



In partnership with

GENERAL FOUNDATION PROGRAMME

PLACEMENT TEST SAMPLE QUESTION PAPER

ACADEMIC YEAR 2018 – 2019

MATHEMATICS B - Science

Introductory Remarks:

- You are asked to answer twenty (20) questions.
- Please answer all question within the allocated time period of 90 minutes.
- Use only calculators CHECKED and APPROVED by the Exam In-Charge.
- If you need extra blank sheets for your scratch work/computations, please ask from the Exam In-Charge and it will be provided for you.
- Mark your answers on the answer booklet which is provided with the question paper. Show your work clearly.
- Please leave all items on the desk at the end of the test.

For questions 1 – 2. Find the solution of the following quadratic equation using the indicated method:

1. $9x^2 + 7x - 4 = 0$ using **Quadratic Formula**

2. $4x^2 + 17x - 15 = 0$ using **Factorization Method**

For questions 3 – 4. Find the solution set of the following inequalities below:

3. $-3(3x + 5) \geq -5(2x - 2)$

4. $x + 2y < 10$

For questions 5 – 8. Given functions f and g , where $f(x) = \frac{3x - 2}{x + 4}$ and $g(x) = x^2 - 4$.

5. Find $f\left(-\frac{1}{3}\right)$.

6. Solve $(f \circ g)(x)$.

7. Compute $(g \circ f)(-2)$.

8. Solve for the inverse of function g .

9. How long will it take the money to triple its value if you put it in a bank that gives 2.5% simple interest rate?

10. Mr. Khalid invested his hard earned money at 10% interest rate compounded semi-annually. How much will he get after 5 years and 4 months if he invested \$ 150 000?

11. Expand the logarithm: $\log_a \left(\frac{\sqrt[5]{x^2} y^2}{\sqrt[3]{z^5}} \right)$

12. Write as a single logarithm: $2 \log_3 4 - \left(\log_3 8 - \log_3 \frac{1}{2} \right)$

For questions 13 – 14. Find the value of x of the following. Answer must be 3 significant figures where appropriate.

13. $\log_{27} 3 = x$

14. $2^{2x} - 6(2^x) + 5 = 0$

For questions 15 – 16. Given the data below:

21 12 10 19 14 18 17 18

15. Calculate the **mean** of the data above.

16. Find the **mode** of the data above.

For questions 17 – 18. The table below shows the age of the staff working in Global College of Engineering and Technology (GCET).

Age in Years	26 – 30	31 – 35	36 – 40	41 – 45	46 – 50	51 – 55
Frequency	3	6	12	15	6	8

17. Calculate the **median** of the grouped data given above.

18. Solve for the **mode** of the grouped data given above.

19. If a card is drawn at random from a pack of playing cards, what is the probability that it might be a queen?

20. If you will roll a dice four (4) times, how many outcomes are there?

***** END OF EXAMINATION *****