1. Critically discuss Sternberg’s Information processing approach

**Ans:** Sternberg’s theory suggests that development is skills-based and continuous rather than staged and discontinuous as stage theorists believe, and his focus is on intelligence. This focus on intelligence separates his ideas from stage theorists because it rejects the idea of incremental stages, but rather suggests that development occurs in the same way throughout life differentiated only by the expertise of the learner to process new information. First, and very importantly, Sternberg’s model does not differentiate between child and adult learning. Also, he deals solely with information processing aspects of development and does not incorporate any facets of biological development into his theory.

Cognitive development is viewed as a novice to expert progression; as one becomes better at interaction and learning, one is able to learn more and at higher levels. Development changes as a result of feedback, self-monitoring, and automatization. In this theory, intelligence is comprised of three kinds of information processing components: metacomponents, performance components, and knowledge-acquisition components. In Sternberg’s (1988) model, each of these three components works together to facilitate learning and cognitive development. Metacomponents are executive in nature. They guide the planning and decision making in reference to problem solving situations; they serve to identify the problem and connect it with experiences from the past. There is, however, no action directly related to metacomponents; they simply direct what actions will follow. Performance components are the actions taken in the completion of a problem-solving task.

Performance components go beyond metacomponents in that they perform the function also of weighing the merit and or consequences of actions in comparison to other options rather than simply identifying options. Sternberg’s third proposed type of intelligence is the knowledge-acquisition component. This type is characterised by the ability to learn new information in order to solve a potential problem. This type is much more abstract and may or may not be directly related to a current problem-solving task (Driscol, 2001). This three-leveled view of intelligence comprises the componential aspect of Sternberg’s theory, but this is only one of three parts to his larger triarchic theory of intelligence.

Sternberg’s (1988) theory adds the components of feedback to theories of cognitive development; this suggests that an individual’s social interaction has some impact on cognitive development. In fact, one of the three parts of his theory is based on the context in which learning takes place; this subparts of the theory “specifies that intelligent behaviour is defined by the sociocultural context in which it takes place and involves adaptation to the environment, selection of better environments, and shaping of the present environment”.

The addition of social context as a factor in cognitive development links Sternberg to the interactional theories of development of Bruner and Vygotsky. These theories, and others of this type, are premised on the assumption that learning does not occur in a vacuum. Therefore, one must discuss the social and cultural contexts of learning. Driscol says, “Of central importance is viewing education as more than curriculum and instructional strategies. Rather, one must consider the broader context in which culture shapes the mind and provides the toolkit by which individuals construct worlds and their conceptions of themselves and their powers”.

These theories all work under the assumption that new information can most effectively be learned if the material can be matched to memory structures already in place Most theories hold that the mind contains some type of framework into which new information is placed. This structure is multi-leveled and has varying degrees of specificity. New information can be matched, compared to, contrasted to, joined with, or modified to fit with existing structures. This in-place structural system allows for differing levels of complexity of information processing. The formation of and continual building of these structures, then, is critical in order for learners to process information in various ways and at higher levels.

2. Critically discuss Das, Naglieri and Kirby’s PASS theory.

**Ans:** This model has been developed by J.P. Das, Jack Naglieri, and Kirby (1994). According to this model, intellectual activity involves the interdependent functioning of three neurological systems, called the functional units of brain. These units are responsible for arousal/attention, coding or processing, and planning respectively.

**Arousal/Attention:** State of arousal is basic to any behaviour as it helps us in attending to stimuli. Arousal and attention enable a person to process information. An optimal level of arousal focuses our attention to the relevant aspects of a problem. Too much or too little arousal would interfere with attention. For instance, when you are told by your teacher about a test which s/he plans to hold, it would arouse you to attend to the specific chapters. Arousal allows you to focus your attention on reading, learning and revising the contents of the chapters.

**Simultaneous and Successive Processing:** You can integrate the information into your knowledge system either simultaneously or successively. Simultaneous processing takes place when you perceive the relations among various concepts and integrate them into a meaningful pattern for comprehension. For example, in Raven’s Progressive Matrices (RPM) Test, a design is presented from which a part has been removed. You are required to choose one of the six options that best completes the design. Simultaneous processing helps you in grasping the meaning and relationship between the given abstract figures. Successive processing takes place when you remember all the information serially so that the recall of one leads to the recall of another. Learning of digits, alphabets, multiplication tables, etc. are examples of successive processing.

**Planning:** This is an essential feature of intelligence. After the information is attended to and processed, planning is activated. It allows us to think of the possible courses of action, implement them to reach a target, and evaluate their effectiveness. If a plan does