

## NCHMCT JEE – SAMPLE PAPER

### NUMERICAL ABILITY / LOGICAL REASONING

Q) A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anticlockwise direction. Find which direction he is facing now ?

- A South-West
- B West
- C South
- D East-South



Q) Sumanth walks 200 feet straight from his house, which is facing north and then he walks 100 feet in reverse direction. Further he takes a left turn and walks 300 yards. In Which direction is Sumanth now from his original position?

- A) South-East
- B) North-East
- C) South-West
- D) North-West

Q) The average weight of 9 mangoes increases by 20 gm if one of them weighing 120 gm is replaced by another. The weight of the new mango is ?

Q) A mixture contains sand and gravel in the ratio of 1:4. The sand has 20% impurity. If total mixture weighs 10 kg, how much impurity is there ? (Considering gravel has no impurity).

44) A bag contains an equal number of 1 rupee, 50 paise & 25 paise coins respectively. If the total value is Rs 35, how many coins of each type are there ?

Q) A & B can do a piece of work in 12 days, B & C can do in 15 days, A & C can do it in 20 days. In how many days will A B & C finish working together and also find the number of days taken by each to finish the work alone ??

Directions: A solid cube of each side 8 cm, has been painted red, blue and black on pairs of opposite faces. It is then cut into cubical blocks of each side 2 cm.

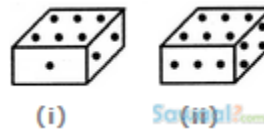
Q) . How many cubes have only three faces painted?

- A) 0
- B) 4
- C) 6
- D) 8

Q) . How many cubes have three faces painted with different colours?

- A) 0
- B) 4
- C) 8
- D) 12

Q) Two positions of a block are shown below: When six is at the bottom, what number will be at the top?



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

Q)

**Statements:**

- i) Some A are B.
- ii) Some B are C.

**Conclusions:**

- i) All A can be C.
- ii) Some C not being B is a possibility.
- iii) All B can be A.
- iv) No A can be B
- v) Some B can be A

Q) A train running at the speed of 60 km/hr crosses a pole in 9 seconds. What is the length of the train?

- A. 120 metres
- B. 180 metres
- C. 324 metres
- D. 150 metres

Q) A boat can travel with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, find the time

taken by the boat to go 68 km downstream.

- A. 2 hours
- B. 3 hours
- C. 4 hours
- D. 5 hours

Q) Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

- A.  $\frac{1}{2}$
- B.  $\frac{2}{5}$
- C.  $\frac{8}{15}$
- D.  $\frac{9}{20}$



- A. 564
- B. 645
- C. 735
- D. 756
- E. None of these

Q) Father is aged three times more than his son Ronit. After 8 years, he would be two and a half times of Ronit's age. After further 8 years, how many times would he be of Ronit's age?

- A. 2 times
- B.  $2\frac{1}{2}$  times
- C.  $2\frac{3}{4}$  times
- D. 3 times

Q) Three pipes A, B and C can fill a tank from empty to full in 30 minutes, 20 minutes, and 10 minutes respectively. When the tank is empty, all the three pipes are opened. A, B and C discharge chemical solutions P, Q and R respectively. What is the proportion of the solution R in the liquid in the tank after 3 minutes?

- A.  $\frac{5}{11}$
- B.  $\frac{6}{11}$
- C.  $\frac{7}{11}$
- D.  $\frac{8}{11}$

Q) A child is looking for his father. He went 90 meters in the east before turning to his right. He went 20 meters before turning to his right again to look for his father at his uncle's place 30 meters from this point. His father was not there. From there, he went 100 meters to his north before meeting his father in a street. How far did the son meet his father from starting point ?

- A. 80 metre
- B. 90 metre
- C. 100 metre
- D. 110 metre

Q) The cube root of .000216 is:

- A. .6
- B. .06
- C. 77
- D. 87

Q) A girl facing north rotates 100(degree) clockwise then 190(degree) anticlockwise. what is new direction of the girl ?

- A) North-East
- B) West
- C) South-East
- D) South

Q) From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done?

Q) The average of 100 observations was calculated as 40. It was found later on that one of the observations

was misread as 83 instead of 53. The correct average is ?

Q) The price of a TV includes manufacturing cost, 10% sales tax & 10% profit. What is the manufacturing cost if the price is 14,400 ? ( Sales tax and profit are to be calculated on manufacturing cost )

Q) A mixture of 729 ml contains milk and water in the ratio 7:2. How much more water is added to get a new mixture containing milk and water in the ratio of 7:3 ?

Q) A alone can do a piece of work in 15 days and B alone can do it in 10 days. B works at it for 5 days and then leaves. A alone can finish the remaining work in ??

Directions: A solid cube of each side 8 cm, has been painted red, blue and black on pairs of opposite faces. It is then cut into cubical blocks of each side 2 cm.

Q. How many cubes have no face painted

- A) 0
- B) 4
- C) 8
- D) 12



Q. How many cubes have only one face painted?

- A) 8
- B) 16
- C) 24
- D) 28

Q) A dice is numbered from 1 to 6 in different ways. If 1 is adjacent to 2, 4 and 6, then which of the following statements is necessarily true?

- |  |  |
|--|--|
| <input type="checkbox"/> A) 2 is opposite to 6 | <input type="checkbox"/> B) 1 is adjacent to 3 |
| <input type="checkbox"/> C) 3 is adjacent to 5 | <input type="checkbox"/> D) 3 is opposite to 5 |

Q) **Statements:**

- i) All A are B.
- ii) All B are C.

**Conclusions:**

- i) All B can be A.
- ii) Some C not being B is a possibility.
- iii) Some C can be B.
- iv) Some A can be C.

Q) A train 125 m long passes a man, running at 5 km/hr

in the same direction in which the train is going, in 10 seconds. The speed of the train is:

- A. 45 km/hr
- B. 50 km/hr
- C. 54 km/hr
- D. 55 km/hr

Q) A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is:

- A. 8.5 km/hr
- B. 9 km/hr
- C. 10 km/hr
- D. 12.5 km/hr

Q) A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that one of the balls drawn is blue?

- A.  $\frac{10}{21}$
- B.  $\frac{11}{21}$
- C.  $\frac{2}{7}$
- D.  $\frac{5}{7}$

Q) Pipes A and B can fill a tank in 5 and 6 hours respectively. Pipe C can empty it in 12 hours. If all the three pipes are opened together, then the tank will be filled in:

- A.  $1\frac{13}{17}$  hours
- B.  $2\frac{8}{11}$  hours
- C.  $3\frac{9}{17}$  hours
- D.  $4\frac{1}{2}$  hours

Q) What should come in place of both x in the equation  $\frac{x}{128} = \frac{162}{x}$ .

- A. 12

B. 14

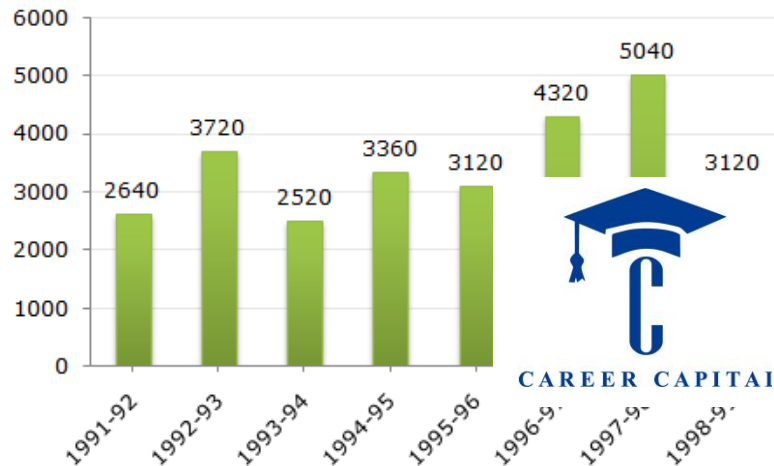
D. 196

C. 144

### Bar Chart

The bar graph given below shows the foreign exchange reserves of a country (in million US \$) from 1991 - 1992 to 1998 - 1999.

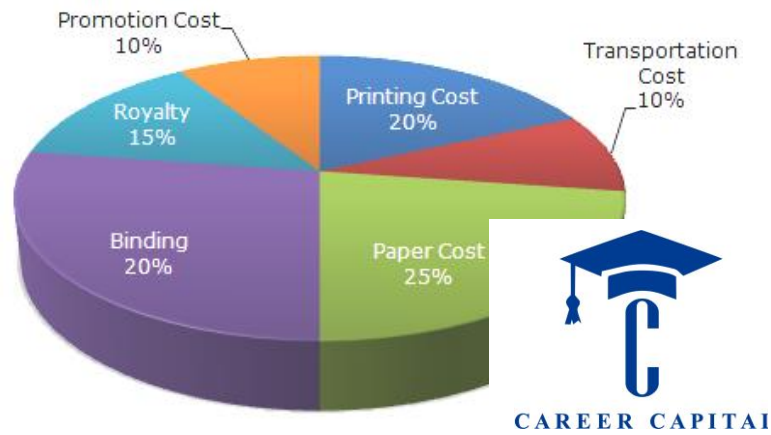
Foreign Exchange Reserves Of a Country. (in million US \$)



- 1) The ratio of the number of years, in which the foreign exchange reserves are above the average reserves, to those in which the reserves are below the average reserves is?
- 2) The foreign exchange reserves in 1997-98 was how many times that in 1994-95?
- 3) For which year, the percent increase of foreign exchange reserves over the previous year, is the highest?
- 4) The foreign exchange reserves in 1996-97 were approximately what percent of the average foreign exchange reserves over the period under review?
- 5) What was the percentage increase in the foreign exchange reserves in 1997-98 over 1993-94?

### PIE CHART

The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.



- 21) If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be amount of royalty to be paid for these books?
- 22) What is the central angle of the sector corresponding to the expenditure incurred on Royalty?
- 23) The price of the book is marked 20% above the C.P. If the marked price of the book is Rs. 180, then what is the cost of the paper used in a single copy of the book?
- 24) If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25%?
- 25) Royalty on the book is less than the printing cost by: