



# Capital University of Science and Technology

Islamabad

## Sample Admission Test for BS Mathematics Degree Program

### I-MATH

Q-1: The function  $f(x) = -3x^2$  is maximum at \_\_\_\_\_ (MCQ-CHOOSE ONE)

- A. 3
- b. 2
- c. 1
- d. 0

Q-2: Tenth derivative of  $x^9 - 78x^7 + 1150x^3 - 789x$  is \_\_\_\_\_ (MCQ-CHOOSE ONE)

- I.  $9x^8$
- II. 9
- III. 0
- IV. None

Q-3:  $1 + x + (x^2/2!) + (x^3/3!) + (x^4/4!) + \dots$  (MCQ-CHOOSE ONE)

- a.  $\sin x$
- b.  $\cos x$
- c.  $\ln(1+x)$
- d.  $e^x$

Q-4: The minimum value of function  $f(x) = -x^2 - x - 2$  is \_\_\_\_\_ (MCQ CHOOSE ONE)

- a.  $-9/2$
- b.  $-9/4$
- c. -1
- d. 0

### II-READING COMPREHENSION

This part contains a reading passage followed by questions based on what is stated or implied in the passage. While answering the questions, take cognizance of the facts or implications in the text. You may refer back to the passage while answering. Mark your answers on the answer sheet.

It is said that light is shadow of God. Once Diogenes took a lamp in his hand in day time and looked about in the streets full of people and said, "I am in search of an honest man".

Light spreads education and knowledge. In all developed societies education occupies central place.

Today we see tremendous explosion of knowledge all around. Nations with strong educational profiles are leaping forward and making viable economic growth and development. These nations have restored educational system its rightful place. They have enabled their citizens to live cope with and grow towards high change in society. Their educational apparatus has helped usher in a knowledge based society.

They have built their citizenry with a forward looking vision. Education sets to provide valuable policy input to chalk out better future. Education exploits and utilizes innate capacities of people. It develops strategic skills of the people. Indeed, education plays a role of the most powerful catalyst to spur the individuals. And who can deny Socrates saying, "No man is knowingly evil". So, knowledge becomes virtue and knowledge becomes power and power never fails. All education springs from images of future and all education creates the image of future.

Answer the following questions:-

Q-1: What did Diogenes search for?

- a. a lamp
- b. an honest man
- c. shadow of God
- d. education



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Q-2: What is the place of education in developed societies?

- a. a bottom place
- b. huge place
- c. central place
- d. small place

### VOCABULARY

Each question consists of an incomplete sentence followed by four choices. Find the one choice, which best completes the sentence and mark it on your answer sheet.

1. Michael Faraday made a great discovery \_\_\_\_\_ that electricity can be made to flow in a coil wire.

- a. When he found
- b. To found
- c. Was found
- d. He found

2. Solid fuel engines are simpler than liquid fuel engines, \_\_\_\_\_ have important uses

- a. Both of them
- b. So both
- c. Both however
- d. But both

PART C Choose and circle the lettered pair that best expresses a relationship like that of the first pair.

Remember to express the relationship in a sentence.

1. VERSE : SONG

- a. play : drama
- b. rub : carpet
- c. paper : typewriter
- d. bicuspid : teeth

### III - GENERAL KNOWLEDGE

There will be general questions in this test. After each question there will be some options, but only one of them will be the correct answer. You will be required to identify the most appropriate answer and mark it on the answer sheet.

Q-1: Second most populous country is:

- a. Bangladesh
- b. Pakistan
- c. China
- d. India

Q-2: The 2016 Olympics will be held in:

- a. London
- b. Rio de Janeiro
- c. Doha
- d. Beijing

Q-3: Which of the following Mughal emperor-built Taj Mahal:

- a. Shah Jahan
- b. Aurangzaib
- c. Akbar
- d. Humayun