



**ITU Undergraduate Admission Test 20XX**  
**Department of Electrical Engineering**  
**IUGAT20XX-EEX for BSEE**

Name: \_\_\_\_\_

Tracking ID: \_\_\_\_\_

CNIC: \_\_\_\_\_

Roll Number: \_\_\_\_\_

<b>Paper Pattern (Total MCQs: 100)</b>			
<b>No.</b>	<b>All Compulsory Section</b>	<b>MCQs</b>	<b>Page No.</b>
1.	English	1-10	02 to 02
2.	Analytical	11-30	03 to 03
3.	Physics	31-60	04 to 04
4.	Mathematics	61-90	05 to 05
5.	Chemistry	91-100	06 to 06

**Instructions**

1. Use of calculators, mobile phones, smart watches and other electronic devices are not allowed.
2. Please make sure your question paper contains **XX printed sides**.
3. You must mark your answers **ONLY** on the answer sheet using the provided ballpoints. Use of pencil on the answer sheet is **NOT** allowed.
4. Be sure that each mark is dark and completely fills the intended space as illustrated in the following example where option **B** is selected: (A) ● (C) (D) (E)
5. There is **no negative marking**. You are encouraged to attempt all MCQs.
6. You must choose only one answer for each question.
7. You may use the question paper for rough work.
8. You must write your name, CNIC, roll number and complete tracking ID clearly on the question paper.
9. You must mark your **Six Digit Numeric Roll Number** on the answer sheet by filling the appropriate circles. e.g. the roll number **063416** would be marked **from top to bottom** as:

N#	0	1	2	3	4	5	6	7	8	9
0	●									
6							●			
3				●						
4					●					
1		●								
6							●			

-----Please DO NOT open your question paper until instructed-----

# 1. English [MCQs: 01-10]

## Read the passage to answer the questions. (MCQs: 01-02)

A few species of birds are parasitic. The glossy cowbird, for example, lays five or six eggs a season, each in a different nest and then abandons them. The old world cuckoo lays her clutch in the nest of the host that reared her, her young ejecting the host's offspring as soon as they are able.

1. In the context of the passage, what does **parasitic** mean?
  - a) to prey on a member of one's own species
  - b) to timely provide food to one's offspring
  - c) to abandon one's offspring very early in life
  - d) to take advantage of another without contributing anything
  - e) to kill the offspring of another member of one's own species
  
2. In the context of the passage what does **abandon** mean?
  - a) leave to never see again
  - b) supervise
  - c) give special care
  - d) wait for a few days to hatch
  - e) surrender

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## Select the word that best completes the sentence. (MCQs: 06-07)

6. Last month's earthquake \_\_\_\_\_ people living hundreds of miles from its epicenter.
  - a) effected
  - b) affected
  - c) effects
  - d) affects
  - e) none of the above

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## Each of the following analogy question presents a related pair of words linked by a colon. Select the pair of words whose relationship is most like the relationship expressed in original pair. (MCQs: 08-10)

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10. Concert: audience
  - a) car: mechanic
  - b) class: teacher
  - c) art: art gallery
  - d) cricket match: spectators
  - e) water: fish

## 2. Analytical [MCQs: 11-30]

### Read the passage to answer the questions. (MCQs: 11-14)

An editor must choose five articles to be published in the upcoming issue of an arts review. The only articles available for publication are theater articles F, G, H and J, and dance articles K, L, M and O. At least three of the five published articles must be dance articles. If J is chosen, then M cannot be. If F is chosen, then J must also be chosen.

11. If M is not chosen for the issue, which of the following must be chosen?

- a) F
- b) G
- c) H
- d) J
- e) K

12. How many acceptable groupings of articles include J?

- a) One
- b) Two
- c) Three
- d) Four
- e) Five

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### Read the passage to answer the questions. (MCQs 15-17)

A spice farmer must harvest exactly five spices grown on her farm. The spices must be harvested consecutively, the harvest of one being completed before the harvest of the next begins. The five spices to be harvested are allspice, cloves, nutmeg, sage, and thyme with the following conditions: Nutmeg must be harvested before thyme, Cloves must be harvested immediately after allspice and Sage must not be harvested first.

15. Which of the following is an acceptable order for the harvesting of the five spices?

- a) nutmeg, sage, allspice, cloves, thyme
- b) sage, nutmeg, thyme, allspice, cloves
- c) allspice, sage, thyme, cloves, nutmeg
- d) cloves, nutmeg, allspice, sage, thyme
- e) allspice, cloves, thyme, sage, nutmeg

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30. Advertisement: According to a recent research study, daily use of Fresh Start, a new toothpaste, reduces the risk of developing dental cavities by over 20 percent. In addition, as a result of a new formula, the use of Fresh Start results in whiter, healthier-looking teeth. Clearly, Fresh Start not only gives your teeth a beautiful look but also provides the most reliable protection against dental cavities. Which of the following is an assumption in the argument above?

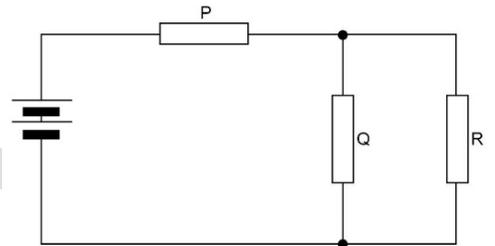
- a) No other toothpaste provides more reliable protection against dental cavities.
- b) Fresh Start's formula does a better job of whitening teeth than do competitors' formulas.
- c) People are just as interested in having beautiful teeth as they are in having healthy teeth.
- d) Fresh Start also prevents other dental disorders, such as gingivitis.
- e) Reliable protection against dental cavities, combined with excellent aesthetic properties, is likely to make Fresh Start a popular toothpaste on the market.

### 3. Physics [MCQs: 31-60]

31. The dimensions of a cube are measured with Vernier calipers. The measured length of each side is 30.0 mm. If the Vernier calipers can be read with an uncertainty of  $\pm 0.1$  mm, what is the approximate percentage uncertainty in the value of the volume?
- a) 4%
  - b) 3%
  - c) 0.3%
  - d) 0.7%
  - e) 1%

32. A force of 1000 N is needed to lift the hook of a crane at a constant velocity. The crane is then used to lift a load of 10000 N at a velocity of  $0.50 \text{ ms}^{-1}$ . How much power does the motor of the crane need to develop to lift the hook and load?
- a) 5.0 kW
  - b) 5.5 kW
  - c) 20 kW
  - d) 22 kW
  - e) 25 kW

33. The resistors P, Q and R in the circuit have equal resistance. The battery, of negligible internal resistance, supplies a total power of 12W. What is the power dissipated in resistor R?
- a) 2 W
  - b) 3 W
  - c) 4 W
  - d) 5 W
  - e) 1 W



34. Which group of electromagnetic waves is arranged in order of increasing frequency? (Lowest frequency to highest frequency)
- a) Gamma rays, ultra-violet rays, radio waves
  - b) Microwaves, ultra-violet rays, X-rays
  - c) Radio waves, visible light, infra-red radiation
  - d) Visible light, infra-red radiation, microwaves
  - e) X-rays, ultra-violet rays, microwaves

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60. If the radius of circle is doubled, then centripetal force becomes
- a) Doubled
  - b) Half
  - c) Remains same
  - d) Increases four times
  - e) Reduces four times

## 4. Mathematics [MCQs: 61-90]

61. In a group of 6 boys and 4 girls, four children are to be selected. In how many different ways can they be selected such that at least one boy should be there? The perpendicular distance of the line  $3x+4y+10=0$  from the origin is:
- 205
  - 209
  - 159
  - 194
  - None of above
62. Of 100 foreign journalists who can speak Chinese, English or French at a press conference: 60 speak Chinese. 65 speak English. 60 speak French. 35 speak both Chinese and English. 25 speak both Chinese and French. 35 speak both English and French. How many journalists speak exactly one language:
- 15
  - 10
  - 25
  - 20
  - 5
63. A speaks truth in 75% of cases and B in 80% of cases. In what percentage of cases are they likely to contradict each other, narrating the same incident:
- 30%
  - 35%
  - 40%
  - 45%
  - 77.5%
64. In a Cricket cup total 45 matches were played and every two teams played exactly one match with each other. So what were the total number of teams participating in Cricket Cup?
- 10
  - 11
  - 9
  - 8
  - 7
- .....
89. The maximum value of  $6 \sin(x) \cos(x)$  is
- 0
  - 1
  - 2.6
  - 3
  - 6
90. Which of the following is the equation of the circle that has its center at the origin and is tangent to the line with equation  $3x - 4y = 10$ ?
- $x^2 + y^2 = 2$
  - $x^2 + y^2 = 4$
  - $x^2 + y^2 = 3$
  - $x^2 + y^2 = 5$
  - $x^2 + y^2 = 10$

## 5. Chemistry [MCQs: 91-100]

91. Which of the statement(s) below is/are true?
- 1) Elements in the same group have the same number of electrons.
  - 2) Elements in the same group have similar chemical reactions.
  - 3) Elements in the same group have different mass and proton numbers.
- a) 1, 2 and 3
  - b) 1 and 2
  - c) 2 and 3
  - d) 1 and 3
  - e) None of the above
92. Which of the below is described by: high melting point, can conduct and soluble in water.
- a) Al
  - b) C
  - c) CH<sub>4</sub>
  - d) NaCl
  - e) Fe
93. Which statement(s) is/are true?
- 1) Water has hydrogen bonds which increase the boiling point.
  - 2) Water as a solid is denser than as a liquid.
  - 3) Water has bond angles of 180°.
- a) 1, 2 and 3
  - b) 1 and 2
  - c) 2 and 3
  - d) 1 and 3
  - e) 1 only
94. Which numbers are needed to balance the following equation?
- $$\text{C}_8\text{H}_{18} + 11\text{O}_2 \rightarrow \square \text{CO}_2 + \square \text{CO} + \square \text{H}_2\text{O}$$
- a) 5, 3, 9
  - b) 5, 9, 3
  - c) 4, 4, 9
  - d) 8, 4, 10
  - e) 4, 4, 10
- .....
99. Which is the correct pair of molecular and empirical formulae?
- a) C<sub>4</sub>H<sub>12</sub>, C<sub>2</sub>H<sub>6</sub>
  - b) C<sub>8</sub>H<sub>18</sub>, C<sub>4</sub>H<sub>8</sub>
  - c) C<sub>6</sub>H<sub>12</sub>, C<sub>3</sub>H<sub>6</sub>
  - d) C<sub>4</sub>H<sub>8</sub>, CH<sub>2</sub>
  - e) C<sub>4</sub>H<sub>9</sub>, C<sub>2</sub>H<sub>3</sub>
100. The state of hybridization of carbon atoms in methane is
- a) sp<sup>3</sup>
  - b) sp<sup>2</sup>
  - c) sp
  - d) dsp<sup>2</sup>
  - e) sp<sup>3</sup>d

-----The End-----