

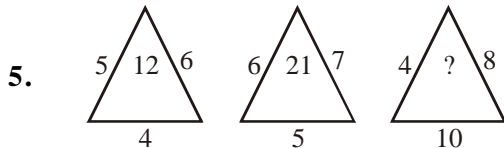
**PART-I**

**IQ (MENTAL ABILITY)**

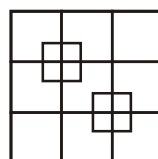
This section contains **20 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

- How many 9's are there in the following sequence which are immediately followed by 2 and also immediately preceded by 3 ?  
3 9 2 4 3 9 2 3 9 3 9 2 3 9 2 9 3  
(1) One (2) Two (3) Three (4) More than three
- Six animals are placed in a circle facing the centre of the circle. Cat is between dog and rabbit. Hen, who is to the immediate right of parrot, is not adjacent to dog. Who is to the immediate right of dog ?  
(1) Monkey (2) Cat (3) Parrot (4) Data inadequate
- 'Coal' is related to 'Heat' in the same way as 'Wax' is related to  
(1) Honey (2) Bee (3) Light (4) Fire
- X told Y, "It is true that I am your real brother but you are not my sister". How would Y be possibly related to X ?  
(1) Cousin (2) Friend (3) Brother (4) Cannot be determined

**Direction (Q. 5) :** In the following question, a set of figures carrying certain numbers is given. Assuming that the numbers in each set follows a similar rule. Find the missing number.



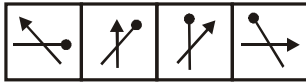
- (1) 14 (2) 22 (3) 32 (4) 320
- In a certain code SIKKIM is written as THLJLL. How is TRAINING, written in that code ?  
(1) UQBHOHOF (2) UQBJOHOH (3) SQBHOHOH (4) UQBIOHHO
- Which letter in NOTORIOUS occupies the same position as M does in CLEAMENT ?  
(1) O (2) R (3) I (4) T
- If '+' means multiplied by, '-' means divided by, '×' means plus, '÷' means '-' then  $(18 + 10 \times 20) - 8 \div 6 = ?$   
(1) 35 (2) 92 (3) 26 (4) 19
- 10, 21, 40, 83, 162, \_\_\_? Complete the series  
(1) 233 (2) 235 (3) 329 (4) 339
- Count the total number of possible squares in the given figure.



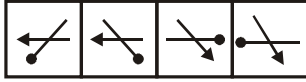
- (1) 16 (2) 22 (3) 24 (4) 28

**Direction (Q. 11) :** The four problem figures make a series. Find the figure amongst the answer figure which will form the next.

11. Problem Figures

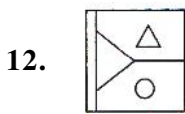


Answer Figure

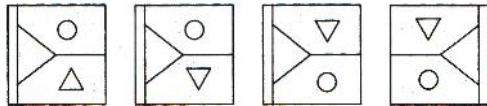


(1) (2) (3) (4)

**Direction (Q. 12) :** Choose the correct water image of the figure (x) from amongst the four given alternatives (1), (2), (3) and (4).

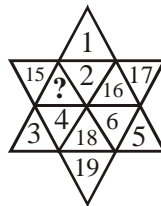


(x)



(1) (2) (3) (4)

13. If  $4 * 5 = 81$ ;  $3 * 4 = 49$ , what is  $10 * 2$  ?  
 (1) 120 (2) 144 (3) 102 (4) 169
14. IF DRAMA = 37 and STAGE = 52, ACTOR = ?  
 (1) 56 (2) 50 (3) 57 (4) 67
15. Find a wrong number in the series 24, 27, 31, 33, 36  
 (1) 24 (2) 31 (3) 27 (4) 33
16. Find the missing number in place of ‘?’.



- (1) 13 (2) 14 (3) 15 (4) 20
17. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group ?  
 (1) PQ (2) CD (3) MN (4) DF
18. George saves 22% of his salary. He saves Rs. 1540. Then the salary of George is :  
 (1) Rs. 9500 (2) Rs. 17000 (3) Rs. 7000 (4) Rs. 7500
19. The ratio of Amit’s age to that of his younger brother is 7 : 5. If his younger brother is 15 years old, than Amit’s age in years is :  
 (1) 18 (2) 17 (3) 28 (4) 21
20. A man purchased 700 eggs. He found that 20% of them were broken. How many eggs were found broken ?  
 (1) 140 (2) 70 (3) 20 (4) 35

**PART-II**

**SECTION-A : PHYSICS**

This section contains **15 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

21. There is a mistake in the following classification. Which of the following is placed incorrectly in the groups?

Non conductor of electricity	Conductor of electricity
Wool	Copper
Cotton	Brass
Plastic	Iron
Cork	Steel
Carbon	Silver

- (1) Wool                      (2) Carbon                      (3) Iron                      (4) Silver

22. Reena puts two different objects in each of the following containers.

Container (i) : copper coin and iron nail

Container (ii) : steel nail and aluminium earring

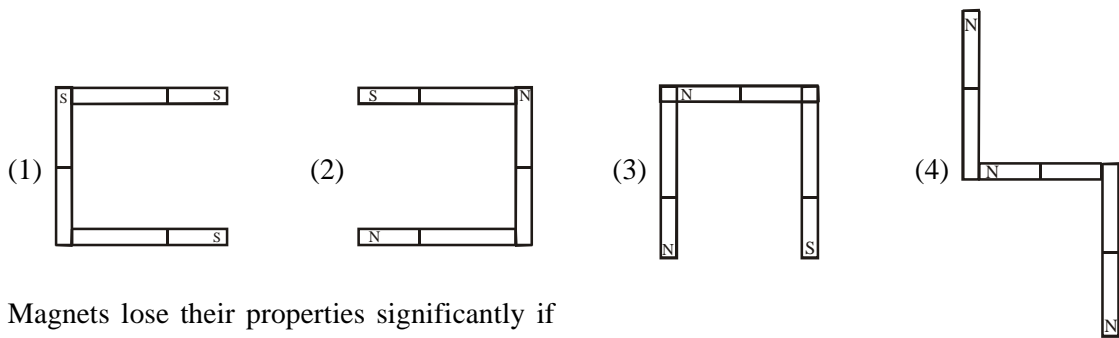
Container (iii) : marble and gold coin

Container (iv) : nikel coin and steel nail

She can use a magnet to separate the objects in containers \_\_\_\_\_ .

- (1) (i) & (ii)                      (2) (i), (ii) & (iii)                      (3) (i), (ii) & (iv)                      (4) all of the above

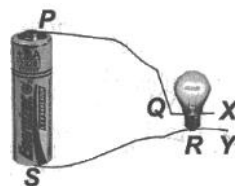
23. Study the arrangement of three bar magnets as shown below. Which arrangement is possible?



24. Magnets lose their properties significantly if

- (1) Left in the open                      (2) Touched with iron  
(3) Dropped from a height repeatedly                      (4) None of these

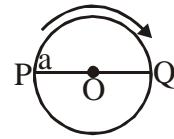
25. Look at the given diagram, it consists of a cell, a bulb with the two terminals X and Y and wires with ends P and Q; and S and R. The direction of current will be



- (1) PQRS                      (2) SRQP                      (3) PRQS                      (4) SQRP

26. In a circuit having one bulb, another bulb is added. Then the bulb will
- (1) Not glow (2) Glow but less brightly  
(3) Glow more brightly (4) Get fused

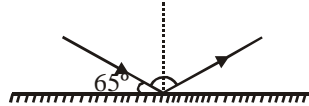
27. A cyclist moves from a certain point and goes round a circle of radius  $a$  and reaches  $Q$ , exactly at the other side of the point  $P$  as shown in figure. The displacement of the cyclist would be



- (1)  $\pi a$  (2)  $2\pi a$  (3)  $2a$  (4)  $2/\pi a$

28. From the diagram given, what is the angle of incidence?

- (1)  $25^\circ$  (2)  $50^\circ$   
(3)  $65^\circ$  (4)  $90^\circ$



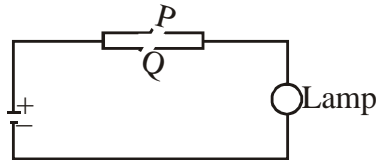
29. In lateral inversion
- (1) Right side of the object will be right side of the image  
(2) Left side of the object will be left side of the image  
(3) Upside of the object will be down of the image  
(4) Right side of the object will be left side of the image.

30. Which of these is not a circuit element?

- (1) Battery (2) Voltmeter  
(3) Potential difference (4) Resistor

31. In the given circuit diagram,  $P$  and  $Q$  are switches. Lamp will glow when

- (1)  $P$  is open,  $Q$  is closed  
(2)  $P$  is closed,  $Q$  is open  
(3)  $P$  is closed,  $Q$  is closed  
(4) All of the above



32. The mirror which is used for side view in vehicles is



- (1) Plane mirror (2) Concave mirror (3) Convex mirror (4) None of these

33. Which of the following is not a unit of speed?

- (1) Meter/second (2) Second/meter (3) kilometer/hour (4) Meter/minute

34. To calculate velocity, you need to know the total

- (1) distance of the motion. (2) time of the motion  
(3) distance and time of the motion. (4) distance, time, and direction of the motion.

35. If one burnt out light bulb causes all the lights in that circuit to fail, what might you conclude?

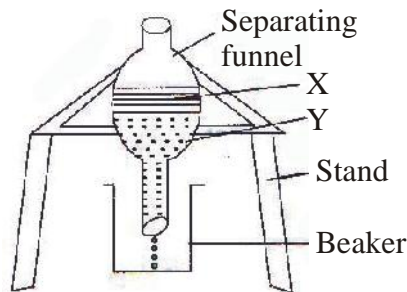
- (1) more batteries are needed (2) it is a series circuit  
(3) it is a parallel circuit (4) the wire isn't thick enough

**SECTION-B : CHEMISTRY**

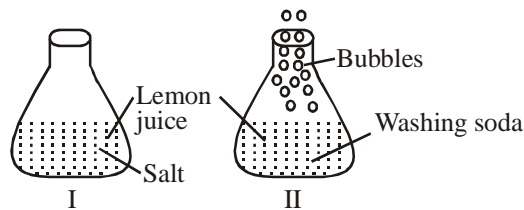
This section contains **15 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

- 36.** The winds from oceans carry water and bring rain are called  
(1) Cyclone                      (2) Typhoon                      (3) Monsoon                      (4) None of these
- 37.** Complete the correlation:  
Silk work : Cocoon, Wool : \_\_\_\_\_  
(1) Hair of rabbit              (2) Cotton plant              (3) Fleece of sheep              (4) Jute of hemp
- 38.** Classification is  
(1) grouping things as living and non-living.  
(2) grouping living things on the basis of common properties.  
(3) grouping non-living things on the basis of common properties.  
(4) grouping all things, living or non-living, on the basis of common properties.
- 39.** The factors which contribute to the development of cyclones is/are  
(i) Wind speed              (ii) Temperature              (iii) Humidity  
(1) (i) only              (2) (ii) & (iii) only              (3) (i) & (iii) only              (4) all of these
- 40.** The temperature of a saturated solution of sugar in water is raised by 10°C. Which of these statements is now true?  
(1) It will continue to be saturated.  
(2) It will become unsaturated.  
(3) Whether it remains saturated or becomes unsaturated depends on the amount of water taken.  
(4) It will continue to be saturated, but if the temperature is increased beyond 10°C it will become unsaturated.
- 41.** A substance exists in the solid state because  
(1) force between its molecules are weak.  
(2) molecules are tightly packed.  
(3) molecules can move throughout the volume occupied by the substance.  
(4) molecules can move freely in the entire space available to them.
- 42.** A tornado is  
(1) Uneven heating between two regions  
(2) A violent, twisting funnel of wind  
(3) Strong circulatory winds in the tropical region  
(4) Both (2) & (3)
- 43.** Which of the following will be true for 'ash', that is obtained by burning wood in air?  
(1) The properties of ash will be similar to wood  
(2) The properties of ash will be similar to air  
(3) The properties of ash will be different from both wood and air.  
(4) The properties of ash will be similar to both wood and air.

44. Sakshi wants to test the quality of her dupatta. She pulled a small strand of yarn from the dupatta and burnt it. It smelled like a burning paper. He inferred that the dupatta is made of  
 (1) Pure wool                      (2) Cotton                      (3) Pure silk                      (4) None of these
45. Nitu mixed some iron fillings with sulphur powder in a China dish. She heated the contents of China dish. What did she observe during the experiment?  
 (1) There was no difference in the contents of China dish before and after heating.  
 (2) Before heating, iron fillings and sulphur powder could be seen separately but after heating the contents become black.  
 (3) Before heating, the iron filling and sulphur powder could not be seen separately.  
 (4) Before heating, the contents were black and after heating iron fillings and sulphur could be seen separately.
46. Shobha took two liquids (coconut oil and water) in a separating funnel kept on a stand as shown in the figure. What would she observe after some time?



- (1) Layer 'X' is coconut oil, 'Y' is water and two distinct layers are formed.  
 (2) Layer 'X' is water, 'Y' is coconut oil and two distinct layers are formed.  
 (3) Layers 'X' and 'Y' are miscible to some extent, hence do not form distinct layers.  
 (4) Coconut oil is first collected in the beaker.
47. Sudha took lemon juice in two flasks. She put salt in flask I and washing soda in flask II. She observed lot of bubbles in flask II but nothing in flask I. What could be the reason for this?



- (1) In flask I, a chemical change takes place  
 (2) In flask II, a chemical change takes place and bubbles of carbon dioxide are seen.  
 (3) In flask II, a physical change takes place producing a lot of bubbles.  
 (4) In flask I, salt reacts with lemon juice and gets dissolved.
48. Match the column I with column II and select the correct option from the codes given below.

**Column I**

- (a) Removal of larger particles from similar ones  
 (b) Separation of cream from milk  
 (c) Separation of a mixture of mud and water  
 (d) Separation of grains from stalks

**Column II**

- (i) Sieving  
 (ii) Filtration  
 (iii) Churning  
 (iv) Threshing

- (1) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)                      (2) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)  
 (3) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)                      (4) (a) - (iv), (b) - (ii), (c) - (iii), (d) - (i)

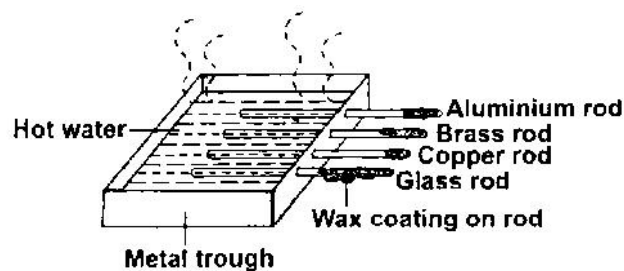
49. Read the given statements and select the correct option.

Statement 1: After harvesting, the stalks of the jute plants are tied into bundles and retted (soaked) in water for about 20 days.

Statement 2: The process of retting softens the tissues and helps to separate the fibres.

- (1) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
- (2) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
- (3) Statement 1 is true and statement 2 is false.
- (4) Both statements 1 and 2 are false.

50. Four rods of equal length and thickness but of different materials are coated with wax in the same manner. They are fixed to a trough containing hot water. The given diagram illustrates what happens to the wax on each rod after five minutes.



What can you conclude from the given diagram?

- (i) The aluminium rod conducts heat better than the brass rod.
  - (ii) The aluminium rod conducts heat better than the copper rod.
  - (iii) The glass rod conducts heat better than the copper rod.
  - (iv) The wax on the copper rod melts faster than the wax on the brass rod.
- (1) (i) and(iv)                      (2) (ii) and (iii)                      (3) (ii) and (iii)                      (4) (ii), (iii) and (iv)

**SECTION-C : BIOLOGY**

This section contains **15 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

51. Select an incorrect match

**Minerals**

- (1) Iron
- (2) Calcium
- (3) Iodine
- (4) Phosphorus

**Deficiency diseases**

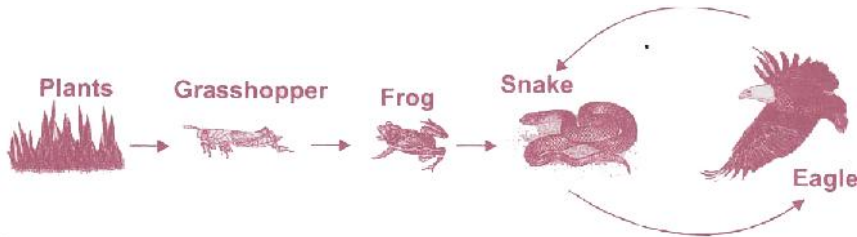
- Anaemia
- Rickets
- Goiter
- Marasmus

52. The food items shown in the figures are sources of mainly



- (1) Fats
- (2) Carbohydrates
- (3) Proteins
- (4) Vitamins

53. Which of the following is a correct match?
- (1) Waste from farms, yards and food courts - Domestic waste
  - (2) Pesticides, pharmaceuticals and heavy metal sludge - Biodegradable waste
  - (3) Peels of fruits and vegetables, tea leaves - organic waste
  - (4) Mineral wastes from mining and rubber waste - kitchen waste
54. A food chain shows a sequence of organisms in a region through which energy from producer gets transferred. In context to the above statement, what is wrongly depicted in the following food chain.



- (1) Snake eating frog
  - (2) Frog eating grasshopper
  - (3) Grasshopper eating plants
  - (4) Snake eating eagle
55. If a seed is inserted upside down into soil, in which direction will its stem and roots grow?

Stem

Roots

- (1) Away from the earth
  - (2) Towards the Earth
  - (3) Towards the Earth
  - (4) Away from the Earth
- (1) Towards the Earth
  - (2) Away from the Earth
  - (3) Towards the Earth
  - (4) Away from the Earth
56. Match column I with column II and select the correct option from the codes given below.

**Column I**

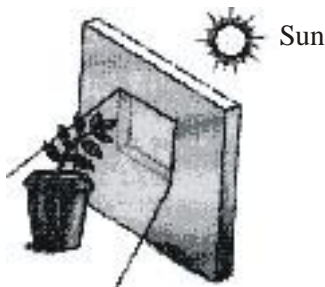
**Column II**

- (a) Ovary
- (b) Filament
- (c) Style
- (d) Ovule
- (e) Anther

- (i) Lowermost swollen part of pistil
- (ii) Slender stalk of the stamen
- (iii) Small bead like structure
- (iv) Knob like structure on the top of stamen
- (v) Elongated tube connecting ovary and stigma

- (1) (a) - (i), (b) - (ii), (c) - (iii), (d), (iv), (e) - (v)
- (2) (a) - (i), (b) - (ii), (c) - (v), (d), (iii), (e) - (iv)
- (3) (a) - (iv), (b) - (v), (c) - (ii), (d), (iii), (e) - (i)
- (4) (a) - (iii), (b) - (v), (c) - (ii), (d), (i), (e) - (iv)

57. The given figure shown an example of



- (1) Phototropism
- (2) Geotropism
- (3) Autotropism
- (4) Photosynthesis



58. Hibernation is an adaptation for  
(1) Preventing loss of water (2) escaping hot weather  
(3) escaping cold weather (4) none of these
59. Which of these are biotic components of the environment ?  
(1) plants and animals (2) soil and minerals  
(3) air and water (4) sunlight and temperature
60. Choose the incorrect pair  
(1) cactus - desert (2) germs - air  
(3) polar bear - polar region (4) yak - water habitat
61. Which of these enable the nutrients present in the bodies of plants and animals to go back to the soil after they die ?  
(1) producers (2) primary consumers  
(3) decomposers (4) secondary consumers
62. Which of the following is respiratory organs present in frog?  
(1) Only lungs (2) Lungs, skin and gills  
(3) Lungs & skin (4) only skin
63. Digestive system has \_\_\_\_\_ muscles  
(1) voluntary (2) Involuntary  
(3) Cardiac (4) All of these
64. The leaf like part of embryo is called  
(1) Plumule (2) Radicle  
(3) Micropyle (4) Cotyledons
65. The leaves are spine like usually in  
(1) Terrestrial plants (2) Aquatic plants  
(3) Epiphytic plants (4) Desert plants

**SECTION-D : MATHEMATICS**

This section contains **15 multiple choice questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

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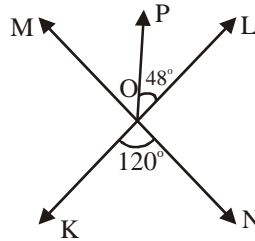
66.  $1,384 + 5,580 + 47,218 =$   
(1) 54,182 (2) 54,178 (3) 51,184 (4) 51,178
67. Farooq has five children. He divides Rs. 2565 equally among his five children. Calculate the amount of money each child would receive.  
(1) Rs. 503 (2) Rs. 513 (3) Rs. 523 (4) Rs. 533

68. In an examination, Jessy's score was 92. Nissi obtained 15 marks less than Jessy. Rishi scored 4 marks more than Nissi. What is the difference between Jessy's and Rishi's scores?
- (1) 11                      (2) 19                      (3) 73                      (4) 77
69. The sum of the prime factors of 63 is
- (1) 4                      (2) 8                      (3) 10                      (4) 14
70. The first three prime numbers that are greater than 50 are
- (1) 51, 53, 57                      (2) 51, 53, 59  
(3) 53, 59, 61                      (4) 53, 61, 67
71. Anu had Rs 150. She gave  $\frac{3}{5}$  of this to Rajani. Rajani gave  $\frac{1}{2}$  of the money she received to Narmada. How much did Narmada receive if she also received  $\frac{1}{2}$  of the money that Anu had left.?
- (1) Rs. 90                      (2) Rs. 80                      (3) Rs. 75                      (4) Rs. 45
72. In a class of 50 students, 15 are girls. 5 of the girls and  $\frac{2}{7}$  of the boys were chosen to represent their class in a game. The total number of students chosen is
- (1) 12                      (2) 15                      (3) 19                      (4) 25
73. The value of  $3\frac{1}{12} - \left[ 1\frac{3}{4} + \left\{ 2\frac{1}{2} - \left( 1\frac{1}{2} - \frac{1}{3} \right) \right\} \right]$  is :
- (1) 0                      (2)  $\frac{1}{2}$                       (3) 1                      (4) 2
74. The average age of 6 students is 11 years. If two more students of age 14 and 16 years old join, their average will become:
- (1) 13 years                      (2) 12 years  
(3)  $12\frac{1}{2}$  years                      (4)  $11\frac{1}{2}$  years
75. A set of points equidistant from a fixed point in a plane figure is called:
- (1) Triangle                      (2) Circle  
(3) Square                      (4) None of these

76. The side of a square tile is 10 cm. How many tiles can be fixed on one side of a wall which is 2.5 m long 2 m high

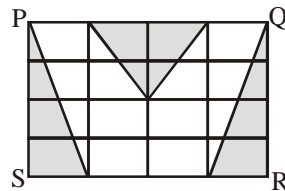
- (1) 400                      (2) 400                      (3) 5000                      (4) 500

77. In the given figure, MON & KOL are straight lines,  $\angle POM =$



- (1)  $72^\circ$                       (2)  $42^\circ$                       (3)  $62^\circ$                       (4)  $32^\circ$

78. In the given diagram, the small rectangles in the rectangle PQRS are identical. What is the ratio of the shaded portions to the unshaded portions ?



- (1) 3:5                      (2) 3:8                      (3) 2:5                      (4) 3:7

79. Which of the following is true ?

- (1)  $120 \div 0 = 0$                       (2)  $120 \div 20 = 12$   
(3)  $0 \times 120 = 0$                       (4)  $120 \times 1 = 121$

80. A lady parked her car on the 6th floor and took a lift up 17 floors to the finance department. She then went down 9 floors to the tax department. On which floor would you find the lady ?

- (1) 14<sup>th</sup>                      (2) 15<sup>th</sup>                      (3) 23<sup>rd</sup>                      (4) 26<sup>th</sup>

**SPACE FOR ROUGH WORK**