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BBC (Autonomous)

FYUGP (Sem-1)

2024

MATHEMATICS

Paper : SEC-01-B-10-03

Quantitative Aptitude and Reasoning

Full Marks : 30

Time : 1½ hrs

The figures in the margin indicate full marks for the questions

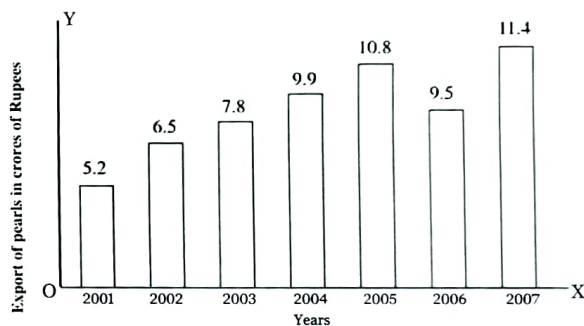
1. Answer the following questions: $1 \times 5 = 5$
- a) A boy buys a pen for ₹ 25 and sells it for ₹ 20. Find his loss percent ?
 - b) Express 10 m/sec in km/hr.
 - c) A boy bought 13 highlighters of ₹ 50 each, 15 pen stands of ₹ 60 each and 12 note pads of ₹ 65 each. Find the average value of each item.
 - d) A woman introduces a man as the son of the brother of her mother. How is a man related to the woman?
 - a) Nephew b) Son
 - c) Cousin d) Uncle
 - e) What is the missing number in the series:
2, 5, 11, ____ 35, 71 ?
 - a) 17 b) 23 c) 29 d) 47
2. Answer **any five** of the following questions : $2 \times 5 = 10$
- a) 24345 and 33334 are divided by a certain number of three digits and the remainder is the same in both the cases. Find the divisor and the remainder.
 - b) The sum of the ages of a mother and her daughter is 50 years. Also 5 years ago the mother's age was 7

Contd.

times the age of the daughter. What are the present ages of the mother and the daughter ?

- c) A boy goes to school at a speed of 3 km/hr and returns to the villages at a speed of 2 km/hr. If he takes 5 hours in all, what is the distance between the village and school ?
 - d) One man adds 3 litres of water in 12 litres of milk and another 4 litres of water to 10 litres of milk. What is the ratio of the strengths of milk in the two mixtures ?
 - e) In a certain code, TEACHER is written as VGCEJGT. How is CHILDREN written in that code ?
 - f) i) $5432.91 \div 2324.65 \times 210.05 = ?$
 g) iv) If $a * b = 2a - 4b + 2ab$, then $3 * 4 + 4 * 3 = ?$
 - h) A bag contains 6 white and 4 black balls. Two balls are drawn at random from the bag. Find the probability that both the balls are of the same color.
 - i) Find the value of x in equation given $8x + 1 - 8x - 1 = 63$
 - j) The ratio of angles of triangle is 2:3:5. Find the smallest angle of the triangle.
3. Answer **any three** of the following questions : $5 \times 3 = 15$
- a) The ratio of the ages of the father and the son at present is 6 : 1. After 5 years, the ratio will become 7 : 2. What is the present age of the son ?
 - b) The compound interest on a certain sum of money for 2 years at 10% per annum, is ₹ 420. Find the simple interest at the same rate and for the same time.

- c) Study the following bar-graph and answer the following questions :



- i) Find the average export of pearls for the given period (in crore)
 - ii) In how many years was the export above average for the given period ?
 - iii) What was the percentage increase in export from 2006 to 2007 ?
 - iv) In which of the following pairs of years was the average export for pearls around ₹ 9 crores ?
 2002 and 2004 and 2003 and 2004
 $1 + 1 + 1 + 2 = 5$
- d) The average of 9 observations is 87. If the average of the first five observations is 79 and the average of the next three is 92. Find the 9th observation.
 - e) To complete a work, a person A takes 10 days and another person B takes 15 days. If they work together, in how much time will they complete the work ?

- f) Study the following table chart and answer the questions based on it. Expenditures of a Company (in Lakh Rupees) per Annum Over the given Years.

Year	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	290	94	3.20	24.8	86
1999	350	120	2.68	36.2	105
2000	325	104	3.72	43.9	72
2001	340	139	3.36	38.6	84
2002	422	148	4.00	50.3	92

- What is the average amount of interest per year which the company had to pay during this period?
- The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period ?
- Total expenditure on all these items in 1998 was approximately what percent of the total expenditure in 2002 ?
