ENGLISH

COMPOSITION

*Answer **one** question only from this part*

*Your composition should be about **250 words***

1. Write a letter to your friend in another school giving him/her three reasons why your school has been excelling in academic work.

2. The Parent Teacher Association of your school has decided to transform the school into a single sex school. As the Senior Prefect, write a letter to the Chairman giving, at least, three reasons why you disagree with the decision.

MATHEMATICS

THEORY – [30 MARKS]

Answer all questions in this section. All questions carry equal marks.

1. a) Given that A = {multiples of 3 less than 12}, B = {integers between 4 and 8} and C = {4, 5, 7}, find:
   i. $A \cap B$ ii.
   $(A \cup B) \cap C$ iii.
   $(A \cap B) \cup C$

   b) Simplify $1\frac{3}{4} - 2\frac{5}{6} - 1\frac{9}{10} + 4\frac{7}{8}$

2. a) Simplify: $15(4 - 6) \times 49 \div 7$
   b) Expand and simplify $b(12a - 3) - (a - b)(3 + b)$
   c) Akosua walked for 3hours at a rate of $1\frac{1}{2}$ km per hour from her village to Paamu to take a bus to Quamu. If the bus travelling at $15\frac{1}{2}$ km per hour takes 2 hours to travel from Paamu to Quamu;

   i. find Akosua's distance from her village to Quamu. ii. how long would it take a man, riding a bicycle at 5km per hour, to travel from Akosua's village to Quamu?

3. a) i. Express $8 \times 32 \times 4 \times 2$ in the form 2^m
   ii. Using your answer in a) (i), state the value of m b)
   i. Factorize the expression $\pi n^2 k - \frac{1}{}\pi n^2 Q$

ii. Use your answer in (b) (i) to find the value of the expression when $\pi = \dfrac{22}{7}, n = 2,$

$k = 19$ and $Q = 20$.

c) Gifty and Justina shared an amount of GHC418.00. If Gifty had 20% more than Justina, how much did Justina receive?

4. Madam Esi used $\dfrac{1}{4}$ and $\dfrac{2}{3}$ of her x acres of land to cultivate Mangoes and Oranges respectively.

   a. Express in terms of x, the number of acres of the land she used to cultivate
      i. Mangoes ii.
      Oranges
   b) If madam Esi used 20 more acres of land to cultivate oranges than mangoes, find the value of x.
   c) How many acres of land was used to cultivate mangoes?
   d) Calculate, correct to the nearest whole number, the percentage of the land that was not used.
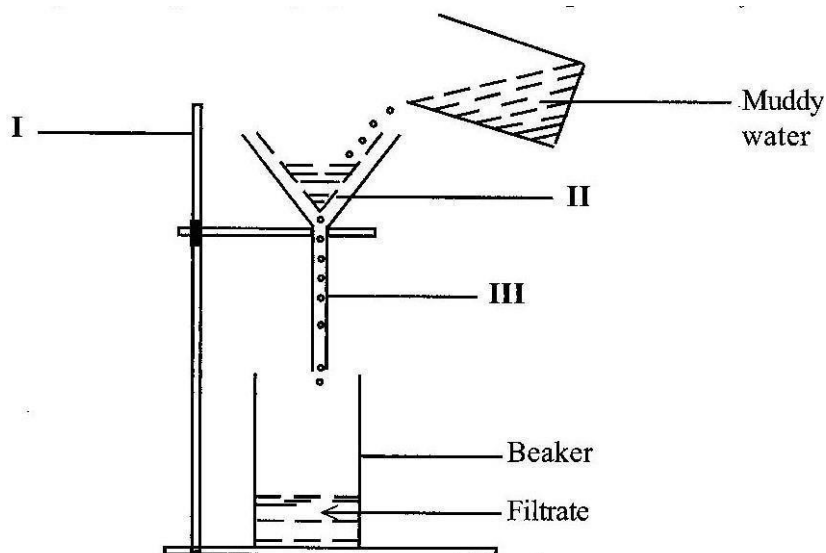
INTEGRATED SCIENCE

SECTION B

1. *(a)*   What is *germination of seed*?   [2 marks]

   (b)   State two conditions necessary for the germination of seed.   [2 marks]

   (c)   What is a *fertile soil*?   [2 marks]

   (d)   State two factors that cause loss of soil fertility.   [2 marks]

2. (a)   State two differences between a *metal* and a *non-metal*.   [2 marks]

   (b)   State two physical properties of water.   [2 marks]

   (c)   Using litmus paper, explain why water is neutral.   [2 marks]

3. (a) What is *electrical conductor*?   [2 marks]

    (b) List two substances which are insulators.   [2 marks]

    (c) Classify the following items as magnetic or non-magnetic substance: wood, steel blade, rubber and glass jar.   [2 marks]

4. The diagram below is an illustration of an experiment performed to separate the components of muddy water.

Study the diagram carefully and answer the questions that follow.

(i) Name each of the parts labelled I, II and III.   [3 marks]

(ii) State the function of the part labelled II.   [1 mark]

(iii) Name the substance obtained as the filtrate.   [1 mark]

(iv) State three physical properties of the filtrate.   [3 marks]

(v) Name two other materials that could be used in place of the part labelled II.
                                                                            [2 marks]

HOPE COLLEGE

ENTRANCE EXAMINATION

PAPER 2

(1 hour)

You have 1 hour to answer all questions. Choose the correct answer by shading against the letter that represents that answer on the shading sheet.

ENGLISH LANGUAGE

LEXIS AND STRUCTURE

SECTION A

*From the alternatives lettered A to D, choose the one which **most suitably completes** each sentence.*

1. Salifu was ……...surprised that he could not talk. A. enough
   B. so
   C. what
   D. which
2. This amount is all ……...I have on me.
   A. that
   B. this
   C. what
   D. which
3. I am told the boy is a friend of ……….
   A. he
   B. him
   C. his
   D. he's
4. Rice and beans ……a good meal for children.
   A. are
   B. have been
   C. is
   D. is being

5. Yaw is …….clever to be cheated. A. quite
    B. so
    C. too
    D. very

*Choose from the alternatives lettered **A** to **D** the one which is **nearest in meaning** to the underlined word in each sentence.*

6. Aminu's bushy eyebrows gave him a very severe look.
    A. bad
    B. deadly
    C. serious
    D. unpleasant

7. My father had the benefit of good education.
    A. luck
    B. advantage
    C. quality
    D. value

8. Kwame was too scared to be left alone in the house.
    A. afraid
    B. anxious
    C. uneasy
    D. unhappy

9. The new school is ideal for Mr. Mensah's children.
    A. good
    B. perfect
    C. satisfactory
    D. suitable

10. The internet is of enormous benefit to education.
    A. enviable
    B. great
    C. much
    D. suitable

SECTION C

*In each of the following sentences a group of words has been underlined. Choose from the alternatives lettered **A** to **D** the one that **best explains** the underlined group of words.*

11. Afua celebrates her birthday today but I cannot make it. This means that the speaker
    A. does not want to be there
    B. feels it is not necessary to attend
    C. has no birthday gift for her friend
    D. will not be able to attend

12. The interview was conducted to separate the sheep from the goats. This means that the interview aimed at
    A. finding people who could rear sheep
    B. keeping the sheep in a different pen
    C. selecting only the humble candidates
    D. selecting the best candidates

13. Being the eldest child of the family, Joojo claimed the lion's share of the father's property. This means that Joojo had
    A. all the property
    B. half of the property
    C. the best part
    D. the largest part

14. The students were all ears during the presentation. This means that the students
    A. did not enjoy the presentation
    B. had big ears
    C. listened attentively
    D. were very happy

15. Dallies is the pick of the bunch. This means that Dallies
    A. is a farmer
    B. is an athlete
    C. is preferred to all the others
    D. works on a banana plantation

SECTION D

*From the list of words lettered **A** to **D**, choose the one that is **most nearly opposite** in meaning to the word underlined in each sentence.*

16. The headteacher asked the pupils to disperse.
    A. assemble
    B. come
    C. meet
    D. stay

17. The current is slow downhill.
        A. abrupt
        B. fresh
        C. running
        D. swift 18. The bread is stale.
A. burnt
B. delicious
C. fresh
D. mouldy

19. Akos has nothing to be boastful of.
A. afraid
B. anxious
C. ashamed
D. nervous

20. The pupils are confident of passing the examination.
A. determined
B. doubtless
C. uncertain
D. uneasy

21. Write 0.01723 in standard form.

a. 1.723×10^2
b. 0.01723×10^{-2}
c. 0.01723×10^2
d. 1.723×10^{-2}

22. If $n(E) = 15$, $n(F) = 20$ and $n(E \cap F) = 6$, find $n(E \cup F)$.

a. 26
b. 21
c. 35
d. 29

23. Which of the following is an **even** prime number?

a. 2
b. 4
c. 8
d. 1

24. Cement and sand were mixed in the ratio 2:5. How many kilograms of cement was contained in the 35kg of the mixture?

a. 10kg
b. 88kg
c. 14kg
d. 7kg

25. Given that $m = \frac{b}{2} - t$, make t the subject.

a. $t = \frac{2b-m}{2}$
b. $t = \frac{b-2m}{2}$
c. $t = \frac{2m-b}{2}$
d. $t = \frac{b+2m}{2}$

26. Expand $(x - 2)(x + 4)$

a. $x^2 + 2x - 8$
b. $x^2 - 4x - 8$
c. $x^2 + 2x + 8$
d. $x^2 - x - 8$

27. Find the simple interest on GHC 350.00 for 4 years at 5% per annum.

a. GHC 70.00
b. GHC 140.00
c. GHC 20.00
d. GHC 35.00

28. A bag contains 20 oranges of which 6 are bad. Find the probability of picking a good orange from the bag.

a. $\frac{7}{10}$
b. $\frac{1}{6}$
c. $\frac{3}{10}$
d. $\frac{1}{20}$

29. What is the value of $3x^2 + 2x - 7$ when $x = -3$?

a. -40
b. 26
c. 14
d. -33

30. If $2n - 5 = \frac{1}{2}n$, find the value of n.

a. $3\frac{1}{3}$

b. $\frac{1}{2}$

c. $\frac{1}{3}3$

d. $2\frac{1}{2}$

31. Solve: $3(x - 2) - \frac{x}{3} + 6 > 0$

a. $x < 0$
b. $x > 3$
c. $x > 0$
d. $x > \frac{1}{8}$

32. Araba and Ama share 20 oranges in such a way that Ama received 12 oranges. Find the ratio of Araba's share to that of Ama.

a. 3:5
b. 2:3
c. 3:2
d. 2:5

33. A straight line passes through the points $P(-5, -3)$ and $Q(-4, -7)$. Find the gradient of the line PQ.

a. 2

b. $-\frac{1}{4}$

c. $\frac{1}{4}$

d. -4

34. Given that 1 kilometre = $\frac{5}{8}$ miles, what is 240 miles in kilometres?

a. 384km

b. 390km

c. 150km

d. 190km

35. John walks for $22\frac{1}{2}$ minutes and runs for $7\frac{1}{2}$ minutes to school. What percentage of the total time does he spend walking?

a. 25%

b. 39%

c. 13%

d. 75%

36. Kofi is 5 years older than his brother. If Kofi is 13 years old, how old is his brother? a. 8 years

b. 7 years

c. 18 years

d. 10 year

37. Tony shared $\frac{2}{3}$ of his plot of land equally among his three sons. What fraction of the plot did each get?

a. $\frac{2}{9}$

b. $\frac{5}{9}$

c. $\frac{1}{2}$

d. $\frac{1}{3}$

38. Simplify: $(1\frac{1}{2} - \frac{5}{6}) \times \frac{9}{10}$

a. $\frac{3}{5}$

b. $\frac{3}{20}$

c. $\frac{1}{5}$

d. $\frac{1}{10}$

39. Find the image of the point $S(-2, 2)$ when it is reflected in the y-axis.

a. $(2, 2)$

b. $(2, -2)$

c. $(-2, -2)$

d. $(-2, 2)$

40. A man can take 12 hours to do a piece of work. How long will it take 6 men working at the same rate to do the work?

a. 72 hours

b. 6 hours

c. 3 hours

d. 2 hours

41. The instrument used to measure relative humidity is the

a. Hydrometer

b. hygrometer.

c. rain gauge.

d. wind vane.

42. Which of the following statements about an opaque object is **correct**? An opaque object

a. allows light to pass through it partially.

b. allows light to pass through if fully.

c. forms a shadow.

d. does not form a shadow

43. An example of a source of energy which is non-renewable is

a. petroleum.

b. solar.

c. tide.

d. wind.

44. What is the colour of the neutral wire in a three-pin plug?

a. Blue

b. Brown

c. Green

d. Yellow

45. The part of the flower that develops into a fruit is the

a. ovary

b. ovule

c. stamen

d. style

46. The reason why alum is added to water during treatment is to

a. kill germs

b. give taste to water

c. make water colourless

d. make suspended particles settle

47. Which of the following animal parasites could be controlled by hand picking? a. Liver fluke

b. Tapeworm

c. Tick

d. Roundworm

48. A stick which is partially immersed in water appeared to be bent due to

   a. absorption
   b. reflection
   c. refraction
   d. transmission

49. One difference between metals and non-metals is that metals

a. have low density

b. are not malleable

c. have luster

d. have low melting points.

50. Iodine deficiency in humans could result in a disorder known as

a. diabetes

b. goiter

c. kwashiorkor

d. scurvy

51. Which of the following gases is involved in the rusting of iron?

a. Hydrogen

b. Oxygen

c. Nitrogen

d. Carbon dioxide

52. Which of the following plants has its leaves modified for storing food?

a. Ginger

b. Onion

c. Pineapple

d. Tomato

53. Which of the following resources does not produce energy?

a. Coal

b. Sand

c. Water

d. Wind

54. The second stage in the life cycle of a mosquito is the

a. egg

b. imago

c. larva

d. pupa

55. The transfer of heat from the bottom to the top of a beaker containing water is by a.

absorption

b. conduction

c. convection

d. radiation

56. An example of a chemical compound is

a. aluminium

b. ammonia

c. oxygen

d. phosphorus

57. Which of the following heavenly bodies is a star?

a. Jupiter
b. Moon
c. Sun
d. Venus

58. An example of a derived quantity is

a. length
b. mass
c. time
d. velocity

59. A farming system which requires **at least** three years programme is

a. mixed cropping
b. crop rotation
c. organic farming
d. mixed farming

60. One advantage of soft water over hard water is that soft water

a. has a pleasant taste
b. can prevent heart diseases
c. does not waste soap
d. forms scales in kettles