

سوالات یوس ۲۰۱۷

دانشگاه الوداغ



Uludag University

INTERNATIONAL STUDENTS' EXAM

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ULUDAĞ UNIVERSITY
STUDENT SELECTION AND PLACEMENT EXAM
FOR FOREIGN STUDENTS
(UÜYÖS)
2017

ADAYIN/ APPLICANT'S

ADAY NO / APPLICANT NO :

ADI / NAME :

SOYADI / SURNAME :

1. The time allowed for this examination is 120 minutes.
2. Any candidate who leaves the exam room for whatever reason will not be readmitted.
3. On the answer sheet, encode your candidate number and question booklet type. Also, write down your name, surname, date and place of birth, gender, nationality, and identity or passport number, and sign your name.
4. Answer sheets must be marked in pencil only. It is strictly forbidden to use ballpoint or fountain pens.
5. Points will be given for correct answers, while points will not be deducted from correct answers for incorrect answers.

21.

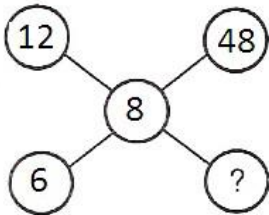
x	a	b	c
a		3c	
b			6
c	4		

 $b = ?$

In the multiplication table above, the letters a, b and c each stand for a positive number. Accordingly, what is the value of b?

- A) 3 B) 4 C) 5 D) 6 E) 7

22.



The numbers on a line above a certain way are arranged according to the rule. Which number should replace the question mark?

- A) 20 B) 84 C) 96 D) 108 E) 120

23. What is the digit of units of 3^{142} ?

- A) 1 B) 3 C) 5 D) 7 E) 9

24. There are 40 students in a class of 14 and 15 years old. The sum of the ages is 570 students. How many students in this class who are 15 years old?

- A) 28 B) 25 C) 20 D) 15 E) 10

25. Ali is 4 years old. Ayşe's age is 3 times the age of Ali's. While Ali 10 years old, how is Ayşe's old?

- A) 36 B) 30 C) 24 D) 20 E) 18

26. The sum of the ages of a mother and her three kids is 42 today. After how many years this sum makes 74?

- A) 8 B) 9 C) 12 D) 16 E) 32

27. An urn contains 5 blue and 3 green marbles. Without putting the marbles back, what is the probability that three marbles drawn from the urn comes green?

- A) $\frac{1}{90}$ B) $\frac{15}{364}$ C) $\frac{5}{364}$ D) $\frac{1}{364}$ E) $\frac{1}{728}$

28. $1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{a}}} = ?$

- A) $1+a$ B) $1-a$ C) $-a$ D) a E) $a-1$

29. **a, b, c negative integers.**

$$\frac{a}{7} = \frac{b}{8} = \frac{c}{9}$$

Which one of the following statement is true (a,b,c are real numbers) ?

- A) $a < b < c$ B) $a < c < b$ C) $c < a < b$
D) $c < b < a$ E) $b < a < c$

30. $\frac{2}{5} < x < \frac{3}{5}$

Find the suitable value for x?

- A) $\frac{1}{14}$ B) $\frac{5}{14}$ C) $\frac{5}{6}$ D) $\frac{1}{4}$ E) $\frac{1}{2}$

31. $a = 1 - \sqrt{3}$ ve $b = 1 + \sqrt{3}$ ise $\frac{a}{b} + \frac{b}{a} = ?$

- A) -4 B) $\frac{7}{4}$ C) $\frac{2}{3}$ D) $\frac{1}{2}$ E) -2

32. A and B are non-empty sets, If $s(A)=8$ and $s(B-A)=3$ then find the number of the members of $A \cup B$.

- A) 3 B) 5 C) 8 D) 11 E) 14

33. If $f(x) = \frac{1}{x-1}$ and $g(x) = \frac{1}{x}$

Find the domain of the function $f(g(x))$.

- A) $(-\infty, 1)$ B) $(-\infty, 1) \cup (1, \infty)$ C) $(-\infty, \infty)$
D) $(1, \infty)$ E) $(-\infty, 1) \cup (0, 1) \cup (1, \infty)$

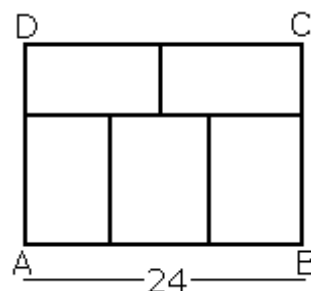
34. If $f(ab)=f(a)+f(b)$ then find $f(1)$.

- A) ab B) b C) a D) 0 E) 1

35. Find the distance of the point A(1,3) to the line $3x+4y-10=0$.

- A) $\frac{1}{5}$ B) $\frac{2}{\sqrt{5}}$ C) 1 D) 2 E) $\frac{\sqrt{10}}{4}$

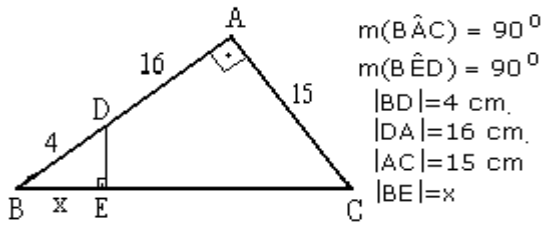
36.



If we divide ABCD rectangle which has long length 24 cm into five rectangles, find the short length of ABCD rectangle.

- A) 20 B) 22 C) 12 D) 8 E) 18

37.



According to the figure find x.

- A) $\frac{16}{5}$ B) $\frac{13}{5}$ C) 5 D) 4 E) 3

38. a and b are integers,

I. if $a+b$ is odd, $a.b$ is even.

II. if $a+b$ is even, $a-b$ is even.

III. if $a.b$ is odd, $a+b$ is odd.

Which of the statements above are true?

- A) only I B) III C) I and II
D) I and III E) I, II and III

39.

I.	II.
A M O R	
K R A T	1426 2341 3624
T A K O	
R O K A	4563 6342
O R A K	
T A K O = ?	

- A) 1426 B) 2341 C) 3624
D) 4563 E) 6342

40.

x	a	b
a		$c^2 - 1$
b	24	

+	a	b	c
a			
b			11

b = ?

In the multiplication and addition tables above, the letters a, b and c each stand for a positive number. What is the value of b?

- A) 6 B) 7 C) 8
D) 9 E) 10

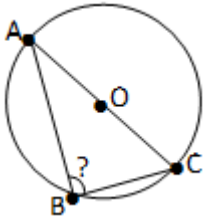
41.

θ				3
	2		4	
				5
		2	1	
1	4			

In this Sudoku puzzle, each of the the numbers 1,2,3,4 and 5 are to be placed in each row and column. If so, which number is to replace θ ?

- A) 4 B) 1 C) 3 D) 2 E) 5

42.



In the above circle with centre O, how many degrees is angle B in the triangle ABC?

- A) 90 B) 30 C) 45 D) 60 E) 75

43. What is the imaginary part of the

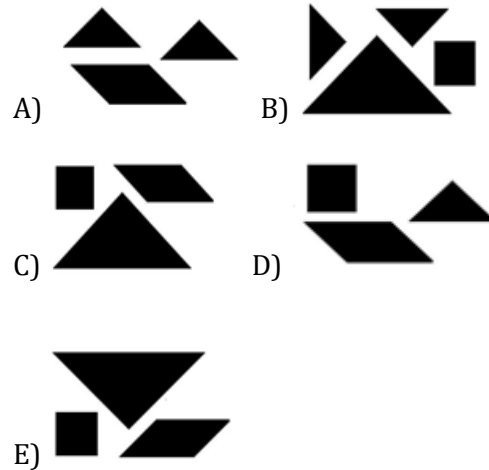
complex number $\frac{5-2i}{1+i} = ?$

- A) $-\frac{7}{2}$ B) $\frac{5}{3}$ C) $-\frac{5}{2}$ D) $\frac{4}{5}$ E) $\frac{1}{2}$

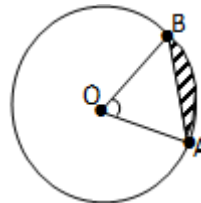
44.



In which of the options below can the pieces be put together to form the shape above?



45.



The above circle with centre O has a radius of 4 units. If angle AOB is 60° , what is the area of the shaded area in square units?

- A) $\frac{8\pi}{3} - 4\sqrt{3}$ B) $\frac{2\pi}{3} - \sqrt{3}$ C) $\frac{4\pi}{3} - 2\sqrt{3}$
 D) $\frac{5\pi}{3} - 3\sqrt{3}$ E) $\frac{7\pi}{3} - 5\sqrt{3}$

46. What is the subset number of the $\{\{a\}, \{a, b\}, \{a, b, c, d\}\}$ set?

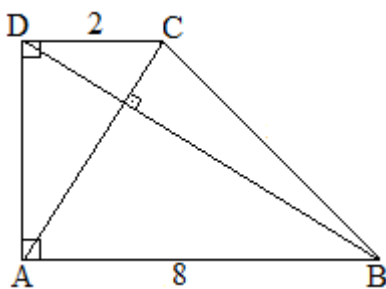
- A) 8 B) 128 C) 64 D) 16 E) 2

47.

$$\left(\frac{1}{8}\right)^{-3n} 16^{n-2} 4^{1-n} = 32 \quad n = ?$$

- A) 1 B) -1 C) 0 D) $\frac{1}{2}$ E) 2

48.



In the diagram above, ABCD is a right-angled trapezium. If $|AB| = 8$ cm, $|CD| = 2$ cm and $AC \perp BD$, how long is $|BC|$ in cm?

- A) $2\sqrt{13}$ B) $3\sqrt{5}$ C) $2\sqrt{10}$ D) 6 E) 7

49. What is the simplest form of the expression below?

$$\frac{a^4 - b^4}{a^3 + b^3} \cdot \frac{(a-b)^2 + ab}{a^2 + b^2}$$

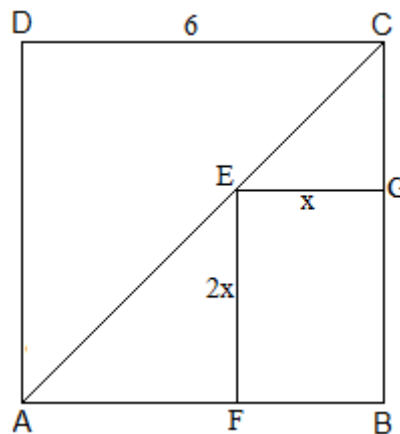
- A) a-b B) 1 C) a+b D) 0 E) b

50.

$$\left(\frac{(8^{-2}) : \left(-\frac{1}{3}\right)^{-2}}{\left(-\frac{1}{12}\right)^4} \right)^{\frac{1}{2}} = ?$$

- A) 6 B) -6 C) 12 D) 18 E) 36

51.



In the diagram above, ABCD is a square and FBGE is a rectangle. If $|DC| = 6$, $|EG| = x$ and $|EF| = 2x$ units, how many units is x?

- A) 2 B) 1.5 C) 1 D) 1.2 E) 1.3

52. $(1400)^5 (0.035)^3 = ?$

- A) $2^6 5^4 7^8$ B) $2^5 5^3 7^8$ C) $2^5 5^3 7^6$
 D) $2^6 5^4 7^9$ E) $2^6 5^3 7^8$

53. A water container $\frac{1}{5}$ is full. within the vessel along with any weight with 9 kg of water. According to all the weight is 25 kg container is filled, how many kg is the weight of the bowl is empty?

- A) 4 B) 5 C) 6 D) 7 E) 8

54. The equation $(m+8)x - 2 = 3x + 2n - 6$ allows for an infinity of solutions for x. Consequently, what is the value of the n-m ?

- A) 7 B) -7 C) -3 D) 3 E) 10

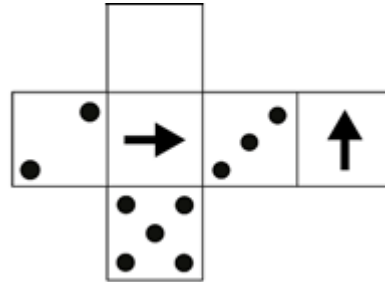
55.

0, 2, 8, 24, 64, 160, #

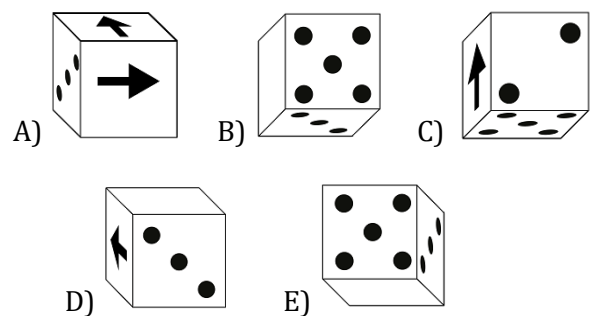
What number comes next in this sequence?

- A) 384 B) 380 C) 190 D) 298 E) 360

56.



The above shape is made up of 6 squares, each bearing a different shape. When the shape is folded up, which of the following shows the cube thus formed?



60.

$$A = \{x \mid x = 2^k, k \in \{-1, 0, 1\}\}$$

$$B = \{x \mid x = (k)^2, k \in \{-1, 0, 1\}\}$$

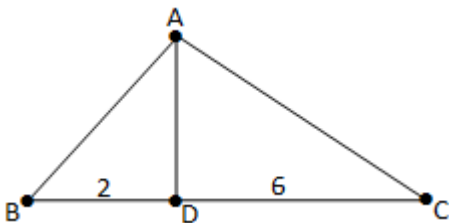
$$s(A \cup B) = ?$$

- A) 4 B) 6 C) 5 D) 3 E) 2

61. $a \Delta b = 2a + b$ and $c \Theta d = c - d$,
 $((2 \Delta 2) \Theta 2) \Delta 2 = ?$

- A) 18 B) 15 C) 17 D) 16 E) 10

62.



In the figure above, if $\angle BAC$ is a right angle, $|BD|=2\text{cm}$, $|DC|=6\text{cm}$ and $AD \perp BC$, what is the area in cm^2 of right-angled triangle ABC ?

- A) $8\sqrt{3}$ B) $4\sqrt{3}$ C) $6\sqrt{3}$ D) $10\sqrt{3}$ E) $12\sqrt{3}$

63.

X	A	B	C
A			24
B	12		
C		8	

In the above multiplication table, the letters A, B and C each represent positive whole numbers. If so, what is the value of $A+C$?

- A) 10 B) 9 C) 8 D) 7 E) 11

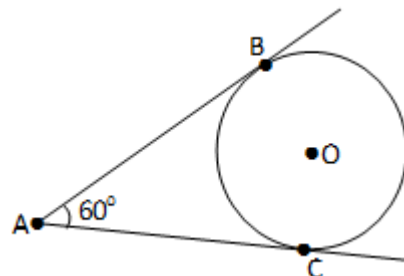
64.

	3		4	
5				
	1			Θ
3		4		
			5	

In this Sudoku puzzle, each of the the numbers 1,2,3,4 and 5 are to be placed in each row and column. If so, which number is to replace Θ ?

- A) 1 B) 2 C) 3 D) 4 E) 5

65.



In the diagram, if the radius of the circle with centre O is r , what is the length of $|AC|$?

- A) $r\sqrt{2}$ B) $2r$ C) $r\sqrt{3}$ D) $3r$ E) $r\sqrt{r}$

66.

+	A	B	C
A		15	
B			10
C	13		

In the above addition table, the letters A,B and C each represent positive whole numbers. If so, what is the value of A+B+C?

- A) 19 B) 13 C) 17 D) 15 E) 16

67. Alex can buy a 75cm ribbon with one third of her money. If 60cm of the ribbon that Alex wants to buy costs 480kr, how much money has Alex got in TL? (1 TL=100 kr))

- A) 12 B) 17 C) 16 D) 18 E) 10

68.

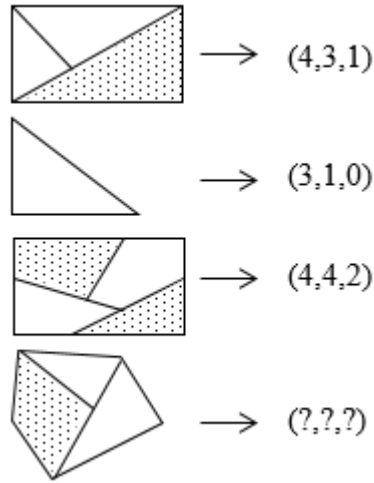
$$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \dots \cdot \frac{9}{10} = ?$$

- A) $\frac{9!}{10! - 1}$ B) $\frac{9!}{10}$ C) $\frac{1}{10}$
 D) 1 E) $\frac{9}{10}$

69. A circular logo is enlarged to fit the lid of a jar. The new diameter is 50 per cent larger than the original. By what percentage has the area of the logo increased?

- A) 50 B) 80 C) 100 D) 125 E) 250

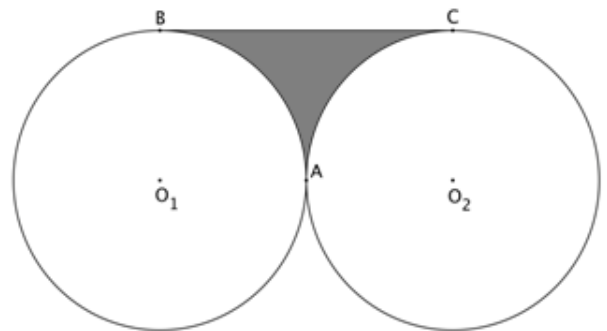
70.



There is a certain relationship between the shapes above and the groups of numbers that follow them. If so, which group of three numbers below should replace the three question marks?

- A) (2,1,5) B) (3,4,1) C) (2,5,2)
 D) (3,5,2) E) (5,3,1)

71.



The two circles in the diagram above have identical radii of 4cm and are tangent to each other at point A. The line BC is a common tangent to both circles. If so, what is the area of the shaded area in cm²?

- A) $32 - 8\pi$ B) $32 - 4\pi$ C) $16 - 4\pi$
 D) 16π E) 32π

72.

23 İÇ
48 İZ
55 LŞ 38 ?
64 LT
71 ER

A) Tİ B) TZ C) ZS D) Oİ E) KZ

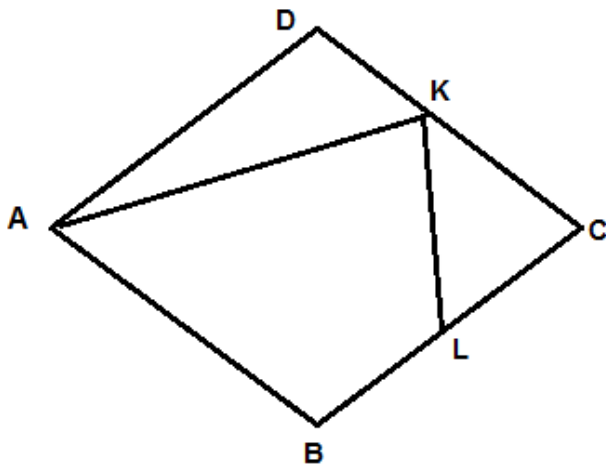
73.

1, 3, 5, 12, 27, #

What number comes next in this sequence?

A) 48 B) 36 C) 64 D) 58 E) 81

74.



ABCD is a parallelogram. Let line segments [DK] and [KC] be equal in length, and let the lengths of line segments [CL] and [LB] be equal. If the area of triangle KLC is 10 cm^2 , what is the area in cm^2 of the parallelogram ABCD?

A) 70 B) 80 C) 60 D) 50 E) 40

$$3a - 2b = -9$$

75. If $b - 2c = 3$ then, $a + b + c = ?$

$$c - a = 2$$

A) -10 B) 3 C) 9 D) -11 E) -12

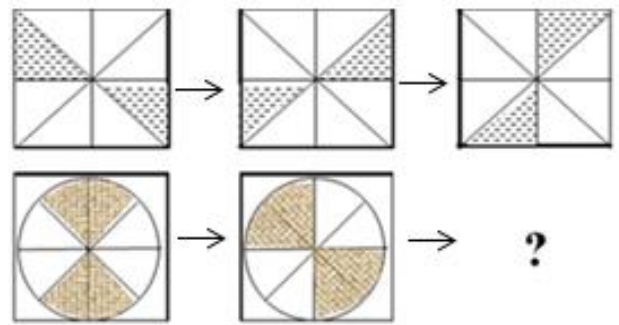
76. $\frac{i^{31} + i^{28} + 5i^{129} + i^{156}}{2i + 1} = ?$

A) 2i B) 2 C) $1 + 2i$ D) $i - 1$ E) 1

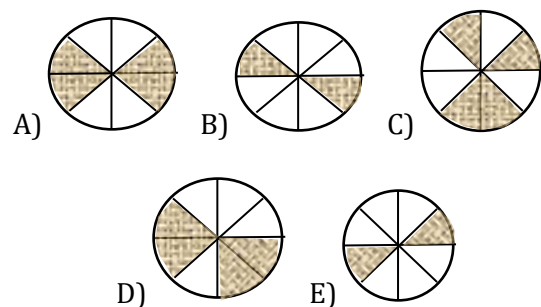
77. If E is a universal set, and $A \subset E$, $B \subset E$, then the set $(B - A') - B$ is equal to which of the following?

A) ϕ B) E C) A D) B E) $A - B$

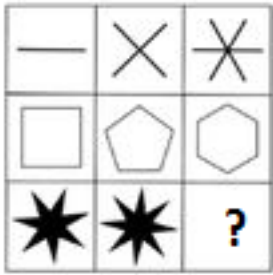
78.



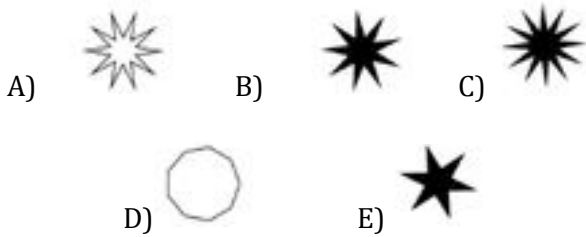
The shapes in the first row above follow a certain rule. For the shapes in the second row to follow the same rule, which of the following shapes should replace the question mark?



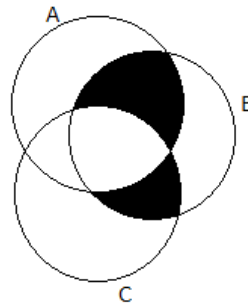
79.



Which of the following shapes should replace the question mark in the above diagram?



80.



In the above diagram, which of the following is the shaded set?

- A) $A \cap B \cap C$
- B) $(A \cap B) - C$
- C) $(B \cap C) - (A \cap B \cap C)$
- D) $(A \cap B) \cup (B \cap C)$
- E) $((A \cup C) \cap B) - (A \cap B \cap C)$

**THE EXAMINATION IS OVER.
PLEASE CHECK YOUR ANSWERS.**

ULUDAĞ UNIVERSITY
STUDENT SELECTION AND PLACEMENT EXAM FOR FOREIGN STUDENTS
(UÜYÖS)
APPLICATION BASICS

THE INSTRUCTIONS BELOW SHOULD BE READ ALOUD TO THE STUDENTS BY SUPERVISORS.

1. Sınavın ilk 30 ve son 15 dakikası içinde hiçbir adayın salondan dışarı çıkmasına izin verilmeyecektir.
 2. UUYÖS 2017 kılavuzunda belirtilen her türlü elektronik cihaz, cep telefonu, silah, hesap makinesi, sözlük, vb. yasak olan nesnelerle sınava girmek yasaktır. Bu yasağa uymayanların sınavı geçersiz sayılacaktır.
 3. Sınav sırasında görevlilerin her türlü uyarılarına uymak zorundasınız, gerektiğinde görevliler oturduğunuz yerleri değiştirebilir.
 4. Başkasının yerine sınava girmek ya da kopya girişiminde bulunmak sınavınızın iptaline sebep olacaktır. Görevliler kopya çekmeye veya vermeye çalışanları uyarmadan sınavlarını iptal etme yetkisine sahiptir. Toplu kopya çekiminin tespit edildiği durumlarda kopya eylemine katılan tüm adayların sınavları geçersiz sayılacaktır.
 5. Sınav süresince görevlilerle konuşmak ve onlara soru sormak yasaktır. Adayların birbirinden kalem, silgi vb. istemeleri kesinlikle yasaktır.
 6. Sınav görevlisinin talimatından sonra, soru kitapçıklarının sayfaların eksik olup olmadığını, kitapçıkta basım hatalarının bulunup bulunmadığını kontrol ediniz. Soru kitapçığınızın sayfası eksik veya hatalı ise sınav görevlisine bildiriniz.
 7. Cevaplamaya geçmeden önce soru kitapçığının üzerinde ayrılan yere adınızı, soyadınızı ve aday numaranızı yazınız.
 8. Her soruda beş farklı cevap seçeneği bulunmaktadır ve bunlardan yalnızca biri sorunun doğru cevabıdır. Adayların her bir soru için tek bir cevap seçeneğini işaretlemeleri gerekmektedir. Cevap kağıdında bir soru için birden fazla seçenek işaretlenmişse veya bir seçenek için ayrılan yer doğru işaretlenmemişse o soru için verilen cevap yanlış sayılacaktır.
 9. Sınav süresi bittiğinde cevapların Cevap Kağıdına işaretlenmiş olması gerekir. Sadece Soru Kitapçığına işaretlenen cevaplar geçersizdir.
 10. Soru kitapçığındaki boş yerleri çözüm için kullanabilirsiniz. Soruları ve verdiğiniz cevapları ayrı bir kağıda yazıp dışarı çıkarmanız kesinlikle yasaktır.
 11. Sınav salonundan ayrılmadan önce, soru kitapçığınızı ve cevap kağıdınızı salon görevlilerine eksiksiz teslim ediniz.
1. No candidate will be allowed to leave the exam room during the first 30 minutes or the final 15 minutes of the exam.
 2. It is forbidden to enter the exam room with prohibited items such as any kind of electronic device, cellphone, weapon, calculator or dictionary, as specified in the UUYOS 2017 guide. The exam papers of those who fail to observe this rule will be declared void.
 3. You must comply with any kind of warning or instruction given by invigilators during the exam, and invigilators may change your seating places if necessary.
 4. Any attempt to copy or to enter the exam in someone else's place will render your exam paper invalid. Invigilators are authorized to cancel without warning the exams of anyone attempting to copy or letting others copy from them. In cases where collective cheating is found to have taken place, the exam papers of all candidates involved in the cheating will be declared invalid.
 5. It is forbidden to talk to exam staff or to ask them questions during the exam. Exchange of pencils, erasers, etc. between candidates is strictly forbidden.
 6. Following the instruction from the invigilator, please ensure that the pages of the question booklet are complete and that there are no printing errors in the booklet. If any pages are missing from the question booklet or if it contains any printing errors, please inform the invigilator.
 7. Before beginning to answer the questions, write your first name, surname and candidate number in the spaces provided in the question booklet.
 8. For each question, there are five different answer choices, and only one of these is the correct answer. Candidates must indicate only one answer choice for each question. If more than one answer choice is indicated on the answer sheet, or if the place allocated for a choice is not properly indicated, then the answer given to that question will be considered incorrect.
 9. When the exam time is finished, the answers must have been indicated on the answer sheet. Answers marked only in the question booklet are invalid.
 10. You may use the blank spaces in the question booklet for working out. It is strictly forbidden to write questions and the answers you give to these questions on a separate piece of paper and take this paper out with you.
 11. Before leaving the exam hall, please hand in your question booklet and answer sheet in full to the exam staff. Do not on any account leave your exam paper on the desk.