CINEC CAMPUS
Beyond A Graduate

FINAL EXAMINATION QUESTION PAPER

CODE - QP
Approved for Quality Management System

EDUCATION & TRAINING COURSE: DIPLOMA IN TEACHING MATHEMATICS AND SCIENCE
COURSE CODE: LC-0844
SUBJECT: SCIENCE TEACHING METHODOLOGY

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date: 2023.06.18
Total Marks = 100	Duration of the examination = 2 hours
	Candidates could be disqualified if you violate examination rules.
	Candidates are not allowed to communicate with and disturb fellow candidates during the examination.

Answer ALL questions.

Question 01

"To learn science is to do science there is no other way of learning science". - Dr. D.S. Kothari

a. Based on the statement given above describe the nature and scope of the science.
(10 Marks)

b. State five benefits students gain by learning science.
(10 Marks)

c. Briefly explain three methods of teaching science with suitable examples (include the basic features, merits and demerits of the methods in your answer)
(30 Marks)

Question 02

Good lesson planning is the key to successful teaching. Lesson planning in advance has a futuristic implication which permits a teacher to anticipate pupils" reactions.

a. Define lesson planning with your own words. (5 marks)

b. Write five importance of lesson planning. (5 marks)

c. Fredrick Herbert is called the father of lesson plan. Prepare a sample lesson plan for any science lessons of your interest, adhering to the Herbartian Lesson Plan Format.
(20 Marks)

Question 03

a. Write short notes on the following concepts in science.

1. Scientific Literacy
2. Scientific Method
3. Scientific Attitude

(15 Marks)

b. List some of the common accidents in the laboratory.

(5 Marks)

Total Marks - 100

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CODE - QP
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EDUCATION & TRAINING COURSE: DIPLOMA IN TEACHING MATHEMATICS & SCIENCE
COURSE CODE: LC -0844
SUBJECT: METHODS OF TEACHING MATHEMATICS

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date: 2022/06/25
Candidates could be disqualified if you violate examination rules.	Duration of the examination = 02 hours
Candidates are not allowed to communicate with and disturb fellow candidates during the examination	Total Marks = 100

❖ **Answer any four questions (Each question carries 25 marks)**

Question 01

a) Briefly explain Jerome Bruner's three stages of development. (5 marks)
b) As a teacher, how do you use Jerome Bruner' view on learning mathematics in mathematics teaching. Discuss. (20 marks)

Question 02

c) Briefly describe the following teaching methods. (10 marks)

- Problem solving method.
- Project method.

d) How do you use the deductive methods in mathematics teaching for secondary level students? Discuss it using suitable examples. (15 marks)

Question 03

a) Give your ideas on use of calculators and computers as technology in mathematics teaching learning process. (25marks)

Question 04

a) Name 5 different tests you can use in the teaching learning process. (4 marks)
b) What is a diagnostics assessment. (6 marks)
c) How diagnostics assessment is valuable in mathematics teaching. (15 marks)

Question 05

a) How would you describe the nature of mathematics? How is it expressed? (15 marks)
b) Explain the abstract nature of mathematics. (10 marks)

Question 06

a) What is the concept of assessment in teaching learning process? (5 marks)
b) What is the concept of evaluation in teaching learning process? (5 marks)
c) How the evaluation is beneficial in mathematics teaching learning process. (15 marks)

----------END OF THE QUESTION PAPER----------

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CODE - QP
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EDUCATION & TRAINING COURSE: DIPLOMA IN TEACHING MATHEMATICS AND SCIENCE
COURSE CODE: LC-0844
SUBJECT: SECONDARY MATHEMATICS

Faculty	Department / Section/Division
Humanities and Education	Education

Instructions to Candidates	Date: 2023/06/16
Total Marks = 100	Duration of the examination = 02 hours
	Candidates could be disqualified if you violate examination rules.
	Candidates are not allowed to communicate with and disturb fellow candidates during the examination.

Answer all the questions

Question 01

01. i) Find the coordinates of the midpoint of the line joining A (-8, 3) and B (-2, -3).

ii) The line y = 8 x + c passes through (1,12). Find out the value of c

iii) The lines 5 x = 4y + 10 and 2y = k x – 4 are parallel. Find the value of k

iv) One August day in Canberra, the temperature at noon was 4 °C and the temperature at midnight was -3 °C. What was the difference between these two temperatures?

(20 marks)

Question 02

02. i) Find the value of 'n'

$0.9^3 = 7.29 \times 10^n$

ii) Solve $0.2x + 3.6 = 1.2$

iii) Simplify the following

$(6a^2)^2 \times (3a^3)^3$

iv) Factorise $64x^2 - 9y^2$

v) Expand and simplify $(x + 3)(x - 6)$

vi) Simplify the following

$$\frac{(6x^2y^4)^2 \times (2xy)^3}{12xy^6y^8}$$

(20 marks)

Question 03

03 i) 150 college freshmen were interviewed.
85 were registered for a Math class,
70 were registered for an English class,
50 were registered for both Math and English.

a) How many signed up only for a Math Class?

b) How many signed up only for an English Class?

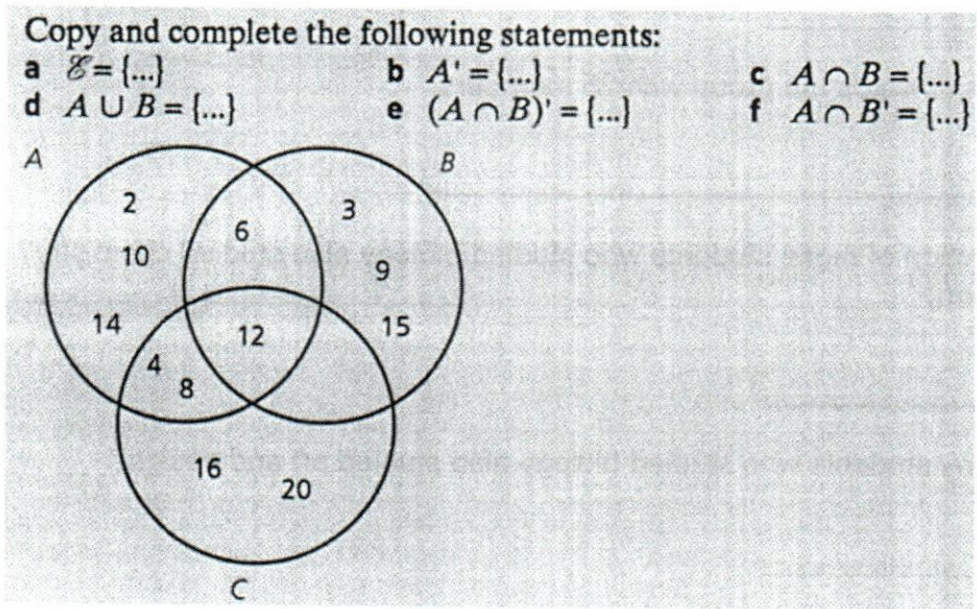
c) How many signed up for Math or English?

d) How many signed up neither for Math nor English?

ii) 90 students went to a school carnival. 3 had a hamburger, soft drink and ice-cream. 24 had hamburgers. 5 had a hamburger and a soft drink. 33 had soft drinks. 10 had a soft drink and ice-cream. 38 had ice-cream. 8 had a hamburger and ice-cream.

How many had nothing?

iii)



a) _____

b) _____

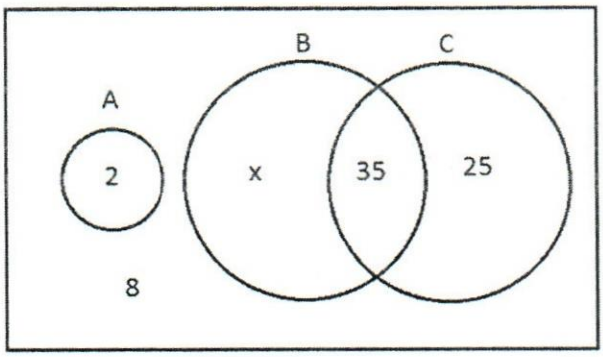
c) _____

d) _____

e) _____

f) _____

iv) The following Venn diagram represents the results of a survey with 100 students, where group A is students who study art and design, group B is students who study biology and group C is students who study chemistry:



Use this diagram to answer the following questions:

a. Calculate the value of x

_____

b. Describe in words the group with 25 members

_____

c. What fraction of those students who studied biology also studied chemistry? (in simplest form)

_____

d. How many students who studied biology also studied art and design?

_____

e. What percentage of students surveyed studied both biology and chemistry?

_____

f. What is the probability that one student selected at random from the survey will not have studied chemistry? (give your answer as a decimal)

_____

g. What is the ratio of students taking biology only to students taking biology? (in simplest form)

_____

(20 marks)

Question 04

04

i) Two fair six side dice are rolled.

a) Find the probability that the sum of the numbers showing on the two dice is an odd number greater than 5, giving your answer as a fraction in simplest form.

b) Given that the sum of the numbers showing on the two dice is an odd number greater than 5, find the probability that one of the dice shows the number 2. Give your answer as a fraction in simplest form.

ii) One bag contains six balls numbered 1-6, while a second bag contains four balls numbered 1-4. If one ball is drawn at random from each bag, what is the probability that (give each as a fraction in simplest form):

a. The sum of the numbers on the two balls is 6?

_____

b. Both balls have the same number?

_____

c. Both balls have an even number?

_____

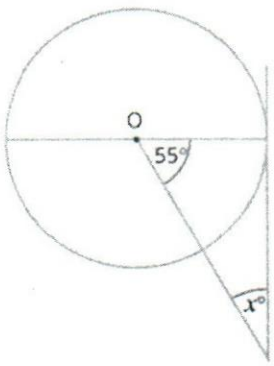
(20 marks)

Question 05

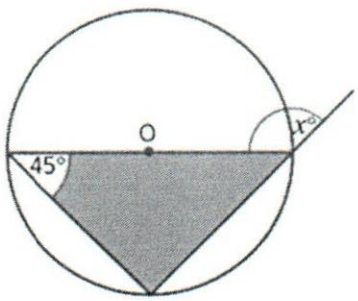
05.

i) In each of the following diagrams, O marks the centre of the circle. Calculate the value of x in each case.

a.



b

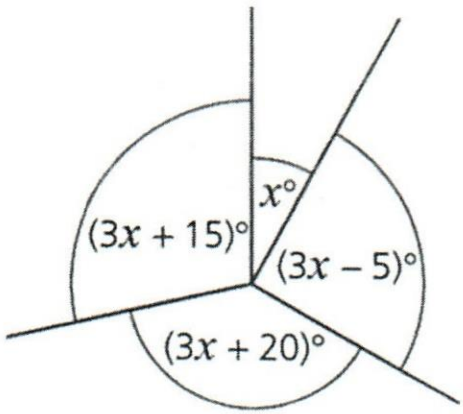


ii) A rectangle with an area of 16 cm^2 has 2cm width and (x+3) cm length. Construct an equation and solve it to find the value of x

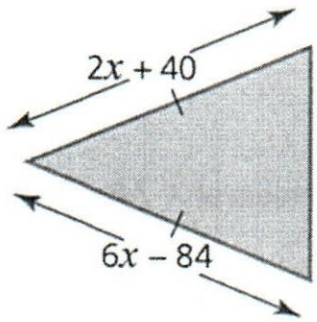
iii) In questions a, and b below;

i. Construct an equation in terms of x
ii. Solve the equation

a.



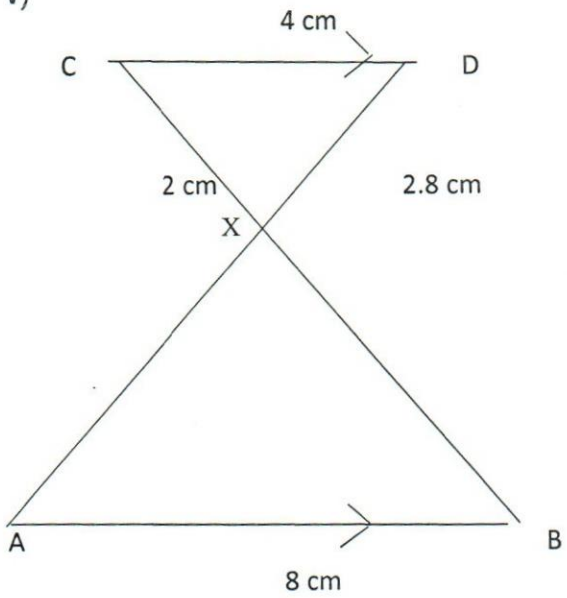
b.



iv) Using only a ruler and a pair of compasses, construct the following triangle.

△ ABC where AB=10cm AC=7cm and BC=9cm

v)



In the diagram, AB and CD are parallel. AD and BC intersect at X. AB = 8 cm, CD = 4 cm, CX = 2cm and DX = 2.8cm.

(a) Complete this mathematical statement. Triangle ABX is ..... to triangle DCX.

(b) Calculate AX.

(20 marks)

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COURSE CODE: LC -0844
SUBJECT: SECONDARY SCIENCE

Faculty	Department / Section/Division
Humanities and Education	Education

INSTRUCTIONS TO CANDIDATES	Date: 2023.06.16
Total Marks = 100	Duration of the examination = 02 hours
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PART-1

ANSWER ALL THE QUESTIONS GIVEN. UNDERLINE THE MOST SUITABLE ANSWER.

(01). Which is the most accurate statement?
The principal role of a flower in the life cycle of a plant is.....
1. attracting insects
2. producing seeds
3. producing pollen
4. producing nectar

(02). Which acid is secreted by the cells of the gastric glands in the stomach?
1). hydrochloric acid
2). nitric acid
3). hydroiodic acid
4). sulphuric acid

(03). The liquid portion of the blood is called _____.

1). water 2). Plasma 3). serum 4). serum

(04).Which is the largest gland inside the human body?

i.Thyroid ii. Liver iii. Pancreas iv. None of these

(05). Examples for fruits and seeds dispersed by wind

1. Hora, thotila, ranawara, wara, monerakudumbiya
2. Hora, thotila, gammalu, wara,monerakudumbiya
3. Hora, balsam, gammalu, rubber,monerakudumbiya
4. Water lily, thotila, gammalu, wara, mahagony

(06). When the diaphragm contracts (is pulled downward), _____ occurs.

1. Inhalation 2. exhalation 3. a hiccup 4. the lungs deflate

(07). Gynaecium of a flower is,

1). Stamens, ovary and stigma
2). Stamens, pollen and ovary
3). Ovary, stigma and pollen sac
4). Ovary, style and stigma

(08). What is the excretory system in charge of?

1). Breaking down food so it can be used by the body.
2). Giving the body support and strength
3). Removing wastes and excess fluid from the body
4). Wastes and excess fluid from the body

(09). Which acid is secreted by the cells of the gastric glands in the stomach?

1). hydrochloric acid
2). nitric acid
3). hydroiodic acid
4). sulphuric acid

(10). Excess glucose in the human body are stored as _____ in the liver.

1). Glycerol
2). Glycerine
3). glycogen
4). Glucose

(11). The ascent of sap in plants takes place due to _____.

1).root pressure
2). transpiration pull
3). both a and b
4).osmosis

(12). The movements that propel the food particles through the digestive tract are called,
1). peristalsis 2) .rhythm 3). mastication 4). Hydrolysis

(13). Digestion takes place in a long tube-like canal called the alimentary canal, or the digestive tract. Food travels through these organs in the following order:

1. Mouth, gullet, stomach, small intestine,large intestine and rectum

2. Mouth, oesophagus, stomach, large intestine,small intestine and rectum

3. Mouth, stomach, oesophagus, small intestine,large intestine and rectum

4. Mouth, stomach, gullet, small intestine,large intestine and rectum

(14). Why does blood turn dark red as it circulates through the body?
1. It starts to clot.
2.It gets old and dirty flowing through the body.
3. The oxygen in it is replaced with carbon dioxide.
4. The farther blood is from the heart, the more dark red it is.

(15). A structure that could be seen in plant cell, but not in an animal cell is

1).mitochondria 2) cell wall
3).cytoplasm 4) plasma membrane

(16). What is used as a solvent to dissolve chlorophyll from a leaf.

1 . methylated spirit 2.iodine 3. alcohol 4.boiled water.

(17). What is a food chain?

a) A long chain made of food
b) Process of preparing food
c) Food where locked by chain
d) Pathway that energy and nutrients flow through the ecosystem

(18).Why do all food chains start with plants?
a) Because plants are easily grown
b) Because plants are nutritious
c) Because plants can produce its own energy
d) Because plants do not require energy

19). The teeth at the front of the mouth which are used for chopping are called:

(a) incisors, (b) canines, (c) premolars, (d) molars.

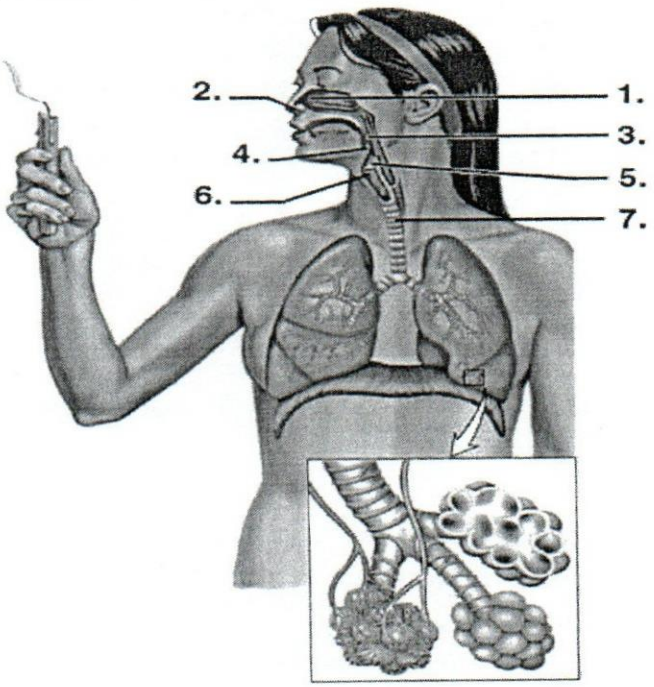
(20). When proteins are completely broken down the end products are:

(a) glucose molecules, (b) glycerol molecules, (c) amino acids, (d) vitamins

PART II

* Answer any four questions given. Each question carries equal marks.

(01). Human respiratory system is an important system in regulating most of the functions.



i. Name the parts from 1 to 7 of the above figure.
ii. Name the functions of respiratory system.
iii. Indicate the path of oxygen which enter from nostrils and travel to lungs.
iv. Briefly explain the inspiration and expiration.
v. What are the changes happen to air enters to the nostrils.

(20 marks)

02). i. Draw two food chains?

ii. Draw a food web?

iii. Who are autotrophies? What is their position in food chains?

iv. Name three herbivorous animals?

v. Who are omnivorous animals? Name three omnivorous animals?

(20 marks)

03). i. What is Environment pollution?

ii. What are the three main categories of environment pollution?

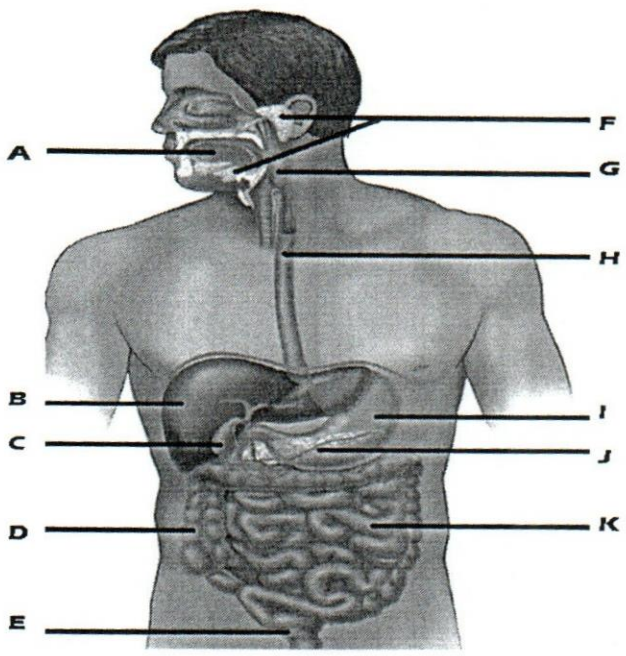
iii. List five main ways of air pollution?

iv. Write five ways of water pollution?

v. What is global warming? What are the bad effects of global warming?

(20 marks)

(04). Digestive system is one of the most important systems of the body.
i. Label the parts from A-L of the following figure.



ii. Name two hormones secreted by the organ J.

iii. What is the main function of the organ K?

iv. What are the adaptations of K to do its functions?

v. Write the functions of the two hormones mentioned in above II

(20 Marks)

(05) i. Prepare a dichotomous key to group the following animals.

Elephant, frog, fish, parrot, bee, snake, crocodile, earth worm, butterfly, bee, man, dog

ii. What are the features of mammals?

iii. List five characteristics of Arthropods?

iv. Who are warm blooded animals? Give two examples?

v. What are the main two categories the animals are divided?

(20 marks)

(06).i. What are the characteristics of living beings?

ii. Write ten uses of water?

iii. Write ten ways how water gets polluted.

iv. What are the main nutrients of the food?

v. What are the two groups vitamins? Give examples.

(20 marks)

----------END OF THE QUESTION PAPER----------