning a role-playing game is contingent upon the survival of a particular member of the party, then that character is effectively the player's avatar (though some games require that more than one character survive). The player usually sees the avatar onscreen more than any other character if the game is presented in the third person. Displaying the avatar requires the largest number of animations, which must also be the smoothest animations, or you risk annoying the player. The avatar's movements must be attractive, not clumsy, unless clumsiness is part of the avatar's character

Player-Designed Avatar Characters While most games have an established character as the player's avatar, role-playing games, especially multiplayer online ones, almost always give players considerable freedom to design an avatar to their own specifications. They can choose the ava tar's race, sex, body type, hair, clothing, and other physical attributes, as well as a large number of other details, such as strength and dexterity, that have a direct effect on the way the avatar performs in challenging situations.

Specific and Nonspecific Avatars In games in which the player does not get to design or choose an avatar but must use one supplied by the game, the relationship between the player and the avatar varies depending on how completely you, the designer, specified the avatar's appearance and other qualities. The earliest adventure games, which were text-based, were written as if the player himself inhabited the game world. However, because the game didn't know anything about the player, it couldn't depict him or say much about him. Such avatars were nonspecific—that is, the designer didn't specify anything about them. Myst is an early example of a graphical game with a nonspecific avatar.

The nonspecific avatar does not belong entirely to the past, however. Gordon Freeman, the hero of Half-Life, does not speak and is never even seen in the game (although he does appear on the box). The designers did this deliberately; Half-Life, a first-person shooter in a world with no mirrors, offers Gordon as an empty shell for the player to inhabit.

The Effects of Different Control Mechanisms The way a player feels about an avatar depends somewhat on how the player con trols the avatar in the game. In the case of Nancy Drew and the avatars in all other point-and-click adventure and computer role-playing games, the

player's control is indirect; he doesn't steer the avatar around but points to where he wants the avatar to go, and the avatar walks there of her own accord.

Male and Female Players and Characters Early in the history of video games, some designers were concerned that male players (who used to make up the majority of the market) would be unwilling to play female avatars: Men might find identifying with a female character somehow threatening. Lara Croft demonstrated that this is not a problem, at least as long as the character is acting in a role that men are comfortable with. Lara engages in tradition ally masculine activities, so men are happy to enter the game as Lara. They might be less comfortable with an avatar who engaged in more traditionally feminine activities.

Women, of course, are expected to identify with male heroes routinely, a state of affairs predating computer games. Until recently, few books, movies, TV shows, or video games about adventurous activities featured female heroes, and they're still very much in the minority. Women justifiably get tired of playing male heroes, and they appreciate the opportunity to play as female characters

9. Describe the different ways of getting an idea for the game and discuss the different principles of brain storming?

We can find game ideas almost anywhere, but only if you're looking for them. Creativity is an active, not a passive, process.

Dreams of Doing A lot of games are light entertainment, designed to while away a few minutes with a puzzle or a simple challenge. But larger, richer games begin with a dream. If you've ever thought to yourself, "I wish I could... " or "Imagine what it would be like to...," then you've taken an important step on the road to creating a video game. Computers can create almost any sort of visual and auditory experience you can imagine, even experiences that are physically impossible in the real world. The design of a game begins with the question, "What dream am I going to fulfill?"

Dreams from Other Media Books, movies, television, and other entertainment media can be great sources of inspiration for game ideas, so long as the ideas include plenty of activity. People dream of being Spider-Man, Harry Potter, or Nancy Drew, and all these characters have video games about them. But games don't have to have licenses from famous books or TV shows just to take inspiration from them.We should also look beyond the usual science fiction and fantasy genres and beyond the usual sources like novels and movies. How about poetry? Beowulf's epic battle with the monster Grendel and then his even more terrible battle with Grendel's mother in a cave at the bottom of a lake sound like the basis for a game.

Game ideas can crop up in all sorts of unlikely places. The smash-hit game franchise The Sims was partly inspired by a nonfiction book by Christopher Alexander called A Pattern

Language (Alexander, 1977), which is about the way people's lives are affected by the design of their houses. Just as great scientists look at even the most common things in the world—light, air, gravity—and ask how they work, great game designers are always looking at the world and wondering what parts of it they can make into a game. The trick to finding original ideas, beyond the elf-and-wizard combinations that have been done so often, is to develop a game designer's instincts, to look for the fun and challenge even in things that don't sound like games at all.

Game Ideas from Other Games:

When you play a lot of games, you develop a sense of how they work and what their good and bad points are. Playing games is a valuable experience for a game designer. It gives you insight and lets you compare and contrast the features of different games.

The four principles of brainstorming are

Focus on quantity. The greater the number of ideas generated, the greater the chance of producing an interesting or useful one. Don't stop to discuss an idea, simply record it and move on.

Withhold criticism. Debating the value of an idea slows down the process, and if people feel that they will be criticized, they will be more reluctant to generate ideas.

Welcome unusual ideas. Part of the point of brainstorming is not only to find ideas, but to find ones that you might never have considered otherwise. This is particularly important for creative endeavors like game design.

Combine and improve ideas. Ideas don't have to be unique. Rather like a jam session in music, the participants can build upon each others' suggestions, adding features or combining them to make new ones.

10.Define Game Concept? Discuss the various key points for transiting from Idea to game concept.

A game concept is a description of a game that is detailed enough that a group can begin discussing it as a potential commercial product—a piece of software that the public might want to buy. It should include, at a minimum, the following key points:

A high concept statement, which is a two- or three-sentence description of what the game is about. Here's a high concept statement for a game about street football: "The game at its grittiest. No pads, no helmets, no refs, no field. Just you and the guys, a ball, and a lot of concrete."

The player's role(s) in the game, if the game is representational enough to have roles. If the player will have an avatar, describe the avatar character briefly.

A proposed primary gameplay mode, including camera model, interaction model, and general types of challenges the player(s) will experience in that mode.

The genre of the game or, if you think it is a hybrid, which features it will incorporate from the different genres to which it belongs. If it is an entirely new kind of game, include an explanation of why its gameplay doesn't fit into any existing genre.

A description of the target audience for the game and perhaps the expected rating that it will get.

The name of the machine on which the game will run and details of any special equipment or features the game will utilize (for example, a camera or dance mat).

A brief statement of how you expect to make money with your game, if you intend to sell it commercially. "Making Money from Your Game," describes the different places around the world where you can sell games and looks at business models for making money with games.

Any licensed characters or other intellectual property that the game may be based on, such as a sports league or a movie hero.

The competition modes that the game will support: single-, dual-, or multiplayer; competitive or cooperative.

A general summary of how the game will progress from beginning to end, including a few ideas for levels or missions and a synopsis of the storyline, if the game has one. Do not spend too much time on the story. Many game developers spend too much time on the story and not enough on the gameplay.

A short description of the game world.