STUDENT'S ID NO:_____ SIGNATURE: _____

UNIVERSITY OF GHANA

DEPARTMENT OF TEACHER EDUCATION
SCHOOL OF EDUCATION AND LEADERSHIP
COLLEGES OF EDUCATION
END OF SEMESTER ONE EXAMINATIONS FOR LEVEL 200, 2023/2024
B.ED. PROGRAMME

COURSE CODE: **TEUP 205**

COURSE TITLE: **THEORIES IN TEACHING UPPER PRIMARY MATHEMATICS**

Instruction: Instruction: Answer **all** questions in Section A and any **three** questions in Section B on the answer booklet provided.

Time: 2 Hours

SECTION A

[25 Marks]

Answer all the questions in this section on the answer booklet provided.

1. The concept of self-regulated learning derives from_____.

   A. Bandura's work with observational learning
   B. Pavlov's work with the conditioned reflex
   C. Skinner's work with juvenile delinquents
   D. Thorndike's law of effect

2. Assimilation as a form of adaptation of schemas in mathematics involves _____.

   A. effecting some changes in an existing schema to include a new one
   B. fitting an already existing schema into a new one by trial and error
   C. fitting a new schema into the existing one without any changes but expansion
   D. splitting a new schema into smaller units to fit an existing one

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3. An organisation of concepts and actions that can be revised by new information about the world is known as_____.

   A. Class
   B. Content
   C. Schema
   D. Strata

4. Constructivist Theory is underpinned by the principle that _____.
   A. learners construct their own knowledge
   B. learning is a change in observable behaviour
   C. learners require a higher authority as a facilitator
   D. learners require frequent practice to succeed

5. The Activity Theory calls for facilitators to be aware that tools can limit as well as enable social interaction. Hence, they must be _____.

   A. applied wisely by an effective mathematics teacher
   B. applied wisely to promote effective learning
   C. used to assist learners who are challenged
   D. used with variations in their colours

6. The following are true of behaviourism principle, with the EXCEPTION_____.

   A. of desirable human behaviour is more the product of design than accident
   B. of some learning conforming to the basic stimulus-response model
   C. that inborn factors have a lot of influence on behaviour and learning ability
   D. that it is an illusion to say that humans have free will; this can never be

7. Any event that increases the frequency of occurrence of the response that follows is referred to as_____.

   A. Association
   B. Reconstruction
   C. Reinforcement
   D. Stimulus response

8. The form of adaptation that involves modification of the internal cognitive structure to make sense of the new information is referred to as _____.

   A. accommodation
   B. assimilation
   C. association
   D. discrimination

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9. According to Constructivist Theory, how do students acquire mathematical knowledge?

A. Through active engagement and exploration.
B. Through direct instruction.
C. Through memorisation techniques.
D. Through passive absorption of information.

10. Which learning theory highlights the role of social interaction and collaboration in mathematical learning?

A. Behaviourism
B. Cognitivism
C. Connectionism
D. Social constructivism

11. Who proposed the Theory of Multiple Intelligences, suggesting that students may excel in different areas of mathematics due to their unique cognitive strengths?

A. Howard Gardner
B. Jean Piaget
C. Jerome Bruner
D. Lev Vygotsky

12. The learning theory that suggests mathematical understanding is constructed through interactions with physical and symbolic representations is_____.

A. Behaviourism
B. Cognitivism
C. Constructivism
D. Social constructivism

13. What does the acronym "STEM" mean in terms of integrated mathematics education?

A. Science, Technology, English, Mathematics
B. Science, Technology, Engineering, Mathematics
C. Social Studies, Technology, Engineering, Mathematics
D. Statistics, Trigonometry, Economics, Mathematics

14. What role does metacognition play in mathematics learning, according to cognitive theories?

A. Collaborating with peers on mathematical tasks
B. Deep understanding of mathematical concepts
C. Memorising formulas and procedures
D. Monitoring and regulating one's own thinking processes

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15. According to Behaviourist Theory, how can educators reinforce desired mathematical behaviours in students?

A. By emphasising real-world applications
B. By encouraging collaboration
C. By offering rewards or praise
D. By providing challenging tasks

16. Which theory suggests that students construct their understanding of mathematical concepts through interactions with their environment and peers?

A. Behaviourism
B. Cognitivism
C. Connectionism
D. Social constructivism

17. What is the primary focus of Situated Learning Theory in mathematics education?

A. Developing abstract mathematical reasoning skills
B. Memorising mathematical formulas and procedures
C. Promoting collaborative problem-solving skills
D. Understanding math principles in real-world settings

18. According to the Zone of Proximal Development (ZPD) in mathematics education, what should educators focus on when scaffolding students' learning?

A. Assigning challenging tasks for the pupils
B. Encouraging independent exploration by the pupils
C. Offering support for tasks above the student's level
D. Providing direct instruction to the pupils

19. Madam Abegunde said that because her sick student was unable to focus in class, he should go home. This instance exemplifies the _____ concept.
A. effect
B. exercise
C. readiness
D. recency

20. The idea that conduct can be gradually shaped to achieve a desired goal is linked to the notion of_____.

A. Behavioural Theory
B. Cognitive Theory
C. Constructivism Theory
D. Situated cognition Theory

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21. According to Behaviourist Learning Theory, learning is primarily influenced by_____.

A. Cognitive processes
B. Environmental stimuli
C. Innate instincts
D. Social interactions

22. According to operant conditioning, which term refers to the process of weakening a behaviour by removing a pleasant stimulus?

A. Extinction
B. Punishment
C. Reinforcement
D. Shaping

23. In Social Cognitive Theory, what term describes the belief in one's own capabilities to accomplish a task or produce a specific outcome?

A. Self-actualization
B. Self-efficacy
C. Self-esteem
D. Self-regulation

24. According to Constructivist Theory, learning is best facilitated through_____.

A. Active engagement and exploration
B. Direct instruction
C. Memorization techniques
D. Passive absorption of information

25. What does the acronym "S-R" stand for in Behaviourist Theory?

A. Sensory-Response
B. Stimulus-Reflection
C. Stimulus-Reinforcement
D. Stimulus-Response

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SECTION B

[75 Marks]

Answer any **THREE** questions in this section.

1 (a) Explain the Behaviourism Theory of learning. 4 Marks

(b) Explain any **FOUR** of Behaviourism's key principles. 12 Marks

(c) With the aid of **THREE** points, illustrate how you will use a behaviourist approach to teach a mathematical concept to pupils in class 5. 9 Marks

2 (a) (i). State the factors that facilitate concept formation in the numeracy class. 4 Marks

(ii). Explain the factors stated in 2(ai) above. 8 Marks

(b) As the organizer of the mathematics club in your school, what are the **FIVE** tips for mathematics success that you will give to the new senior high school students during their orientation? 5 Marks

(c) (i). Compare and contrast behaviourism and cognitivism as learning theories. 4 Marks

(ii). How do these theories influence instructional practices in the classroom? 4 Marks

3 (a) (i). Explain the Social Learning Theory concept. 4 Marks

(ii). Provide examples of how you can incorporate Social Learning Theory into your instructional strategies. 5 Marks

(b) Represent Engestrom's Activity Theory diagrammatically. 4 Marks

(c) Explain any **FOUR** variables on 3(b) diagram in relation to the learners in the Upper Primary mathematics or numeracy classroom. 12 Marks

4 (a) Provide the full words for the following abbreviations:

i. ADD 2 Marks

ii. ADHD 2 Marks

(b) i. Explain any **FOUR** criticisms of Constructivism. 12 Marks

ii. Discuss the implications of Constructivist Learning Theory for assessment practices in the classroom. 5 Marks

(c) How can you design assessments that align with constructivist principles? 4 Marks

5 (a) Identify **THREE** key issues highlighted by the learning philosophy of the lower primary mathematics curriculum. 6 Marks

(b) Briefly explain each of the key issues mentioned in (5a) above. 9 Marks

(c) i. Who proposed the Zone of Proximal Development (ZPD) as a key concept for understanding learning? 2 Marks

ii. Which learning theory emphasises the importance of both environmental and cognitive factors in shaping behaviour? 2 Marks

iii. Who developed Classical Conditioning? 2 Marks

(d) What is assimilation? 4 Marks