



বাংলাদেশ আর্মি ইন্টারন্যাশনাল ইউনিভার্সিটি অব সায়েন্স এন্ড টেকনোলজি (বিএআইইউএসটি) কুমিল্লা  
BANGLADESH ARMY INTERNATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY (BAIUST) CUMILLA

## Admission Test - 2/2025 (FALL)

### Program: B. Sc. in EEE/CSE/CE

Applicant's Name:

Roll No:

Subject Choice (EEE/CSE/CE):




1<sup>st</sup> Choice

2<sup>nd</sup> Choice

3<sup>rd</sup> Choice

Applicant's Signature

**Total Marks : 80**

**Total Time : 1 Hour**

**MCQ: 80 Marks (80 questions, each carries 01 mark)**

There will be no negative marking for wrong answer and no extra page will be provided for answering the questions. (ডুল উত্তরের জন্য কোন নম্বর কাটা যাবে না এবং উত্তর লেখার জন্য অতিরিক্ত কোন কাগজ সরবরাহ করা হবে না।)

Marks Obtained					
English (Q: 1-15)	Mathematics (Q: 16-40)	ICT (Q: 41-50)	Physics (Q: 51-70)	Chemistry (Q: 71-80)	Total
					80

Invigilator's Signature

Scrutinizer's Signature



**English (ইংরেজি)**

1. Which of the following sentences uses a semicolon correctly?
  - a. I went to the store; and I bought milk, eggs, and bread.
  - b. She is a talented musician; however, she is also a skilled painter.
  - c. He enjoys hiking, swimming; and biking.
  - d. The cat was tired; it had been playing all day.
2. Which sentence contains a dangling modifier?
  - a. Walking down the street, the building was seen by the pedestrian.
  - b. To get a good grade, you must study diligently.
  - c. Jumping into the pool, I made a huge splash.
  - d. Having finished the report, he submitted it to his boss.
3. Choose the sentence with the correct subject-verb agreement.
  - a. The dog, along with the cats, love to play outside.
  - b. Neither of the books were interesting to me.
  - c. The team of scientists are conducting a new experiment.
  - d. The flock of birds flies south for the winter.
4. Identify the gerund in the following sentence: 'Swimming is my favorite sport.'
  - a. Swimming
  - b. favorite
  - c. sport
  - d. is
5. Which of the following is an example of an adverb?
  - a. and
  - b. beautiful
  - c. table
  - d. quickly
6. Which sentence uses the correct form of the word 'affect' or 'effect'?
  - a. His speech effected the crowd to riot.
  - b. The new policy will affect all employees.
  - c. She was deeply effected by the sad movie.
  - d. The loud music had a negative affect on his concentration.
7. Which of the following is a subordinating conjunction?
  - a. for
  - b. because
  - c. but
  - d. and
8. In which sentence is the word 'their' used correctly?
  - a. The students submitted they're reports.
  - b. I can't believe their going to the party.
  - c. It's their responsibility to clean up after themselves.
  - d. There are three books on the table.
9. Which of the following sentences uses a comma splice?
  - a. He bought a new car; it is red.
  - b. Because it was raining, we decided to stay inside.
  - c. The sun was setting, painting the sky with brilliant colors.
  - d. I love to read, my sister prefers to watch movies.

10. Choose the sentence that correctly uses parallel structure.

- He enjoys hiking, to swim, and biking.
- She is a skilled writer and she is also being a great public speaker.
- The teacher told the students to listen, to take notes, and to ask questions.
- My goals are to graduate college, finding a job, and travel the world.

11. Choose the sentence that is grammatically correct.

- Everybody are expected to submit their assignments by Friday.
- Neither the students nor the teacher were ready for the surprise test.
- One of the reasons for his success is his dedication.
- The team members, as well as the captain, was happy with the result.

12. Which of the following sentences uses a semicolon correctly?

- She studied for hours; so she felt prepared for the exam.
- The cat sat on the mat; the dog slept in its bed.
- He bought a lot of items; including milk, eggs, and bread.
- My favorite colors are blue, green, and yellow; however, I only have a red shirt.

13. Identify the type of error in the sentence: I could of gone to the party, but I was too tired.

- Subject-verb agreement error
- Tense error
- Word choice error
- Punctuation error

14. Complete the sentence with the most appropriate word: The company's success is attributed \_\_\_ its innovative marketing strategy.'

- by
- for
- to
- with

15. Which of the following sentences uses a coordinating conjunction correctly?

- I wanted to go to the park, so I had to finish my homework first.
- He is a great student, for he is always studying.
- She was tired, but she stayed up to watch the movie.
- All of the above.

## Mathematics (গণিত)

16. The equation of the tangent at point  $(1, 2)$  to the circle  $x^2 + y^2 + 3x - 5y + 2 = 0$  is:  
 $[x^2 + y^2 + 3x - 5y + 2 = 0$  বৃত্তের উপর উপর  $(1, 2)$  বিন্দুতে অঙ্কিত স্পর্শকের সমীকরণ - ]

(a)  $x - 5y + 3 = 0$       (b)  $5x - 2y - 3 = 0$       (c)  $5x - y - 3 = 0$       (d)  $2x + 5y + 3 = 0$

17. The value of  $\frac{d}{dx}(\cos \sqrt{x})$  is : [  $\frac{d}{dx}(\cos \sqrt{x})$  এর মান - ]

(a)  $-\sin \sqrt{x}$       (b)  $\frac{-\sin \sqrt{x}}{2\sqrt{x}}$       (c)  $\frac{-\sin \sqrt{x}}{\sqrt{x}}$       (d) কোনটি নয়।

18. If the straight lines  $5x + 4y - 6 = 0$  and  $2x - ky + 6 = 0$  are perpendicular to each other, what is the value of  $k$ ? [  $5x + 4y - 6 = 0$  এবং  $2x - ky + 6 = 0$  সরলরেখাদ্বয় পরস্পর লম্ব হলে,  $k$  - এর মান - ]

(a)  $-\frac{2}{5}$       (b)  $-\frac{8}{5}$       (c)  $\frac{5}{2}$       (d)  $\frac{2}{5}$

19. The value of  $\lim_{x \rightarrow 0} \frac{\sin^{-1}(2x)}{x}$  is : [  $\lim_{x \rightarrow 0} \frac{\sin^{-1}(2x)}{x}$  এর মান - ]

(a) 1      (b) 0      (c) 2      (d) -1

20. If the focal distance of a point  $P$  on the Parabola  $y^2 = 4x$  is 6, what is the distance of the point from the directrix? [  $y^2 = 4x$  পরাবৃত্তের উপরিস্থিত  $P$  বিন্দুর কোটি 6 হলে, এর বিন্দুর উপকেন্দ্রিক দূরত্ব কত? ]

(a)  $3\sqrt{2}$       (b)  $2\sqrt{3}$       (c) 10      (d)  $2\sqrt{5}$

21. What is the area of the circle  $x^2 + y^2 - gx = 0$  in square units? [  $x^2 + y^2 - gx = 0$  বৃত্ত দ্বারা আবক্ষ ক্ষেত্রের ক্ষেত্রফল কত বর্গ একক? ]

(a)  $\frac{1}{8}\pi g^2$       (b)  $\frac{1}{4}\pi g^2$       (c)  $\frac{1}{2}\pi g^2$       (d)  $4\pi g^2$

22. If  $A = \begin{bmatrix} 3 & 5 & 1 \\ 4 & 0 & 2 \\ 1 & 6 & 4 \end{bmatrix}$ , the value of  $A - 2I$  is : [  $A = \begin{bmatrix} 3 & 5 & 1 \\ 4 & 0 & 2 \\ 1 & 6 & 4 \end{bmatrix}$  হলে,  $A - 2I$  এর মান - ]

(a)  $\begin{bmatrix} 5 & 5 & 1 \\ 4 & 2 & 2 \\ 1 & 6 & 6 \end{bmatrix}$       (b)  $\begin{bmatrix} 1 & 5 & 1 \\ 4 & -2 & 2 \\ 1 & 6 & 2 \end{bmatrix}$       (c)  $\begin{bmatrix} 1 & 3 & -1 \\ 4 & 0 & 2 \\ 1 & 6 & 4 \end{bmatrix}$       (d)  $\begin{bmatrix} 1 & 5 & -1 \\ 2 & 0 & 2 \\ -1 & 4 & 2 \end{bmatrix}$

23. If  $\tan \theta = \frac{y}{x}$ , what is the value of  $x \cos 2\theta + y \sin 2\theta$ ? [  $\tan \theta = \frac{y}{x}$ , হলে,  $x \cos 2\theta + y \sin 2\theta$  এর মান কত? ]

(a)  $x$  (b)  $y$  (c)  $\frac{1}{x}$  (d)  $\frac{1}{y}$

24.  $\int_0^{\pi/4} \frac{1}{1 + \sin x} dx = ?$

(a)  $2 + \sqrt{2}$  (b)  $3 + \sqrt{2}$  (c)  $3 - \sqrt{2}$  (d)  $2 - \sqrt{2}$

25. The Cartesian coordinate of a point is  $(-1, \sqrt{3})$ . What is the polar coordinate of the point? [ কোন বিন্দুর কার্টেসীয় ঘনাক  $(-1, \sqrt{3})$  হলে, এর বিন্দুর পোলার ঘনাক কোনটি? ]

(a)  $(2, 120^\circ)$  (b)  $(4, 240^\circ)$  (c)  $(4, 120^\circ)$  (d)  $(1, 60^\circ)$

26. Identify the principle argument of  $(2 - 2i)$ ? [ $(2 - 2i)$  এর মূখ্য আর্গমেন্ট চিহ্নিত কর।]

(a)  $-\frac{3\pi}{4}$  (b)  $-\frac{2\pi}{4}$  (c)  $-\frac{\pi}{4}$  (d)  $\frac{\pi}{4}$

27. If  $\omega$  is a cube root of unity, find the value of  $(1 - \omega + \omega^2)(1 - \omega^2 + \omega^4)$ ? [ $\omega$  যদি একটি এককের ঘনমূল হয়, তবে  $(1 - \omega + \omega^2)(1 - \omega^2 + \omega^4)$  এর মান বের কর।]

(a) 4 (b) 6 (c) 3 (d) -4

28. For what values of  $k$ , the one root will be equal to triple of the opposite root of the quadratic equation  $2x^2 - (k+1)x + k = 0$ ? [ $k$  এর কত মানের জন্য  $2x^2 - (k+1)x + k = 0$  এর একটি মূল অপর মূলের বিপরীতের তিন গুণের সমান হবে?]

(a) 3 (b) 4 (c) 5 (d) 6

29.  $\tan 75^\circ = ?$

(a)  $\frac{1-\sqrt{3}}{1+\sqrt{3}}$  (b)  $\frac{1+\sqrt{3}}{1-\sqrt{3}}$  (c)  $\frac{\sqrt{3}+1}{\sqrt{3}-1}$  (d)  $\frac{\sqrt{3}-1}{\sqrt{3}+1}$

30. If the roots of the equation  $\frac{1}{x} + a - bx = 0$  are equal, which of the following is correct?

[  $\frac{1}{x} + a - bx = 0$ , সমীকরণের মূলবয় সমান হলে নিচের কোনটি সঠিক? ]

(a)  $b^2 - 4a = 0$  (b)  $b^2 + 4a = 0$  (c)  $4a - b^2 = 0$  (d)  $a^2 + 4b = 0$

31. If a point  $P$  is on the line  $x - 3y - 2 = 0$  and is equidistant from the points  $(2, 3)$  and  $(6, -5)$ , what is the coordinates of point  $P$ ? [  $x - 3y - 2 = 0$  রেখার উপর অবস্থিত  $P$  বিন্দুটি  $(2, 3)$  এবং  $(6, -5)$  হতে সমদূরবর্তী হলে,  $P$  বিন্দুর ঘনানক কত? ]

(a)  $(-10, 4)$       (b)  $(14, 4)$       (c)  $(-1, 0)$       (d)  $(4, 14)$

32. If the Polar coordinate of a point is  $(c, \pi)$ , what is the Cartesian coordinate of the point? [ কোনো বিন্দুর পোলার ঘনানক  $(c, \pi)$  হলে বিন্দুটির কার্টেসীয় ঘনানক কত? ]

(a)  $(-1, 0)$       (b)  $(-c, 0)$       (c)  $(-c, c)$       (d)  $(c, -c)$

33. What is the vertex of the Parabola  $y^2 + 4x + 2y - 8 = 0$ ? [  $y^2 + 4x + 2y - 8 = 0$  পরাবৃত্তের শীর্ষবিন্দু কত? ]

(a)  $\left(\frac{9}{4}, -1\right)$       (b)  $(0, -1)$       (c)  $\left(-\frac{9}{4}, -1\right)$       (d)  $(2, 0)$

34. If  $\begin{vmatrix} 1 & 3 & 2 \\ 2 & 0 & 3 \\ 1 & -1 & P \end{vmatrix}$  is a singular matrix, then what is the value of  $P$ ? [  $\begin{vmatrix} 1 & 3 & 2 \\ 2 & 0 & 3 \\ 1 & -1 & P \end{vmatrix}$ , ম্যাট্রিক্সটি ব্যতিক্রমী হলে,  $P$  এর মান কত? ]

(a)  $\frac{4}{3}$       (b)  $\frac{3}{4}$       (c) 5      (d)  $\frac{5}{4}$

35. What is the equation of the straight line parallel to the  $y$ -axis and passing through the intersection point of the lines  $2x - 7y + 11 = 0$ , and  $x + 3y = 8$ ? [  $y$  অক্ষের সমান্তরাল এবং  $2x - 7y + 11 = 0$ , এবং  $x + 3y = 8$  রেখাদ্বয়ের ছেদবিন্দু দিয়ে অতিক্রমকারী সরলরেখার সমীকরণ কোনটি? ]

(a)  $13x - 23 = 0$       (b)  $3x - 7 = 0$       (c)  $7x - 3 = 0$       (d)  $23x - 13 = 0$

36. What is the value of  $\cosec 10^\circ - 4 \sin 70^\circ$ ? [  $\cosec 10^\circ - 4 \sin 70^\circ$  এর মান কত? ]

(a) -1      (b)  $\frac{1}{2}$       (c) -2      (d) 2

37. If  $\tan \theta + \cot \theta = 2 \cosec \theta$ ,  $0 \leq \theta < \frac{\pi}{2}$ , what is the value of  $\theta$ ? [  $\tan \theta + \cot \theta = 2 \cosec \theta$ ,  $0 \leq \theta < \frac{\pi}{2}$  হলে  $\theta$  এর মান কত? ]

(a)  $\frac{\pi}{4}$       (b)  $\frac{5\pi}{3}$       (c)  $\frac{\pi}{6}$       (d)  $\frac{\pi}{3}$



ICT (আইসিটি)

## Physics (পদার্থবিজ্ঞান)

51. Which one is the gravitational unit of work? (কাজের মহাকর্ষীয় একক কোনটি?)

(a)  $\text{Jm}^{-1}$       (b)  $\text{Js}$       (c)  $\text{kgm}$       (d)  $\text{Nm}$

52. The length of a rocket is measured half of the actual length. What is the speed of the rocket? (একটি রকেটের দৈর্ঘ্য প্রকৃত দৈর্ঘ্যের অর্ধেক পরিমাপ করা হল। রকেটের গতিবেগ কত?)

(a)  $2.59 \times 10^8 \text{ ms}^{-1}$       (b)  $3.59 \times 10^{-8} \text{ ms}^{-1}$       (c)  $2.79 \times 10^5 \text{ ms}^{-1}$       (d)  $2.09 \times 10^7 \text{ ms}^{-1}$

53. Which of the following causes acceleration in an object? (নিচের কোনটি বস্তুতে ত্বরণ সৃষ্টি করে?)

(a) Momentum (ভরবেগ)      (b) Force (বল)

(c) Energy (শক্তি)      (d) Kinetic energy (গতিশক্তি)

54. The momentum of a 50 kg object is  $50 \text{ kgms}^{-1}$ . What will be its kinetic energy? (50 kg ভরের একটি বস্তুর ভরবেগ  $50 \text{ kgms}^{-1}$ । এর গতিশক্তি কত হবে?)

(a) 100 J      (b) 25 J      (c) 500 J      (d) 50 J

55. The value of  $\gamma$  for a monatomic gas is- (এক-পারমাণবিক গ্যাসের জন্য  $\gamma$  এর মান-)

(a) 1.33      (b) 1.40      (c) 1.54      (d) 1.67

56. Kepler's third law is- (কেপ্লারের তৃতীয় সূত্র হল-)

(a)  $T^2 = R^3$       (b)  $T^2 \propto R^3$       (c)  $T^3 = R^2$       (d)  $T^3 \propto R^2$

57. What is the value of the gravitational acceleration on the Moon's surface? (চাঁদের পৃষ্ঠে মহাকর্ষীয় ত্বরণের মান কত?)

(a)  $9.83 \text{ ms}^{-2}$       (b)  $4.90 \text{ ms}^{-2}$

(c)  $3.71 \text{ ms}^{-2}$       (d)  $1.62 \text{ ms}^{-2}$

58. What is the value of threshold voltage for silicon? (সিলিকনের জন্য সূচন ভোল্টেজের মান কত?)

(a) 0.3 V      (b) 1.1 V      (c) 0.7 V      (d) 1.4 V

59. A gas molecule covers  $3 \times 10^{-5}$  cm distance in 20 consecutive collisions. What is the value of the mean free path of the gas molecule? (একটি গ্যাসের অণু পরপর 20টি সংঘর্ষে  $3 \times 10^{-5}$  cm দূরত্ব অতিক্রম করে। গ্যাসের অণুর গড় মূল্য পথের মান কত?)

(a)  $1.3 \times 10^{-4}$  cm      (b)  $1.5 \times 10^{-6}$  cm

(c)  $6.0 \times 10^{-4}$  cm      (d)  $5.6 \times 10^{-3}$  cm

60. A Carnot engine is working between  $230^\circ\text{C}$  and  $27^\circ\text{C}$ . What is the efficiency of the engine? (একটি কার্নো ইঞ্জিন  $230^\circ\text{C}$  এবং  $27^\circ\text{C}$  তাপমাত্রায় কাজ করছে। ইঞ্জিনের কার্যক্ষমতা কত?)

(a) 40%      (b) 55%      (c) 60%      (d) 70%

61. Which of the following devices converts AC to DC? (নিচের কোন ডিভাইস এসিকে ডিসিতে রূপান্তর করে?)

(a) ভোল্টমিটার (Voltmeter)      (b) ট্রানজিস্টর (Transistor)

(c) অ্যামিটার (Ammeter)      (d) ডায়োড (Diode)



## Chemistry (রসায়ন)

৭১. ল্যাবরেটরিতে নির্দিষ্ট আয়তনের দ্রবণ পরিমাপ এবং স্থানান্তরের জন্য নিচের কোন সরঞ্জামটি ব্যবহার করা হয়?

କ. କନିକେଳ ଫ୍ଲାଙ୍କ ଖ. ପିପେଟ୍ ଗ. ଟୋଫ୍ଟ ଟିକ୍ଟର ଘ. ବିକ୍ରାବ

72. ये सकल परमाणु प्रोटोन संख्या एकै किन्तु उर्व संख्या भिन्न तादेवाकृ कि बला हय?

ক. আইসোবার খ. আইয়েটোন গ. আইসার্টেপ ঘ. আইয়েমার

73. 0.1 M NaOH ଏବଂ 500ml ଦ୍ରବ୍ୟ ତୈରୀ କରାତେ କି ପରିମାଣ NaOH ପାଯାଇନ୍ଦରି ହୁଏ?

क. २७ अ. ०५ ग. ग. १२३ ग. घ. ६ ग.

74. তীব্র গমিজ্জ ও তীব্র ক্ষার টেইটোশান বিশেষক হিসেবে ব্যবহার করা যাব

75. **সাধারণ স্টোরেজ রাষ্ট্রীগত স্থাপ সৈন্যকাটোয়ার পাস কোড কর্তৃপক্ষ স্বাক্ষর করা**

କ୍ରମିକ ପରୀକ୍ଷା ନାମିକ ପରୀକ୍ଷା ପରୀକ୍ଷା ପରୀକ୍ଷା

76. ऐसा शोध कर्त्ता कर्त्ता विवरण अवधारणा विरुद्ध विवरण देता था जो उन्हें विवरण के लिए उपयोग किया जाता था।

క. శ్రీకాలాపెండి, వ. వాస్తవాం, ప. విశ్వామిత్రామెండ్రి

77. एक विद्युति विद्युति विद्युति विद्युति विद्युति विद्युति विद्युति

কে ৮০% আর্দ্ধে প্রক্রিয়া ১১০% এ প্রক্রিয়া

8. 1. 2% 8. 1. 2% 8. 1. 2% 8. 1. 2%

卷之三

38. ବିଦ୍ୟାଲୟର ପାଠ୍ୟ ବର୍ତ୍ତନ ପାଇଁ ଅନ୍ତର୍ଜାଲ ପରିବହଣ

否 1.1% 是 1.1% 男 1.1% 女 1.1% 其他 1.1%

70. लिंगार्थ अवस्थाया विष द्वारा अविवाहित राजा राम

క. వారసింహ పత్రియా ॥ ౪ లిపాయా పత్రియా ॥ ౫ లాసిం పత్రియా ॥ ౬ లాసా పత్రియా

## ANSWER