CYCLE: **2nd CYCLE** LEVEL: **1st YEAR**	**2014 SESSION**
DURATION 3 HOURS	

1. What is the area of the region bounded by $y=x^2 + 1$, the x- axis, $x=1$, $x=2$?

   A 3.23 units^2 B. 3.33 units^2 C. 3.43 units^2 D. 3.5 units^2

Question 2 to 4

Neba who weighs 80 kg puts his foot down on the accelerator. His car has a mass of 1,400 kg and tractive (driving) force supplied by the engine is 2,800 Newtons. The car reaches a speed of 110 km/h after 200 m down the road.

2. Convert the speed of 110 km/h to meters per second

   A 28.12 m/s B. 30.6 m/s C. 2.8 m/s D. 32.54 m/s

3. What is the accelerator of the car?

   A 2.0 m/s^2 B. 2.5 m/s^2 C. 3.2 m/s^2 D. 1.89 m/s^2

4. After 200 m down the road, Neba reaches a speed of 110 km/h. What was his initial speed?

   A 13.2 m/s B. 15 m/s C. 21 m/s D. 25 m/s

5. What is the forward force (horizontal) exerted by Neba by his seat while the car maintains its acceleration?

   A 143.2 N B. 150.23 N C. 151. 35 N D. 165. 38 N

Question 6 to 10

A particle P moves in a straight line with position relative to the origin O given by

$S(t)= 2t^3 - 9t^2 + 12t – 5$ cm

6. What is the expression for the particle's velocity?

A $2t^2-9t+12$ B $6t^2- 18t +7$ C $3t^2- 18t +12$ D $6t^2-18t +12$

7. What is the expression for the particle's acceleration?

A 4t - 9 B 12t – 18 C 18t + 12 D 6t – 18

8. What is the velocity of the particle at initial condition?

A 12 towards the origin B 12 away from the origin C 18 towards the origin D 18 away from the origin

9. What is the acceleration of the particle at initial condition?

A $-12\ cm^{-2}$ B $-18cm^{-2}$ C $12cm^{-2}$ D $18cm^{-2}$

10. What are the time and positions where the particle changes direction?

A t=2, t=0 and t=1, t= -1 B t=2, t=0 and t=1, t= -1

C t=1, t=2 and t=0, t= -1 D t=1, t=0 and t=2, t= -1

11. A box contains 6 blue balls and 4 red balls. Two balls are drawn from the box, one after the other, without replacement. The actions described above will result in events that are

A dependent B independent C complementary D mutually exclusive

12. The area of the region enclosed by $y = x+2$ and $y = x^2 + x – 2$ is

A $3/2\ units^2$ B. $5/3\ units^2$ C. $4/3\ units^2$ D. $5/2\ units^2$

13. The numbers 1 through 5 are each written on a separate slip of paper, and the papers are placed in a box. The letters A, B, C and D are each written on a separate slip of paper, and the papers are placed into a different box, Ngole draws one slip of paper from each box. The number of elements in the sample space for his trial is

A 51 B. 20 C. 9 D. 2

Question 14 to 16

A particle P moves in a straight line with velocity function

$$V(t) = t^2 - 3t + 2 \text{ m.s}^{-1}$$

14. At what time does P reverse direction?

A t = 3/2 and t = 2 B. t = 1 and t = 2 C. t = 3/2 and t =1 D. t = 2/3 and t= 2

15. How far does P travel in the first 4 seconds of the motion?

A 17/3 m B. 16/3 m C. 5 m D. 6 m

16. What is the displacement of P after 4 seconds?

A 17/3 m B. 16/3 m C. 6 m D. 5 m

17. A particular traffic light at the outskirts of a town is red for 30 s, green for 25 s, and yellow for 5 s in every minute. The probability that the traffic light will not be green when a motorist first sees it is

A 1/2 B. 1/12 C. 5/12 D. 7/12

The marginal cost of producing x pot per work is given by $215 - 0.02x + 0.00036x^2$ dollars per urn provided $0 \leq x \leq 120$.

18. Given that the initial cost before production starts is 100, 000 FCFA, what is the total cost of producing 100 pots per day?

A 118,525 FCFA B. 120,530 FCFA C. 125,550 FCFA D. 121,520 FCFA

19. Given their previous performance, the probability of a particular baseball team winning any given game is 4/5. The probability that the team will win their next 2 games is

A 5/8 B. 25/16 C. 5/2 D. 1/25

20. Using integration, what is the volume of the solid generated when the line $y = x$ for $1 \leq x \leq 4$ is revolved around the x – axis

A 18π cubic units B. 25π cubic unit C. 21π cubic unit D. 17π cubic unit

Question Number	***Correct Answer***		***Question Number***	***Correct Answer***
1	B		21	A
2	B		22	B
3	D		23	A
4	A		24	B
5	C		25	C
6	D		26	B
7	B		27	C
8	A		28	D
9	B		29	B
10	D		30	D
11	A			
12	C			
13	B			
14	B			
15	A			
16	B			
17	D			
18	D			
19	B		20	C