U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations **B**

Programme: B.E. **Semester: VI**
Branch: Artificial Intelligence And Machine Learning **Duration: 3 hrs.**
Course Code: 22AM6HSQAT **Max Marks: 100**
Course: Quantitative Ability Training **Date: 19.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Instructions: Choice questions are from Unit 3 and Unit 5

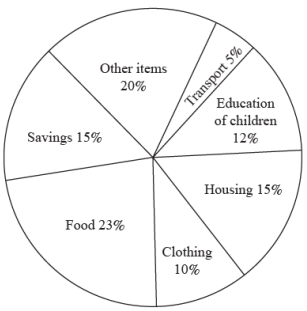
Q. No.	Question				Marks
	UNIT-01				
1.	What is the least value of K so that the number 6735K1 is divisible by 9?				**2**
	a.	5	b.	7	
	c.	4	d.	3	
2.	Find the least values of x and y so that the number 5x423y is divisible by 88.				**2**
	a.	8,2	b.	7,3	
	c.	9,4	d.	6,5	
3.	Find the greatest number of five digits which becomes exactly divisible by 10, 12, 15 and 18 when 3769 is added to it.				**2**
	a.	99811	b.	99911	
	c.	98911	d.	99011	
4.	How many numbers up to 500 are divisible by 23?				**2**
	a.	23	b.	27	
	c.	21	d.	19	
5.	When a certain number is multiplied by 7, the product consists entirely of fives; find the least value of such a number.				**2**
	a.	79365	b.	78365	
	c.	77365	d.	79265	
6.	The H.C.F. and L.C.M. of two numbers are 44 and 264, respectively. If the first number is divided by 2, the quotient is 44. The other number is:				**2**
	a.	33	b.	66	
	c.	132	d.	264	
7.	The largest natural number which exactly divides the product of any four consecutive natural numbers, is:				**2**

	a.	6	b.	12	
	c.	4	d.	120	
8.	Find the least number which must be subtracted from 9269 so that resulting number is exactly divisible by 73?				**2**
	a.	17	b.	57	
	c.	71	d.	63	
9.	Three numbers are in the ratio 4:5:6 and their average is 25. The largest number is:				**2**
	a.	42	b.	36	
	c.	30	d.	32	
10.	When a certain number is multiplied by 7, the product consists entirely of fives; find the least value of such a number.				**2**
	a.	79365	b.	78365	
	c.	77365	d.	79265	
UNIT-02					
11.	When x is added to each term of 7:13, the ratio becomes 2:3. The value of x is:				**2**
	a.	7	b.	11	
	c.	5	d.	None of these	
12.	A cistern is normally filled in 8 hours, but it takes 2 hours longer to fill because of a leak at its bottom. If the cistern is full, the leak will empty it in:				**2**
	a.	35 hours	b.	45 hours	
	c.	40 hours	d.	None of these	
13.	One fill pipe A is 3 times faster than second fill pipe B and takes 32 minutes less than the fill pipe B. When will the cistern be full if both the pipes are opened together?				**2**
	a.	28 minutes	b.	24 minutes	
	c.	30 minutes	d.	Data inadequate	
14.	A cistern is normally filled in 8 hours, but it takes 2 hours longer to fill because of a leak at its bottom. If the cistern is full, the leak will empty it in:				**2**
	a.	35 hours	b.	45 hours	
	c.	40 hours	d.	None of these	
15.	In a cricket team of 11 boys, one player weighing 42 Kg is injured and replaced by another player. If the average weight of the team is increased by 100 gm as a result of this, then what is the weight of the new player?				**2**
	a.	42.1 Kg	b.	45.1 Kg	
	c.	44.1 Kg	d.	43.1 Kg	
16.	The ratio of boys and girls in a school is 9:5. If the total number of students in the school is 1050, then the number of boys is:				**2**
	a.	785	b.	890	
	c.	675	d.	None of these	
17.	Two inlet pipes can fill a cistern in 10 and 12 hours respectively and an outlet pipe can empty 80 gallons of water per hour. All the three pipes working together can fill the empty cistern in 20 hours. What is the capacity (in gallons) of the tank?				**2**

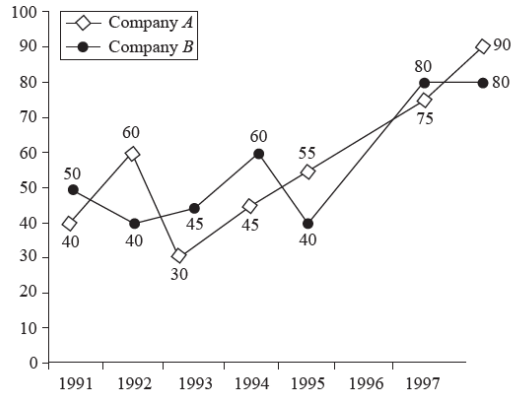
	a.	360	b.	300	
	c.	600	d.	900	
18.	The daily maximum temperature in Delhi, for 7 consecutive days in May 1988, were 42.7°C, 44.6°C, 42.0°C, 39.1°C, 43.0°C, 42.5°C and 38.5°C. Find out the average daily maximum temperature.				**2**
	a.	42.63° C	b.	45.65° C	
	c.	41.77° C	d.	39.60° C	
19.	The average of 7 numbers is 5. If the average of first six of these numbers is 4, the seventh number is:				**2**
	a.	14	b.	12	
	c.	11	d.	15	
20.	Out of three numbers, the first is twice the second and is half of the third. If the average of the three numbers is 56, the three numbers in order are:				**2**
	a.	48, 96, 24	b.	48, 24, 96	
	c.	96, 24, 48	d.	96, 48, 24	
	UNIT-3				
21.	A man can row 30 Km upstream and 44 Km downstream in 10 hours. Also, he can row 40 Km upstream and 55 Km downstream in 13 hours. Find the rate of the current and the speed of the man in still water.				**2**
	a.	3 Km/h, 8 Km/h	b.	3·5 Km/h, 7·5 Km/h	
	c.	4 Km/h, 7 Km/h	d.	4·5 Km/h, 6·5 Km/h	
22.	15 years hence, Rohit will be just four times as old as he was 15 years ago. How old is Rohit at present?				**2**
	a.	20	b.	25	
	c.	30	d.	35	
23.	5 years ago Mr Sohanlal was thrice as old as his son and 10 years hence he will be twice as old as his son. Mr Sohanlal's present age (in years) is:				**2**
	a.	35	b.	45	
	c.	50	d.	55	
24.	3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today? What is the age of the child?				**2**
	a.	3 years	b.	5 years	
	c.	2 years	d.	1 year	
25.	Eighteen years ago, the ratio of A's age to B's age was 8:13. Their present ratio's are 5:7. What is the present age of A?				**2**
	a.	70 years	b.	50 years	
	c.	40 years	d.	60 years	
26.	A train travels 92.4 Km/h. How many metres will it travel in 10 minutes?				**2**
	a.	14500 m	b.	115400 m	
	c.	15200 m	d.	None of these	

27.	On a tour, a man travels at the rate of 64 Km an hour for the first 160 Km, then travels the next 160 Km at the rate of 80 Km an hour. The average speed in Km per hour for the first 320 Km of the tour is:				**2**
	a.	81.13 Km/h	b.	173.11Km/h	
	c.	71.11 Km/h	d.	None of these	
28.	Two men A and B walk from P to Q at a distance of 21 Km at rates 3 and 4 Km an hour, respectively. B reaches Q and returns immediately and meets A at R. The distance from P to R is:				**2**
	a.	52.54 Km/h	b.	47.74 Km/h	
	c.	49.78 Km/h	d.	None of these	
29.	The speed of a boat in still water is 8 Km/h. If its speed downstream be 15 Km/h, then speed of the stream is:				**2**
	a.	7.5 Km/h	b.	7 Km/h	
	c.	9 Km/h	d.	None of these	
30.	Twice the speed downstream is equal to the thrice the speed upstream, the ratio of speed in still water to the speed of the current is:				**2**
	a.	1:5	b.	5:1	
	c.	1:3	d.	2:3	
	OR				
31.	A boat travels upstream from B to A and downstream from A to B in 3 hrs. If the speed of the boat in still water is 9 Km/h and the speed of the current is 3 Km/h, the distance between A and B is:				**2**
	a.	8 Km	b.	16 Km	
	c.	12 Km	d.	None of these	
32.	A train speeds past a pole in 15 seconds and speeds past a 100 metres long platform in 25 seconds. Its length in metres is:				**2**
	a.	200	b.	150	
	c.	50	d.	Data inadequate	
33.	A car driver leaves Bangalore at 8:30 am and expects to reach a place 300 Km from Bangalore at 12:30 pm. At 10:30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?				**2**
	a.	45 Km/h	b.	40 Km/h	
	c.	35 Km/h	d.	30 Km/h	
34.	A 180-meter-long train crosses another 270-meter long train running from the opposite direction in 10.8 seconds. If the speed of the first train is 60 Km/h, what is the speed of the second train in Km/h?				**2**
	a.	80	b.	90	
	c.	150	d.	Cannot be determined	
35.	A train 50 m long passes a platform 100 m long in 10 seconds. The speed of the train in m/s is:				**2**
	a.	25 seconds	b.	15 seconds	
	c.	35 seconds	d.	None of these	

36.	Two men start together to walk a certain distance, one at 4 Km/h and another at 3 Km/h. The former arrives half an hour before the latter. Find out the distance.				**2**
	a.	6 Km	b.	9 Km	
	c.	8 Km	d.	None of these	
37.	Speed of a man is 10 Km/h in still water. If the rate of current is 3 Km/h, then the effective speed of the man upstream is:				**2**
	a.	7 Km/h	b.	8.5 Km/h	
	c.	9 Km/h	d.	None of these	
38.	A train 300 metres long is running at a speed of 90 Km/h. How many seconds will it take cross a 200 metres long train running in the opposite direction at a speed of 60 Km/h?				**2**
	a.	60 Km/h	b.	45 Km/h	
	c.	50 Km/h	d.	55 Km/h	
39.	Two trains of equal length are running on parallel lines in the same direction at the rate of 46 Km/h and 36 Km/h. The faster train passes the slower train in 36 seconds. The length of each train is:				**2**
	a.	50 m	b.	72 m	
	c.	80 m	d.	82 m	
40.	Two trains, 130 m and 110 m long, while going in the same direction, the faster train takes one minute to pass the other completely. If they are moving in opposite direction, they pass each other completely in 3 seconds. Find the speed of each train.				**2**
	a.	42 m/s 38 m/s	b.	38 m/s 36 m/s	
	c.	36 m/s 42 m/s	d.	None of these	
	UNIT-04				
41.	Find how many words can be formed out of the letters of the word 'ORIENTAL' so that vowels always occupy the odd places.				**2**
	a.	576	b.	578	
	c.	676	d.	None of these	
42.	In a single throw of 2 dice, find the probability of getting a total of 8.				**2**
	a.	5/36	b.	1/18	
	c.	1/12	d.	31/36	
43.	How many different necklaces can be formed with 6 white and 5 red beads?				**2**
	a.	18	b.	24	
	c.	21	d.	27	
44.	The perimeter of a right-angled triangle is 90 cm and its hypotenuse is 39 cm. Find its other sides.				**2**
	a.	30 cm, 10 cm	b.	36 cm, 15 cm	
	c.	48 cm, 20 cm	d.	None of these	
45.	The number of different 6-digit numbers that are divisible by 10, which can be formed using the digits 1, 2, 7, 0, 9, 5?				**2**
	a.	100	b.	120	
	c.	140	d.	160	

46.	Find how many words can be formed out of the letters of the word 'ORIENTAL' so that vowels always occupy the odd places.				**2**
	a.	(a) 576	b.	578	
	c.	676	d.	None of these	
47.	How many different words can be formed with the letters of the word 'BHARAT'? In how many of these B and H are never together?				**2**
	a.	240, 180	b.	360, 240	
	c.	320, 200	d.	380, 260	
48.	In how many ways can 5 sportsmen be selected from a group of 10?				**2**
	a.	275	b.	282	
	c.	252	d.	242	
49.	The students in a class are seated according to their marks in the previous examination. Once, it so happens that four of the students got equal marks and therefore the same rank. To decide their seating arrangement, the teacher wants to write down all possible arrangements one in each of separate bits of paper in order to choose one of these by lots. How many bits of paper are required?				**2**
	a.	24	b.	12	
	c.	48	d.	36	
50.	Each section in the first year of plus 2 course has exactly 40 students. If there are 5 sections, in how many ways can a set of 4 student representatives be selected, 1 from each section?				**2**
	a.	2560000	b.	246500	
	c.	2240000	d.	2360000	
	UNIT - 05				
51.	Directions: The pie-chart drawn below shows the expenses of a family on various items and its savings during the year 2001. Study the graph and answer the questions given below: **Percentage of Money Spent on Various Items and Savings by a Family during 2001**  Answer the questions from Q.51 to Q.55 If the total income of the family was Rs.100000, how much money was spent on the education of children?				**2**
	a.	Rs.10000	b.	Rs.12000	
	c.	Rs.15000	d.	Rs.23000	
52.	The total savings of the family for the year were equal to the expenditure on:k				**2**
	a.	Food	b.	Clothing	

	c.	Housing	d.	Other items including transport	
53.	What per cent of the income was spent on transport and other items together?				**2**
	a.	25%	b.	20%	
	c.	30%	d.	32%	
54.	Maximum expenditure of the family was on				**2**
	a.	Food	b.	Housing	
	c.	Education of Children	d.	Other items	
55.	If the total income for the year was Rs.100000, the difference of the expenses (in rupees) between housing and transport was:				**2**
	a.	15000	b.	12000	
	c.	7000	d.	10000	
56.	India got independence on August 15, 1947. What was the day of the week?				**2**
	a.	Monday	b.	Friday	
	c.	Thursday	d.	Sunday	
57.	The watch which gains uniformly is 2 minutes. slow at noon on Sunday and is 4 minutes. 48 seconds. fast at 2 pm on the following Sunday. The watch was correct at:				**2**
	a.	2 pm on Tuesday	b.	12 noon on Monday	
	c.	1:30 pm on Tuesday	d.	12:45 pm on Monday	
58.	On what date of August, 1988 did Friday fall?				**2**
	a.	5	b.	4	
	c.	14	d.	17	
59.	Number of times 29th day of the month occurs in 400 consecutive years is:				**2**
	a.	4497	b.	4800	
	c.	4400 (d) None of these	d.	None of these	
60.	If the hands of a clock coincide in every 65 minutes (true time), in 24 hours the clock will gain:				**2**
	a.	10 10/143 minutes	b.	9 12/143minutes	
	c.	11 12/143minutes	d.	12 10/143minutes	
	OR				
61.	In the year 1996, the Republic Day was celebrated on Friday. On which day was the Independence Day celebrated in the year 2000?				**2**
	a.	a) Tuesday (b) Monday	b.	a) Tuesday (b) Monday	
	c.	(c) Friday (d) Saturday	d.	(c) Friday (d) Saturday	
62.	India got independence on August 15, 1947. What was the day of the week?				**2**
	a.	Monday	b.	Friday	
	c.	Thursday	d.	Sunday	
63.	A girl was born on September 6, 1970 which happened to be a Sunday. Her birthday would have fallen again on Sunday in:				**2**
	a.	1975	b.	1977	
	c.	1981	d.	1982	

<table>
<tr><td rowspan="3">64.</td><td colspan="4">If John celebrated his victory day on Tuesday, January 5, 1965, when will he celebrate his next victory day on the same day?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>January 5, 1970</td><td>b.</td><td>January 5, 1971</td></tr>
<tr><td>c.</td><td>January 5, 1973</td><td>d.</td><td>January 5, 1974</td></tr>
<tr><td rowspan="3">65.</td><td colspan="4">Calendar for 2000 will serve for also:</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>2003</td><td>b.</td><td>2006</td></tr>
<tr><td>c.</td><td>2007</td><td>d.</td><td>2005</td></tr>
<tr><td rowspan="3">66.</td><td colspan="4">Directions: Study the following graph carefully and answer the questions given below it.
Per cent profit earned by two companies A and B over the years 1991 to 1997
 

Answer the question from Q. 66 to Q. 70
Income of company ‘A’ in 1995 is equal to the investment of the company ‘B’ in 1996. What is the ratio of the investment of company ‘A’ in 1995 to the investment of company ‘B’ in 1996?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>31:36</td><td>b.</td><td>31:20</td></tr>
<tr><td>c.</td><td>20:31</td><td>d.</td><td>None of these</td></tr>
<tr><td rowspan="3">67.</td><td colspan="4">Investment of company ‘B’ in 1993 was Rs.1540000. What was its income in that year?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>Rs.23.33 Lakhs</td><td>b.</td><td>Rs.22.33 Lakhs</td></tr>
<tr><td>c.</td><td>Rs.22.23 Lakhs</td><td>d.</td><td>None of these</td></tr>
<tr><td rowspan="3">68.</td><td colspan="4">Investment of company ‘B’ in 1997 is more by 40% than that in the previous year.
Income in 1997 was what per cent of the investment in 1996?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>280%</td><td>b.</td><td>252%</td></tr>
<tr><td>c.</td><td>242%</td><td>d.</td><td>None of these</td></tr>
<tr><td rowspan="3">69.</td><td colspan="4">Average investment of company ‘A’ over the years was Rs.26 Lakhs. What was its average income over the years?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>Rs.40.56 Lakhs</td><td>b.</td><td>Rs.41.60 Lakhs</td></tr>
<tr><td>c.</td><td>Rs.50.26 Lakhs</td><td>d.</td><td>Data inadequate</td></tr>
<tr><td rowspan="3">70.</td><td colspan="4">Income of company ‘A’ in 1995 was Rs.21.7 Lakh. What was the investment?</td><td rowspan="3">2</td></tr>
<tr><td>a.</td><td>Rs.14.5 Lakhs</td><td>b.</td><td>Rs.15.4 Lakhs</td></tr>
<tr><td>c.</td><td>Rs.15.8 Lakhs</td><td>d.</td><td>None of these</td></tr>
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