

Practice Questions from Previous Years' Papers

MARCH 2023

Direction (Q1-5): The following table presents data about academic performance of students showing pass percentage (%) and ratio of male of female among passed and failed students of six different colleges A-F in a city.

Based on the data in the table, answer the questions.

College-wise Academic Performance of Students

College	Pass percentage	Ratio of Male to Female in pass students	Ratio of Male to Female in fail students
A	40%	12:13	12:5
B	55%	5:3	11:14
C	70%	7:5	5:3
D	45%	4:1	7:3
E	50%	2:1	1:2
F	37.50%	3:2	2:1

- If the number of students who have passed from B and C are equal, then what is the ratio between the number of failed students from B and C respectively?
 - 13:23
 - 23:13
 - 11:21
 - 21:11
- If the ratio of students in B and C is 2:3, then what is the ratio between the number of males who passed from B and number of females who failed from C?
 - 2:1
 - 1:2
 - 55:27
 - 27:55

- Find the ratio of number of male to female students in College D?
 - 149:51
 - 51:149
 - 3:1
 - 1:3
- What is the pass percentage of male students in College A?
 - $17\frac{1}{4}\%$
 - 20%
 - $19\frac{1}{5}\%$
 - $20\frac{4}{5}\%$
- If the number of male students who have passed from D and F are equal, then what is the ratio of number of students in D and F respectively?
 - 8:5
 - 3:8
 - 8:3
 - 5:8

Direction (Q6-10): Consider the following table that shows the budget allocation (in crore) for education in three States P, Q and R during five years from 2018-2022.

Based on the data in the table, answer the questions:

Year-wise Budget Allocation

Year	Budget Allocation (in R crore)		
	State P	State Q	State R
2018	200	270	330
2019	250	314	374
2020	264	296	344
2021	410	346	384
2022	430	364	440

- Approximately, what percent is the average budget of State Q to that of the average budget of State P from the year 2018 to 2022?

- (a) 118% (b) 85%
(c) 98% (d) 102%
7. In 2022, State Q allocated 35% of the budget for girls. In 2023, this budget allocation for girls was proposed to be increased by 35% of the allocation for girls in 2022. With no other change, what is the percent increase in budget allocation for 2023 with reference to 2022?
(a) 35% (b) 12.95%
(c) 75% (d) 15.85%
8. In 2021, State P spent three-fourth of the allocated budget for boys. From this amount, money spent on school education and higher education of boys was in the ratio 20:21. How much money was spent on higher education of boys?
(a) 120 Crore (b) 157.5 Crore
(c) 126 Crore (d) 84.6 Crore
9. There is an increase in the budget allocation of State R in 2023 to the tune of 13% of the average budget allocation from 2019 to 2022. Find the increase / decrease in the allocation for the year 2023 from 2022.
(a) Decrease by Rs 4.385 Crore
(b) Increase by Rs 4.385 Crore
(c) Decrease by Rs 8.464 Crore
(d) Increase by Rs 8.464 Crore
10. What is the average budget of State R for the years 2018-2022?
(a) 370.4 Crore (b) 310.8 Crore
(c) 374.4 Crore (d) 318.2 Crore

Direction (Q11-15): Based on the data in the table, answer the five questions that follow:

The following table shows the population (in lakhs) of the cities P, Q and R over the seven years from 2014 to 2020.

Based on the data in the table, answer the five questions that follow:

Year-wise Population of Cities

Year	Population of City (in Lakhs)		
	P	Q	R
2014	40	20	50
2015	45	30	40
2016	60	50	60
2017	50	55	70
2018	70	60	80

2019	65	70	90
2020	80	75	100

11. What is the approximate average population of City-P for all the given years?
(a) 65 Lakhs (b) 59 Lakhs
(c) 52 Lakhs (d) 54 Lakhs
12. What is the ratio of the total population of City-P for the years 2014, 2015 and 2016 together to the total population of City-R for the years 2018, 2019 and 2020 together?
(a) 31:54 (b) 29:53
(c) 27:53 (d) 29:54
13. What is the percentage rise in population of City-R from the year 2016 to 2017?
(a) 8.34% (b) 10.00%
(c) 16.67% (d) 21.45%
14. What is the difference in the total population of City-R and the total population of City-Q for all seven years?
(a) 130 Lakhs (b) 80 Lakhs
(c) 110 Lakhs (d) 85 Lakhs
15. For which city and in which year, the percent rise in population from the previous year was the highest?
(a) City-Q and year - 2016
(b) City-P and year - 2018
(c) City-R and year 2016
(d) City-P and year 2020

Direction (Q16-20): Consider the following table that presents the details about the percentage distribution of household expenditure of a family on various budget heads during the years 2020 and 2021. The total income of the family in the years 2020 and 2021 was ₹ 50000 and ₹ 75000, respectively.

Based on the data in the table, answer the five questions that follow:

Budget Head-wise Distribution of Expenditure

Year → Budget Head ↓	2020	2021
Entertainment	11%	9%
Health	5%	6%
Clothing	25%	25%
Food	19%	21%
Travel	34%	24%
Others	6%	15%

16. What was the total amount spent on food in 2020?
 (a) ₹ 9000
 (b) ₹ 9500
 (c) ₹ 10000
 (d) ₹ 10500
17. For which of the following budget heads did the family spend more amount of money in 2021 than they spent in 2020?
 A. Health
 B. Clothing
 C. Travel
 Choose the correct answers from the options given below:
 (a) A Only (b) B Only
 (c) A & B Only (d) A, B and C
18. What is the increase in the amount of money spent on the health budget head from 2020 to 2021?
 (a) ₹ 1500 (b) ₹ 2000
 (c) ₹ 2500 (d) ₹ 1750
19. What is the ratio of total amount spent on Travel by the family in 2020 to that in 2021?
 (a) 16:17 (b) 18:17
 (c) 17:18 (d) 17:16
20. What is the difference in the amount of money spent on Entertainment and Food together during the years 2020 and 2021?
 (a) ₹ 6500 (b) ₹ 7000
 (c) ₹ 7500 (d) ₹ 8000
21. What percentage of candidates passed the exam from Institute F, out of the total number of candidates enrolled in F?
 (a) 50% (b) 62.5%
 (c) 75% (d) 80%
22. Which Institute has the highest percentage of candidates who passed the exam in comparison to the candidates enrolled?
 (a) C (b) D
 (c) G (d) F
23. The number of candidates who passed the exam from E and B together exceeds the number of candidates enrolled from F and D together by:
 (a) 456 (b) 558
 (c) 798 (d) 81
24. What is the percentage of candidates who have passed the exam from C and D together in comparison to the total number of candidates enrolled in the same two Institutes?
 (a) 68% (b) 80%
 (c) 74% (d) 65%
25. What is the ratio of candidates who passed from Institute B to the candidates enrolled in the same Institute?
 (a) 9:11 (b) 14:17
 (c) 6:11 (d) 9:17

Direction (Q26-30): Based on the data in the table, answer the five questions that follow:

Consider the following table that shows the percentage distribution of cars and the ratio between diesel and petrol engine cars in four different States (A-D).

The total number of cars in all four States is 1400

State-wise Distribution of Cars

State	Percentage Distribution of Cars	Ratio
		Diesel Engine Cars: Petrol Engine Cars
A	14%	3:4
B	28%	5:9
C	32%	5:3
D	26%	1:1

26. What is the difference between the number of diesel engine cars in State 'B' and the number of petrol engine cars in State 'D'?
 (a) 24 (b) 42
 (c) 56 (d) 68

Direction (Q21-25): Based on the data in the table, answer the five questions that follow.

The following table presents the percentage (9%) distribution of candidates who were enrolled for Ph.D. entrance exam and the candidates who passed the exam from seven different Institutes A - G. Total number of candidates enrolled were 17100 and candidates who passed the exam were 11400.

Institute-wise Percentage (%) Distribution of Candidates

Candidates → Institute ↓	Enrolled (%) (out of 17100)	Passed (%) (out of 11400)
A	16%	12%
B	22%	18%
C	15%	17%
D	10%	13%
E	17%	16%
F	8%	9%
G	12%	15%

27. Number of petrol engine cars in State 'C' is what percent more than the number of diesel engine cars in State 'A'?
- (a) 100% (b) 125%
(c) 200% (d) 120%
28. If 25% of diesel engine cars in State 'C' are Air-Conditioned (AC), then what is the number of diesel engine cars which are non-AC in State 'C'?
- (a) 150 (b) 90
(c) 190 (d) 210
29. What is the difference between the total number of cars in State 'C' and the number of petrol engine cars in state 'B'?
- (a) 212 (b) 224
(c) 204 (d) 196
30. What is the sum of petrol engine cars in all the states together?
- (a) 710 (b) 712
(c) 714 (d) 716

Direction (Q31-35): The following table shows the percentage of students (Boys and Girls) who have successfully completed their respective academic programmes, namely, B.A., B.Sc., B.Com, B.B.A., B.C.A. and B.Tech in a college.

Based on the data in the table, answer the questions.

Programme-wise Percentage of Successful Students

Programme	Boys	Girls
B.A.	80%	60%
B.Sc.	80%	70%
B.Com.	40%	60%
B.B.A.	90%	60%
B.C.A.	70%	80%
B.Tech.	70%	60%

31. If the number of boys and girls successfully completing the B.A. programme are same, then what is the ratio between the number of boys to the number of girls in B.A. programme?
- (a) 4:3 (b) 5:3
(c) 4:9 (d) 3:4
32. In B.Com, programme, 44% of the total students passed. If total number of boys in the B.Com is 200, then what is the total number of girls in B.Com?
- (a) 50 (b) 52
(c) 66 (d) 60
33. If the total number of boys and girls in each programme is 150 and 120, respectively, then what is the approximate overall pass percentage of the college?
- (a) 64% (b) 69%
(c) 72% (d) 54%
34. In B.Com, programme, 44% of the total students passed. If total number of boys in the B.Com is 200, then what is the total number of girls in B.Com?
- (a) 50 (b) 52
(c) 66 (d) 60
35. If the total number of boys and girls in each programme is 150 and 120, respectively, then what is the approximate overall pass percentage of the college?
- (a) 64% (b) 69%
(c) 72% (d) 54%
36. If the ratio between the number of boys to the number of girls in B.C.A. programme is 4:1, then what is the ratio between the number of boys who have successfully completed B.C.A. to the number of girls who have successfully completed B.C.A.?
- (a) 9:4 (b) 9:5
(c) 6:7 (d) 7:2

Direction (Q37-41): Consider the following table that embodies details about the percentage distribution of population of five states A-E on the basis of poverty line and gender.

In accordance with the data in the table, answer the questions:

State-wise Distribution of Population

State	Percentage (%) of Population @ Below Poverty Line	Proportion of Males (M) and Females (F)	
		Below Poverty Line M:F	Above Poverty Line M:F
A	35	5:6	6:7
B	25	3:5	4:5
C	24	1:2	2:3
D	19	3:2	5:3
E	15	5:3	3:2

37. What will be the number of females above poverty line in the state 'D', if it is known that the population of the state 'D' is 8 million?
- (a) 3 million (b) 2.83 million
(c) 2.63 million (d) 2.43 million
38. If the male population above poverty line for state 'C' is 1.9 million, then what is the total population of state 'C'?
- (a) 6.25 million (b) 5.35 million

- (c) 4.85 million (d) 4.5 million
39. What will be the male population above poverty line for state 'A' if the female population below poverty line for state 'A' is 2.1 million?
 (a) 2.3 million (b) 3.3 million
 (c) 4.4 million (d) 6.6 million
40. If the population of males below poverty line for state 'B' is 2.4 million and that for state 'E' is 6 million, the total population of states 'B' and 'E' is in the ratio of
 (a) 2:5 (b) 2:7
 (c) 3:7 (d) 4:9
41. If the total population of state 'C' and state 'D' is 5 million and 7 million, respectively, then what is the difference in the population below poverty line in these two states?
 (a) 0.30 million (b) 0.23 million
 (c) 0.13 million (d) 0.11 million

Direction (Q42-46): Based on the data in the table, answer the five questions that follow

The following table presents the details about the number of candidates who appeared in an entrance exam and percentage (%) of candidates who qualified the exam from two states P and Q during the years 2017-2021. Some values are missing in the table, and have to be computed, if required

Year-wise Distribution of Candidates in an Entrance Exam

Year	State P		State Q	
	Appeared	Qualified	Appeared	Qualified
2017	1800	60%	1520	30%
2018	2400	43%	-	40%
2019	-	60%	1040	60%
2020	1920	70%	800	70%
2021	1520	-	1320	-

42. In the context of number of qualified candidates from State P in 2019, if the ratio of qualified male to qualified female candidates is 7:5 and difference between qualified male and qualified female candidates is 204, then what is the number of candidates who appeared in the exam?
 (a) 2040 (b) 1760
 (c) 1700 (d) 1800
43. Let A and B represent the number of candidates appearing and qualifying from State Q in 2018 respectively. Let C and D represent the number of candidates appearing and qualifying from State

Q in 2021 respectively. If A is $33\frac{1}{3}\%$ more than C and B: D = 11: 12, then what is B + D?

- (a) 1090 (b) 1472
 (c) 1320 (d) 1136
44. What is the ratio of candidates qualifying from P in 2017, 2018 and 2020 together to the candidates qualifying from Q in 2017, 2019 and 2020 together?
 (a) 432: 331 (b) 423: 205
 (c) 432: 205 (d) 200: 343
45. Number of candidates who have qualified from P in 2017 is what per cent more or less than the number of candidates who have qualified from Q in 2020?
 (a) $70\frac{2}{3}\%$ (b) $66\frac{2}{3}\%$
 (c) $92\frac{6}{7}\%$ (d) $88\frac{1}{3}\%$
46. If from state P, the total number of candidates who qualified in 2020 and 2021 together is 2712, then what percent of candidates remain unqualified from state P in 2021?
 (a) 10% (b) 5%
 (c) 89% (d) 15%

Direction (Q47-51): The following table shows the percentage (%) of colleges offering the four IT courses on Python, Java, Multimedia and AI in four Indian States A-D, in a certain year. The table also presents the percentage-wise distribution of the number of colleges in the four states. The total number of colleges in the four states is 4000. Based on the data in the table, answer the questions 1-5.

State-wise Percentage of Colleges offering IT Courses

State	% of Colleges offering				% Distribution of Number of Colleges
	Python	Java	Multi-media	AI	
A	86%	74%	59%	56%	35%
B	80%	92%	82%	84%	15%
C	74%	88%	84%	86%	20%
D	68%	64%	68%	70%	30%

47. The number of colleges offering the Python course is more than 460 in
 (a) All the four states
 (b) Only three states
 (c) Only two states
 (d) Only one state

48. The total number of Colleges offering AI in all the four states is
 (a) 2784 (b) 2816
 (c) 2864 (d) 2952
49. If M and N represent the total number of Colleges offering Python and Java, respectively, in all the four states, then $M - N =$
 (a) 64 (b) 96
 (c) 48 (d) 32
50. Ratio of the number of Colleges offering Multimedia in State C to that of State D is
 (a) 2:3 (b) 11:13
 (c) 14:17 (d) 13:16
51. Number of Colleges offering Java in State B is _____% of the number of Colleges offering AI in State C.
 (a) -78.15 (b) -80.23
 (c) -82.25 (d) -84.52

Direction (Q52-56): Study the given table carefully and answer the questions that follow.

Number (N) of candidates (in lakhs) appearing for a University Entrance examination from four different states (A, B, C, D) and the percentage (P) of candidates clearing the same over the years are provided in the table below

State	A		B		C		D	
Year	N	P(%)	N	P(%)	N	P(%)	N	P(%)
2016	2.31	32	1.64	42	2.60	46	3.3	29
2017	2.02	44	1.72	41	2.45	36	3.1	32
2018	1.98	39	2.02	37	2.20	33	2.9	31
2019	1.85	28	2.10	43	2.50	42	2.7	34
2020	2.20	33	1.90	46	2.55	30	3.0	35

52. Find out the total number of students who have cleared the entrance exam from 2016 to 2020 in State A
 (a) 355460 (b) 364420
 (c) 360890 (d) 358660
53. Find out the average number of students who qualified in 2020 (from all states).
 (a) 84550 (b) 86770
 (c) 85375 (d) 84580
54. Find out the difference between the total number of students who qualified in 2017 and the total number of students who qualified in 2018 (from all states):
 (a) 31750 (b) 31880
 (c) 32220 (d) 32340
55. In which year did the highest number of candidates clear the entrance exam from State B?
 (a) 2019 (b) 2020
 (c) 2016 (d) 2018
56. Find out the average number of non-qualified candidates in 2019 (from all states).
 A. 135320 B. 144025
 C. 137270 D. 139870

Direction (Q57-60): The following table shows the percentage (%) distribution of the total population of six cities A-F and the percentage (%) of adult population among them. The population of city A is 257400

City-Wise Distribution of Population

City	(%) Distribution of Population	(%) Adult
A	23.4%	77%
B	21.6%	68%
C	8.4%	73%
D	18.9%	75%
E	17.5%	69%
F	10.2%	72%

57. Adult population of City C is
 (a) 67452 (b) 68264
 (c) 66266 (d) 69268
58. Non-adult population of City F is
 (a) 33448 (b) 32040
 (c) 30102 (d) 31416
59. Population of City D is approximately more than the population of City E
 (a) 8% (b) 10%
 (c) 14% (d) 16%
60. Adult population of City B and City C together as a percentage of the population of all six cities together is, approximately
 (a) 18% (b) 21%
 (c) 25% (d) 27%

Direction (Q61-65): The following table shows the percentage (%) distribution of production of bicycles of two different models (L and M) by the six companies A-F, ratio of production of model L to that of M, and the percent (%) profit earned on these two models. Production cost of the six companies together is ₹ 6.4 crore.

Company-wise Bicycle Production and Profit

Company	% Distribution of Production of Bicycles	Production Ratio		% Profit	
		L	M	L	M
A	20%	13	7	25%	32%
B	14%	9	5	28%	30%
C	22%	6	5	20%	24%
D	13%	6	7	35%	25%
E	10%	2	3	24%	21%
F	21%	11	10	30%	20%

61. Profit earned by Company A on model L (in ₹ crore) is
 (a) 0.244 (b) 0.224
 (c) 0.208 (d) 0.248
62. Profit earned by Companies B and C together on Model M (in ₹ crore) is
 (a) 0.2496 (b) 0.2488
 (c) 0.2466 (d) 0.2844
63. The ratio of the cost of production of model L by Company D to that of model M by Company F is
 (a) 4:5 (b) 3:5
 (c) 5:7 (d) 1:2
64. The difference between the profits earned by Company C on model L and by Company E on model M (in ₹ crore) is
 (a) 0.7296 (b) 7.296
 (c) 0.03648 (d) 0.07296
65. The ratio of the profit earned on model L by Company B to that of model M by Company D is
 (a) 36:25 (b) 6:5
 (c) 7:8 (d) 123:97

Direction (Q66-70): The following table shows the percentage (%) distribution of five different types of Cars (A-E) produced by a Company during two

consecutive years 2019 and 2020. The total number of Cars produced was 4,50,000 in the year 2019 and 5,20,000 in the year 2020.

Based on the data in the table, answer questions 2-6:

Year-wise Percentage Distribution of Production of Cars

Year	Type of Car Produced (in %)				
	A	B	C	D	E
2019	15%	25%	30%	10%	20%
2020	10%	30%	25%	25%	10%

66. What was the difference in the production of the number of Type-C cars between 2019 and 2020?
 (a) 5000 (b) 7500
 (c) 8500 (d) 2500
67. If 85% of Type-E cars produced during 2019 and 2020 together are sold by the Company, then how many Type-E cars are left unsold by the company?
 (a) 21825 (b) 29100
 (c) 25200 (d) 21300
68. If the number of Type-A cars manufactured in 2020 was the same as that of 2019. Then what would have been its approximate percentage share in the total production of 2020?
 (a) 11% (b) 13%
 (c) 15% (d) 9%
69. What is the ratio of number of Type-C cars produced in 2019 to the number of Type-D cars produced in 2020?
 (a) 29:27 (b) 23:22
 (c) 27:26 (d) 27:23
70. If the percentage production of Type-B cars in 2020 was the same as that of 2019, then what would have been the number of Type-B cars produced in 2020?
 (a) 112500 (b) 120000
 (c) 130000 (d) 185000

71. Study the given table carefully and answer the question given below

Train Number	Source Station	Destination Station	Distance (km)	Speed (km/h)	Fair per Person (₹)	Total Seats	Reserved Seats
1001	A	P	1200	130	3000	680	400
1002	B	0	1080	160	3600	870	550
1003	C	R	1280	155	2800	650	350
1004	D	S	1250	130	2900	980	620
1005	E	T	1180	125	3200	780	520

Which train has a minimum per km cost?

- (a) 1001 (b) 003 (c) 1004 (d) 1005

Direction (Q72-76): The following table presents the percentage (%) distribution of production of various models of Laptop (A-F) manufactured by a company over two consecutive years in 2019 and 2020. The total number of Laptops produced in 2019 was 35 lakh and in 2020, it was 44 lakhs. Based on the data in the table, answer the questions:

Year-wise Percentage Distribution of Production of Laptops

Year	Laptop Model (in %)					
	A	B	C	D	E	F
2019	30%	15%	20%	10%	15%	10%
2020	40%	20%	15%	10%	10%	5%

72. Total number of Laptops of models A, B and E produced in 2019 was:
- (a) 24.50 lakh (b) 22.75 lakh
(c) 21.00 lakh (d) 19.25 lakh
73. What is the ratio of number of Model-F Laptops produced in 2019 to the number of Model-C Laptops produced in 2020?
- (a) 33:59 (b) 35:66
(c) 37:61 (d) 31:65
74. What was the difference in the number of Model-B Laptops produced in 2019 and 2020?
- (a) 3.55 lakh (b) 2.70 lakh
(c) 2.25 lakh (d) 1.75 lakh
75. If the percentage production of Model-A Laptops in 2020 was same as that in 2019, then the number of Model-A Laptops produced in 2020 would have been:
- (a) 14.0 Lakh (b) 13.2 Lakh
(c) 11.7 Lakh (d) 10.5 Lakh
76. If 90% of the Model-D Laptops produced in each year were sold by the company, then how many Model-D Laptops remained unsold?
- (a) 76500 (b) 93500
(c) 79000 (d) 87000

Direction (Q77-81): The following table shows the percentage (%) break-up of the employees working in six different universities A, B, C, D, E, and F. The total number of employees in these six Universities is also given in the table.

Based on the data in the table answer the questions:

University-wise Distribution of Employees

University	Total Number of Employees	Percentage		
		Males	Fe-males	Trans-genders
A	2400	50%	37.5%	12.5%
B	4375	40%	36%	24%
C	2625	24%	56%	20%
D	6000	35%	25%	40%
E	4250	38%	30%	32%
F	1360	45%	40%	15%

77. The number of transgender is more than 500 in
- (a) All the six universities
(b) Only three universities
(c) Only two universities
(d) Only four universities
78. If M and N represent the numbers of females working in Universities B and E together, and the number of males working in universities C and F together respectively then $M - N =$
- (a) 1608 (b) 1512
(c) 1414 (d) 1710
79. The total number of transgenders working in all six universities is approximately _____% of the total number of females working in all six universities.
- (a) 80 (b) 82
(c) 78 (d) 88
80. The number of females working in university F is _____% more than the number of transgenders working in the University A
- (a) 20 (b) 44
(c) $81\frac{1}{3}$ (d) 180
81. The ratio of the number of males working in university D to the number of females working in university C is
- (a) 7:10 (b) 10:7
(c) 7:5 (d) 5:7

Direction (Q82-86): The following table presents the details about the percentage (%) distribution of teachers and the number of male teachers in six different cities (A-F). There is a total of 4500 teachers in all six cities together.

Based on the data in the table, answer questions:

City-wise Distribution of Teachers

City↓	Percentage of (%) Teachers	Number of Male Teachers
A	14%	200
B	16%	400
C	28%	600
D	15%	100
E	21%	500
F	06%	100

82. What are the total number of male teachers in City-F, female teachers in City-C, and female teachers in City-B together?
 (a) 1080 (b) 1120
 (c) 1180 (d) 1020
83. The number of female teachers in City-D is approximately what percent of the total number of teachers in City-A?
 (a) 75 (b) 81
 (c) 95 (d) 91
84. In which city is the number of male teachers more than the number of female teachers?
 (a) B only (b) D only
 (c) Both B and E (d) Both E and F
85. What is the difference between the total number of teachers in City-E and the number of female teachers in City-F?
 (a) 625 (b) 775
 (c) 675 (d) 725
86. What is the ratio of the number of male teachers in City-C to the number of female teachers in City-B?
 (a) 11:15 (b) 15:11
 (c) 15:8 (d) 8:5

Direction (Q87-91): The following table shows the number of students admitted (A) and left (L) from the five different colleges (P-T) during the years 2016-2021. Year of foundation of all the five colleges is 2016. Based on the data in the table answer the questions:

Year-wise Distribution of Students										
Col-lege	P		Q		R		S		T	
	A	L	A	L	A	L	A	L	A	L
2016	2250	-	2100	-	2400	-	3200	-	3100	-
2017	660	440	900	500	840	460	880	500	700	450

2018	580	420	650	430	800	500	800	520	760	460
2019	690	400	570	420	720	450	790	440	820	440
2020	760	500	600	380	680	480	840	450	880	420
2021	700	460	680	440	820	560	920	480	850	430

87. The average number of students studying in all five colleges (P-T) in the year 2018 is
 (a) 3168 (b) 3178
 (c) 3148 (d) 3388
88. The number of students studying in College Q till 2020 is
 (a) 3110 (b) 2890
 (c) 3090 (d) 3290
89. The number of students leaving is approximately _____% of the number of students taking admission in College Q from the year 2016 to 2021.
 (a) 37 (d) 43
 (c) 39 (d) 41
90. If M and N represent the number of students admitted in college S and Q from 2017 to 2021 respectively, then M-N =
 (a) 830 (b) 790
 (c) 870 (d) 770
91. The percentage increase in the number of students studying in 2021 to that in 2016 is the maximum for the college
 (a) S (b) P
 (c) T (d) R

Direction (Q92-96): The following table shows the percentage (%) distribution of the number of students qualifying an Entrance Exam from seven schools A-G in the years 2020 and 2021. The number of students qualifying from School G in 2020 and 2021 is 90 and 135, respectively.

Based on the data in the table, answer questions:

School-wise Distribution of Qualified Students

School	Distribution (%) of Qualified students	
	2020	2021
A	21%	23%
B	14%	8%
C	16%	11%
D	10%	14%
E	18%	16%
F	9%	13%
G	12%	15%

92. The ratio of the number of students qualifying from Schools B, C, and D in 2020 to that of Schools E, F and G in 2021 is
 (a) 2:3 (b) 51:75
 (c) 3:2 (d) 25:33
93. If P and Q are the average number of students qualifying from Schools B, C and D in 2020 and from Schools E, F and G in 2021, respectively, then Q - P is
 (a) 32 (b) 35
 (c) 38 (d) 41
94. Number of student qualifying from Schools E and G together in 2020 is _____% of the number of students qualifying from School B in 2021.
 (a) 188.5 (b) 247.5
 (c) 342.5 (d) 312.5
95. The percent rise in the number of students qualifying from School D from 2020 to 2021 is
 (a) 60% (b) 63%
 (c) 68% (d) 72%
96. The percentage of the number of students qualifying from Schools A-G together in 2021 with reference to 2020 is
 (a) 140% (b) 120%
 (c) 135% (d) 112%

Direction (Q97-101): Consider the following table which shows the total number of seats in each college in brackets and the number of students admitted to different streams in a particular year.

Based on the data in the table answer question:

College \ Stream	College W	College X	College Y	College Z
	(500)	(500)	(1000)	(1000)
Science	100	150	350	300
Art	100	100	300	350
Engineering	50	50	150	150
Medical	150	50	50	100

97. What is the percentage of students admitted to the Medical stream among the total number of admissions of the college?
 (a) 13 (b) 15
 (c) 14 (d) 16
98. What is the ratio of students admitted to the science stream and engineering stream?
 (a) 9:4 (b) 7:4
 (c) 11:5 (d) 9:5
99. What is the average number of Arts students admitted to each college?
 (a) ~ 214 (b) ~ 212
 (c) ~ 215 (d) ~ 217
100. In which stream the number of admitted students is highest?
 (a) Medical (b) Science
 (c) Arts (d) Engineering
101. What is the percentage of vacant seats?
 (a) 17.66 (b) 15.66
 (c) 14.22 (d) 16.67

Direction (Q102-106): Study the given table carefully and answer the questions that follow:

The given table has the number of candidates who appeared and qualified for an university entrance examination (in thousands) in 5 different years. (A-Appeared, Q-Qualified).

Year	BSc		BA		MSc		MA	
	A	Q	A	Q	A	Q	A	Q
2016	3.4	1.2	6.4	2.3	2.8	1.3	4.8	2.4
2017	3.6	1.8	6.6	2.5	2.4	1.1	4.7	2.3
2018	4.2	2.1	7.2	2.8	2.2	1.2	4.6	2.5
2019	4.8	2.3	6.8	2.6	2.5	1.2	4.9	2.7
2020	3.8	1.9	7.4	3.2	2.6	1.3	5.2	3.2

102. What is the average the difference between a total number of candidates who appeared and the qualified candidates for the stream B.Sc. for 2016-2020?
 (a) 2100 (b) 2120
 (c) 2135 (d) 2125
103. For which year, the difference between non-Qualified candidates of B.Sc. and B.A. is minimum?
 (a) 2016 (b) 2017
 (c) 2018 (d) 2019
104. Find out the difference between the average of qualified candidates (2016-2020) for M.Sc. and the average of qualified candidates (2016-2020) for MA?
 (a) 1350 (b) 1375
 (c) 1400 (d) 1425
105. Find out the difference between the total number of students who qualified for graduate-level examination (B.Sc + B.A.) and post-graduate level (M.Sc + MA) examination during 2016-2020.
 (a) 3400 (b) 3500
 (c) 3600 (d) 3700

ANSWERS AND SOLUTIONS

1. (d) Take the LCM of 55 and 70 = 770
Let 770 be the total number of students passed from B and C respectively.

770 from college B represents 55% of the total no. of students.

$$\text{So total no. of students in College B} = 770 \times \frac{100}{55} = 1400$$

770 from college C represents 70% of the total no. of students.

$$\text{So total no. of students in College C} = 770 \times \frac{100}{70} = 1100$$

Now, the no. of failed students from:

$$\text{College B} = 1400 \times \frac{45}{100} = 630$$

$$\text{College C} = 1100 \times \frac{30}{100} = 330$$

$$\text{Ratio} = 630 : 330 = \mathbf{21 : 11}$$

Hence, Option (d) is correct.

2. (c) Ratio between the number of males who passed from B and number of females who failed from C

$$= \left[2 \times \frac{55}{100} \times \frac{5}{8} \right] : \left[3 \times \frac{30}{100} \times \frac{3}{8} \right]$$

$$= \frac{11}{16} : \frac{27}{50}$$

$$= 55 : 27$$

Hence, Option (c) is correct.

3. (a) Ratio of number of male to female students in College D

$$= \left[\left(\frac{4}{5} \times 45 \right) + \left(\frac{7}{10} \times 55 \right) \right] : \left[\left(\frac{1}{5} \times 45 \right) + \left(\frac{3}{10} \times 55 \right) \right]$$

$$= 36 + \frac{77}{2} : 9 + \frac{33}{2}$$

$$= \mathbf{149 : 51}$$

Hence, Option (a) is correct.

4. (c)

Pass percentage of male students in College A =

$$\left(40\% \times \frac{12}{25} \right) \% = 19.2\% = 19\frac{1}{5}\%$$

Hence, Option (c) is correct.

5. (a) Ratio of pass students of F = 3:2

Given, no. of male students passed from D = no. of male students passed from F

$$\text{Male students passed from D} = 4:1 = 12:3$$

$$\text{Male students passed from F} = 3:2 = 12:8$$

$$\text{Ratio of students in D and F} = \left[\frac{12}{15} \times 45 \right] : \left[\frac{12}{20} \times 37.5 \right]$$

$$= \left[\frac{12}{15} \times 45 \right] : \left[\frac{12}{20} \times 37.5 \right]$$

$$= 36 : 22.5 = 360:225 = 8:5$$

Hence, Option (a) is correct.

6. (d) Average budget of State Q = $\frac{1590}{5} = 318$

$$\text{Average budget of State P} = \frac{1554}{5} = 310.8$$

$$\text{Percentage} = \left(\frac{318}{310.8} \right) \times 100 = 102\%$$

Hence, Option (d) is correct.

7. (a) Budget allocation for girls in 2022 for State Q

$$= \frac{364 \times 35}{100} = 127.4$$

Expected budget allocation for girls in 2023 for state Q = $127.4 + (127.4 \times 35\%) = 172$ (approx.)

$$\% \text{ increase in budget allocation} = \left[\frac{(172 - 127.4)}{127.4} \right] \times 100 = 35\%$$

Hence, Option (a) is correct.

8. (b) In 2021, State P spent three-fourth of the allocated budget for boys.

$$\text{ie, } \frac{3}{4} \times 410 = 307.5$$

From this amount, money spent on school education and higher education of boys was in the ratio 20 : 21.

Money was spent on higher education of boys =

$$\frac{307.5 \times 21}{41}$$

$$= 157.5 \text{ Crore}$$

Hence, Option (b) is correct.

9. (a) There is an increase in the budget allocation of State R in 2023 to the tune of 13% of the average budget allocation from 2019 to 2022.

$$\text{Average budget allocation from 2019 to 2022} = \frac{1542}{4} = 385.5$$

$$\text{Increase in budget allocation of 13\%} = 385.5 \times \frac{13}{100}$$

$$= 435.615$$

$$\text{Allocation of State R in 2022} = 440$$

$$\text{Allocation of State R in 2023} = 435.615$$

There is a Decrease by Rs 4.385 Crore.

Thus, Option (a) is correct.

10. (c) Average budget of State R for the years 2018-2022 = $\frac{1872}{5} = 374.4$
Thus, Option (c) is correct.
11. (b)
Approximate average population of City-P
= $\frac{(40 + 45 + 60 + 50 + 70 + 65 + 80)}{7} = \frac{410}{7}$
= 58.5 ~ **59 lakhs**
Hence, Option (b) is correct.
12. (d) Total population of City-P for the years 2014, 2015 and 2016 = 40 + 45 + 60 = 145
Total population of City-R for the years 2018, 2019 and 2020 = 80 + 90 + 100 = 270
Ratio = 145 : 270 = **29 : 54**
Hence, Option (d) is correct.
13. (c) Percentage rise in population of City-R from the year 2016 to 2017 = $\frac{(70 - 60)}{60} \times 100 = 16.67\%$
Hence, Option (c) is correct.
14. (a) Total population of City-R = 50 + 40 + 60 + 70 + 80 + 90 + 100 = 490
Total population of City-Q = 20 + 30 + 50 + 55 + 60 + 70 + 75 = 360
Difference = 490 - 360 = **130 lakhs**
Hence, Option (a) is correct.
15. (a) To reduce the calculations, workout the years given in the options.
City Q:
PY population (2015) = 30
Population in 2016 = 50
% rise = $\frac{(50 - 30)}{30} \times 100 = 66.67\%$
City P
PY population (2017) = 50
Population in 2018 = 70
% rise = $\frac{(70 - 50)}{50} \times 100 = 40\%$
City R
PY population (2015) = 40
Population in 2016 = 60
% rise = $\frac{(60 - 40)}{40} \times 100 = 50\%$
City P
PY population (2019) = 65
Population in 2020 = 80
% rise = $\frac{(80 - 65)}{65} \times 100 = 23.08\%$
The highest is for City Q (Year 2016)
Thus, Option (a) is correct.
16. (b) The total income of the family in 2020 = 50,000
Total amount spent on food in 2020 = 19% of 50,000 = 9,500
Hence, Option (b) is correct.
17. (d) **On health-**
Total Amount Spent on Health in 2020 = 5% of 50,000 = 2500
Total Amount Spent on Health in 2021 = 6% of 75,000 = 4500
The family spend more amount of money in 2021 than they spent in 2020 for Health.
On Clothing-
Total Amount Spent on Clothing in 2020 = 25% of 50,000 = 12500
Total Amount Spent on Clothing in 2021 = 25% of 75,000 = 18750
The family spend more amount of money in 2021 than they spent in 2020 for Clothing.
On Travel-
Total Amount Spent on Travel in 2020 = 34% of 50,000 = 17000
Total Amount Spent on Travel in 2021 = 24% of 75,000 = 18000
The family spend more amount of money in 2021 than they spent in 2020 for Travel.
Thus, Option (d) is correct.
18. (b) Total Amount Spent on Health in 2020 = 5% of 50,000 = 2500
Total Amount Spent on Health in 2021 = 6% of 75,000 = 4500
Increase in the amount of money spent on the health budget head from 2020 to 2021 is 2000.
Hence, Option (b) is correct.
19. (c) Total Amount Spent on Travel in 2020 = 34% of 50,000 = 17000
Total Amount Spent on Travel in 2021 = 24% of 75,000 = 18000
The ratio of total amount spent on Travel by the family in 2020 to that in 2021 is 17 : 18
Hence, Option (c) is correct.
20. (c) Total Amount Spent on Entertainment in 2020 = 11% of 50,000 = 5500
Total Amount Spent on Food in 2020 = 19% of 50,000 = 9500
Total of Amount spent on Food & Entertainment in 2020 = 15000
Total Amount Spent on Entertainment in 2021 = 9% of 75,000 = 6750
Total Amount Spent on Food in 2021 = 21% of 75,000 = 15750

Total of Amount spent on Food & Entertainment in 2021 = 22500

Difference in the amount of money spent on Entertainment and Food together during the years 2020 and 2021 = 22500 - 15000 = 7500

Hence, Option (c) is correct.

21. (c) Total number of students enrolled in F = 8% of 17100
= 1368

Total number of students passed from F = 9% of 11400 = 1026

The required percentage = $\frac{1368}{1026} \times 100 = 75\%$

Hence, Option (c) is correct.

22. (b) **Institute A**

Total enrolled = 16% of 17100 = 2736

Total passed = 12% of 11400 = 1368

Required percentage = $\frac{1368}{2736} \times 100 = 50\%$

Institute B

Total enrolled = 22% of 17100 = 3762

Total passed = 18% of 11400 = 2052

Percentage = $\frac{2052}{3762} = 54.5\%$

Institute C

Total enrolled = 15% of 17100 = 2565

Total passed = 17% of 11400 = 1938

Percentage = 75.5%

Institute D

Total enrolled = 10% of 17100 = 1710

Total passed = 13% of 11400 = 1482

Percentage = 86.67%

Institute E

Total enrolled = 17% of 17100 = 2907

Total passed = 16% of 11400 = 1824

Percentage 62.7%

Institute F

Total enrolled = 8% of 17100 = 1368

Total passed = 9% of 11400 = 1026

Difference = 75%

Institute G

Total enrolled = 12% of 17100 = 2052

Total passed = 15% of 11400 = 1710

Percentage = 83.3%

We can clearly see that institute D has the highest percentage of candidates who passed the exam in comparison to the candidates enrolled.

Hence, Option (b) is correct.

23. (c) **Institute B**

Total enrolled = 22% of 17100 = 3762

Total passed = 18% of 11400 = 2052

Institute D

Total enrolled = 10% of 17100 = 1710

Total passed = 13% of 11400 = 1833

Institute E

Total enrolled = 17% of 17100 = 2907

Total passed = 16% of 11400 = 1824

Institute F

Total enrolled = 8% of 17100 = 1368

Total passed = 9% of 11400 = 1026

Candidates passed from E + B = 1824 + 2052 = 3876

Candidates enrolled from F + D = 1368 + 1710 = 3078

Difference = 3876 - 3078 = 798

Hence, Option (c) is correct.

24. (b) **Institute C**

Total enrolled = 15% of 17100 = 2565

Total passed = 17% of 11400 = 1938

Percentage = 75.5%

Institute D

Total enrolled = 10% of 17100 = 1710

Total passed = 13% of 11400 = 1482

Percentage = 86.67%

Total candidates passed from C + D = 3420

Total candidates enrolled from C + D = 4275

Percentage = $\frac{3420}{4275} \times 100 = 80\%$

Hence, Option (b) is correct.

25. (c) Candidates who passed from B = 18% of 11400 = 2052

Enrolled = 22% of 17100 = 3762

Ratio = $\frac{2052}{3762}$

When divided by 342 a common factor = $\frac{6}{11}$

Ratio = 6:11

Hence, Option (c) is correct.

26. (b) Number of cars in State 'B' = 28% of 1400 = 392

Number of diesel engine cars in State 'B' = $\frac{5}{14} \times 392 = 140$

Number of cars in State 'D' = 26% of 1400 = 364

Number of petrol engine cars in State 'D' = $\frac{1}{12} \times 364 = 182$

Difference = 182 - 140 = 42

Hence, Option (b) is correct.

27. (a) Number of cars in State 'C' = 32% of 1400 = 448

Number of petrol engine cars in State 'C' = $\frac{3}{8} \times 448 = 168$

Number of cars in State 'A' = 14% of 1400 = 196

Number of diesel engine cars in State 'A' = $\frac{3}{7} \times 196 = 84$

Percentage More = $\left(\frac{\text{Difference}}{\text{Base}}\right) \times 100$
 $= \left(\frac{84}{196}\right) \times 100 = 42.86\%$

Hence, Option (a) is correct.

28. (d) Number of cars in State 'C' = 32% of 1400 = 448

Number of diesel engine cars in State 'C' = $\frac{5}{8} \times 448 = 280$

25% of diesel engine cars in State 'C' are Air-Conditioned (AC).

So, 25% of 280 = 70 Cars are Air-Conditioned.

Number of diesel engine cars that are non-AC in State 'C' = 280 - 70

= 210

Hence, Option (d) is correct.

29. (d) Number of cars in State 'C' = 32% of 1400 = 448

Number of petrol engine cars in State 'B' = $\frac{9}{14} \times 448 = 252$

Difference = 448 - 252 = 196

Hence, Option (d) is correct.

30. (c) Number of cars in State 'A' = 14% of 1400 = 196

Number of petrol engine cars in State 'A' = $\frac{4}{7} \times 196 = 112$

Number of cars in State 'B' = 28% of 1400 = 392

Number of petrol engine cars in State 'B' = $\frac{9}{14} \times 392 = 252$

Number of cars in State 'C' = 32% of 1400 = 448

Number of petrol engine cars in State 'C' = $\frac{3}{8} \times 448 = 168$

Number of cars in State 'D' = 26% of 1400 = 364

Number of petrol engine cars in State 'D' = $\frac{1}{2} \times 364 = 182$

Sum of petrol engine cars in all the states together = 112 + 252 + 168 + 182 = 714

Hence, Option (c) is correct.

31. (d) Let us suppose that the number of girls successfully completing BA program are x and girls are y.

From the given information;

$$x = y$$

$$80x = 60y$$

$$x/y = \frac{60}{80}$$

$$x:y = 3:4$$

Hence, Option (d) is correct.

32. (a) We know that 40% of boys passed and there are 200 boys, so the number of boys who passed is $0.4 \times 200 = 80$.

Similarly, we know that 60% of girls passed, but we don't know the total number of girls yet, so let's call the total number of girls "x".

Then, the number of girls who passed is $0.6 \times x = 0.6x$.

The total number of students who passed = the number of boys who passed + the number of girls who passed = $80 + 0.6x$.

We also know that this is equal to 44% of the total number of students, so we can set up an equation: $80 + 0.6x = 0.44(\text{Total})$

$$\text{Total} = \frac{(80 + 0.6x)}{0.44}$$

Now we need to find x, the total number of girls. We know that the total number of students is the sum of the number of boys and girls, or Total = 200 + x. We can substitute this into the equation for the Total that we just found:

$$200 + x = \frac{(80 + 0.6x)}{0.44}$$

Multiplying both sides by 0.44, the equation will be, $88 + 0.44x = 80 + 0.6x$

Subtracting 0.44x from both sides, the equation will be, $88 = 80 + 0.16x$

$$\text{So, } x = \frac{(88 - 80)}{.16} = 50$$

Therefore, there are a total of 50 girls in B.com.

Hence, Option (a) is correct.

33. (b) Total number of boys in each program = 150

Total number of girls in each program = 120

In B.A.-

Passed boys = 80% of 150 = 120

Passed girls = 60% of 120 = 72

In B.Sc.-

Passed boys = 80% of 150 = 120

Passed girls = 70% of 120 = 84

In B.Com.-

Passed boys = 40% of 150 = 60

Passed girls = 60% of 120 = 72

In BBA

Passed boys = 90% of 150 = 135

Passed girls = 60% of 120 = 72

In B.C.A.-

Passed boys = 70% of 150 = 105

Passed girls = 80% of 120 = 96

In B.tech

Passed boys = 70% of 150 = 105

Passed girls = 60% of 120 = 72

Total number of boys in all programs = 900

Total number of girls in all programs = 720

Total students in all programs = 1620

Total number of Passed students = (120 + 72 + 120 + 84 + 60 + 72 + 135 + 72 + 105 + 96 + 105 + 72)
= 1113

Total pass percentage = $\frac{1113}{1620} \times 100 = 68.703 \sim 69\%$.

Hence, Option (b) is correct.

34. (a) We know that 40% of boys passed and there are 200 boys, so the number of boys who passed is $0.4 \times 200 = 80$.

Similarly, we know that 60% of girls passed, but we don't know the total number of girls yet, so let's call the total number of girls "x".

Then, the number of girls who passed is $0.6 \times x = 0.6x$.

The total number of students who passed = the number of boys who passed + the number of girls who passed = $80 + 0.6x$.

We also know that this is equal to 44% of the total number of students, so we can set up an equation:
 $80 + 0.6x = 0.44$ (Total)

$$\text{Total} = \frac{(80 + 0.6x)}{0.44}$$

Now we need to find x, the total number of girls.

We know that the total number of students is the sum of the number of boys and girls, or $\text{Total} = 200 + x$. We can substitute this into the equation for the Total that we just found:

$$200 + x = \frac{(80 + 0.6x)}{0.44}$$

Multiplying both sides by 0.44, the equation will be, $88 + 0.44x = 80 + 0.6x$

Subtracting $0.44x$ from both sides, the equation will be, $88 = 80 + 0.16x$

$$\text{So, } x = \frac{(88 - 80)}{.16} = 50$$

Therefore, there are a total of 50 girls in Bcom.

Hence, Option (a) is correct.

35. (b) Total number of boys in each program = 150
Total number of girls in each program = 120
In B.A.-
Passed boys = 80% of 150 = 120

Passed girls = 60% of 120 = 72

In B.Sc.-

Passed boys = 80% of 150 = 120

Passed girls = 70% of 120 = 84

In B.Com.-

Passed boys = 40% of 150 = 60

Passed girls = 60% of 120 = 72

In BBA

Passed boys = 90% of 150 = 135

Passed girls = 60% of 120 = 72

In B.C.A.-

Passed boys = 70% of 150 = 105

Passed girls = 80% of 120 = 96

In B.tech

Passed boys = 70% of 150 = 105

Passed girls = 60% of 120 = 72

Total number of boys in all programs = 900

Total number of girls in all programs = 720

Total students in all programs = 1620

Total number of Passed students = (120 + 72 + 120 + 84 + 60 + 72 + 135 + 72 + 105 + 96 + 105 + 72)
= 1113

Total pass percentage = $\frac{1113}{1620} \times 100 = 68.703 \sim 69\%$.

Hence, Option (b) is correct.

36. (d) The given ratio of Boys to girls = 4 : 1

Let us suppose the total number of students who successfully completed BCA = 100

So, the number of boys = $100 \times \frac{4}{5} = 80$

Number of girls = $100 \times \frac{1}{5} = 20$

Number of boys qualified for BCA = $80 \times \frac{70}{100} = 56$

Number of girls qualified for BCA = $20 \times \frac{80}{100} = 16$

Required ratio = $\frac{56}{16} = 7 : 2$

Hence, Option (d) is correct.

37. (d) Number of populations of the state 'D' is 8 million
Number of populations below poverty line = 19% of 8 million
= 1.52 million
Number of populations above poverty line = 8 million - 1.52 million
= 6.48 million

Number of females above poverty line =
 $6.48 \text{ million} \times \frac{3}{8}$
 = 2.43 million

Hence, Option (d) is correct.

38. (a) Percentage of population that is above the poverty line in city C = $100\% - 24\% = 76\%$

The ratio of the male: female population that are above the poverty line in city C = 2:3

So, let the total population of the city C be X

Thus, the fraction of males that are above the poverty line is $\frac{2}{5}$

Given, the male population is 1.9 million

Hence,

$$X \times \frac{76}{100} \times \frac{2}{5} = 1.9$$

$$X = 6.25 \text{ million}$$

Therefore, the total population of City C is 6.25 million

Hence, Option (a) is correct.

39. (b) Percentage of population below the poverty line for state A = 35%

The ratio of males: females below the poverty line for state A = 5:6

$$\text{Fraction of females comes to} = \frac{6}{11}$$

It is given that the female population below the poverty line for state A is 2.1 million

Let, the total population for state A be X

$$= X \times \frac{35}{100} \times \frac{6}{11} = 2.1$$

$$X = 11 \text{ million}$$

Thus, the total population comes to 11 million for state A

In state A, the population's proportion of those living above the poverty line is now $100\% - 35\% = 65\%$

Therefore, number of populations above the poverty line for state A = 65% of 11 million = 7.15 million

The ratio of males: females above the poverty line for state A = 6:7

$$\text{Fraction of males} = \frac{6}{13}$$

Number of males above the poverty line for the state A = $\frac{6}{13} \times 7.15 \text{ million} = 3.3 \text{ million}$

Thus, there are 3.3 million males that are above the poverty line for the state A

Hence, Option (b) is correct.

40. (a) Male population below the poverty line is 2.4 million

Let there be X million females who live below the poverty line.

$$\text{Then, } 3 : 5 = 2.4 : X$$

$$X = 5 \times \frac{2.4}{3} = 4$$

Thus, the total population below the poverty line = $2.4 + 4 = 6.4 \text{ million}$.

If Y be the total population of state Q, then

$$25\% \text{ of } Y = 6.4 \text{ million}$$

$$Y = \frac{(6.4 \times 100)}{25} = 25.6 \text{ million}$$

For state T,

Male population below the poverty line = 6 million

Let the female population below the poverty line be Z million

$$\text{Then, } 5 : 3 = 6 : Z$$

$$Z = \frac{3 \times 6}{5} = 3.6$$

So, the total population of state T = $6 + 3.6 = 9.6 \text{ million}$

If Q be the total population of state T, then,

$$15\% \text{ of } Q = 9.6 \text{ million}$$

$$Q = \frac{(9.6 \times 100)}{15} = 64 \text{ million}$$

$$\text{Thus, the required ratio} = \frac{Y}{Q} = \frac{25.6}{64} = \frac{2}{5}$$

Hence, Option (a) is correct.

41. (c) Total population of state 'C' 5 million

Total population of state 'D' is 7 million

Total population below the poverty line in state C is 24% of 5 million = 1.2 million

Total population below the poverty line in state D is 19% of 7 million = 1.33 million

Therefore, the difference in the population below poverty line in state C and D is:

$$\text{State D} - \text{State C}$$

$$1.33 \text{ million} - 1.2 \text{ million}$$

$$= 0.13 \text{ million}$$

Hence, Option (c) is correct.

42. (a) Qualified candidates from State P in 2019, Qualified Male : Female = 7 : 5 ; So let Qualified Male be 7x & Qualified Female be 5x

$$\text{Qualified Male} - \text{Qualified Female} = 204$$

$$7x - 5x = 204 \Rightarrow x = 102$$

$$\text{Qualified Male} = 7 \times 102 = 714$$

$$\text{Qualified Female} = 5 \times 102 = 510$$

$$\text{Total Qualified candidates from State P in 2019} = 1224$$

1224 is the qualified candidates, which is 60% of the appeared candidates.

So total appeared candidates = $1224 \times \frac{100}{60} = 2040$
Hence, Option (a) is correct.

43. (b) A = No. of candidates appearing from State Q in 2018 = ?

B = No. of candidates qualifying from State Q in 2018 = 40%

C = No. of candidates appearing from State Q in 2021 = 1320

D = No. of candidates qualifying from State Q in 2021 = ?

If A is $33\frac{1}{3}\%$ more than C ie, A is $33\frac{1}{3}\%$ more than 1320, we get A is 1760 ($1320 \times \frac{1}{3} + 1320$)

Since A is 1760, B is 40% of 1760 = 704

B : D = 11 : 12

704 : D = 11 : 12 ; Solving for D, we get, D = 768

B + D = 704 + 768 = 1472

Hence, Option (b) is correct.

44. (c) Qualified from P in 2017 = 1080

Qualified from P in 2018 = 1032

Qualified from P in 2020 = 1344

Total Qualified from P in 2017, 2018 and 2020 = 3456

Qualified from Q in 2017 = 456

Qualified from Q in 2019 = 624

Qualified from Q in 2020 = 560

Total Qualified from Q in 2017, 2019 and 2020 = 1640

Ratio = 3456 : 1640 = > 432 : 205

Hence, Option (c) is correct.

45. (c) Qualified from P in 2017 = 1080

Qualified from Q in 2020 = 560

Difference = 520

Percentage = $\left(\frac{520}{560}\right) \times 100 = 92.85\%$ which is equal to $92\frac{6}{7}\%$.

Hence, Option (c) is correct.

46. (a) Candidates appearing from State P in 2020 = 1920

Candidates qualified from State P in 2020 = 1920 $\times 70\% = 1344$

Candidates appearing from State P in 2021 = 1520

Candidates qualified from State P in 2021 = ?

If from state P, the total number of candidates who qualified in 2020 and 2021 together is 2712, Candidates qualified from State P in 2021 = 2712 - 1344 = 1368

Candidates remain unqualified from state P in 2021 = 1520 - 1368 = 152 ie, 10% of 1520

Hence, Option (a) is correct.

47. (a)

State	No. of Colleges offering Python	Number of Colleges
A	1,400 * 86% = 1,204	4,000 * 35% = 1,400
B	600 * 80% = 480	4,000 * 15% = 600
C	800 * 74% = 592	4,000 * 20% = 800
D	1,200 * 68% = 816	4,000 * 30% = 1,200

The number of colleges offering Python course is more than 460 in all 4 states.

Hence, Option (a) is correct.

48. (b)

State	No. of Colleges offering AI	Number of Colleges
A	1,400 * 56% = 784	4,000 * 35% = 1,400
B	600 * 84% = 504	4,000 * 15% = 600
C	800 * 86% = 688	4,000 * 20% = 800
D	1,200 * 70% = 840	4,000 * 30% = 1,200
Total	2816	

The total number of Colleges offering AI in all the four states is **2816**.

Hence, Option (b) is correct.

49. (d)

State	No. of Colleges offering Python (M)	Number of Colleges offering Java (N)	Total number of colleges
A	1,400 * 86% = 1,204	1,400 * 74% = 1036	4,000 * 35% = 1,400
B	600 * 80% = 480	600 * 92% = 552	4,000 * 15% = 600
C	800 * 74% = 592	800 * 88% = 704	4,000 * 20% = 800
D	1,200 * 68% = 816	1,200 * 64% = 768	4,000 * 30% = 1,200
Total	3092	3060	

M - N = 3092 - 3060

= 32

Hence, Option (c) is correct.

50. (c)

State	No. of Colleges offering Multimedia	Number of Colleges
C	800 * 84% = 672	4,000 * 20% = 800
D	1,200 * 68% = 816	4,000 * 30% = 1,200

Ratio of the number of Colleges offering Multimedia in State C to that of State D
 = 672 : 816
 = **14 : 17**

Thus, Option (c) is correct.

51. (b) Number of Colleges offering Java in B = $600 \times 92\% = 552$

No. of Colleges offering AI in C = $800 \times 86\% = 688$

Number of Colleges offering Java in State B is

$100 - \left[\left(\frac{688 - 552}{552} \right) \right] \%$ of the number of Colleges

offering AI in State C.

= **-80.23%**

Hence, Option (b) is correct.

52. (b) Total number of students who have cleared the entrance exam from 2016 to 2020 in State A

= $(2.31 \times .32) + (2.02 \times .44) + (1.98 \times .39) + (1.85 \times .28) + (2.20 \times .33)$

= $.7392 + .8888 + .7722 + .518 + .726$

= **3.6442**

Converted to lakhs = **3,64,420**

Hence, option (b) is correct.

53. (c) Average number of students who qualified in 2020 (from all states) = $[(2.20 \times .33) + (1.90 \times .46) + (2.55 \times .30) + (3.0 \times .35)]/4$

= $(.726 + .874 + .765 + 1.05)/4$

= $3.415/4$

= **.85375 = 85,375** (converted to lakhs)

Hence, option (c) is correct.

54. (d) Total number of students who qualified in 2017 from all states

= $(2.02 \times .44) + (1.72 \times .41) + (2.45 \times .36) + (3.1 \times .32)$

= $.8888 + .7052 + .882 + .992$

= $3.468 = 3,46,800$

Total number of students who qualified in 2018 =

$(1.98 \times .39) + (2.02 \times .37) + (2.20 \times .33) + (2.9 \times .31)$

= $.7722 + .7474 + .726 + .899$

= $3.1446 = 3,14,460$

Difference = $3,46,800 - 3,14,460 = 32,340$

Hence, option (d) is correct.

55. (a)

2016 - $1.64 \times .42 = .6888$

2017 - $1.72 \times .41 = .7052$

2018 - $2.02 \times .37 = .7474$

2019 - $2.10 \times .43 = .9030$

2020 - $1.90 \times .46 = .8740$

The highest number of candidates cleared the entrance exam from State B in the year 2019.

Hence, Option (a) is correct.

56. (b)

Average number of non-qualified candidates in 2019 (from all states)

= $[(1.85 \times .72) + (2.10 \times .57) + (2.50 \times .58) + (2.7 \times .66)]/4$

= $(1.332 + 1.197 + 1.45 + 1.782)/4$

= $1.44025 = 1,44,025$

Hence, option (b) is correct.

57. (a)

The population of city A is 257400 which is 23.4% of the Distribution of the Population. Thus, the Distribution of Population is $257400/23.4\% = 1100000$

The adult population of City C = 8.4% of 73% of $1100000 = 67452$

Hence, option (a) is correct.

58. (d)

Since the distribution of population is 1100000 ($257400/23.4\%$), then the Non-adult population of City F = 10.2% of 1100000 of $28\% = 31416$

Note: 72% is the percentage of adult for non-adult % will be $100\% - 72\% = 28\%$

Hence, option (d) is correct.

59. (a)

City	(%) Distribution of Population	(%) Adult	Total	Difference
D	18.90%	75%	93.9%	93.9% -
E	17.50%	69%	86.5%	86.5% = 7.4%

= $7.4\%/93.9\% \times 100 = 7.88\%$

Note: Since we know that the figure of 1100000 will remain same in both the values and that figures further will cancel each other, so 1100000 is not taken into account.

Hence, City D is approximately 8% more than the population of City E.

Hence, option (a) is correct.

60. (b)

City	(%) Distribution of Population	Value of Distribution of Population	(%) Adult	Value of Adult
A	0.234	257400	0.77	198198
B	0.216	237600	0.68	161568
C	0.084	92400	0.73	67452
D	0.189	207900	0.75	155925
E	0.175	192500	0.69	132825
F	0.102	112200	0.72	80784

The adult population of City B and City C together = 161568 + 67452 = 229020

The total Population is 1100000

= $229020 \times 100 / 1100000 = 20.82 = 21\%$

The adult population of City B and City C together as a percentage of the population of all six cities together is, approximately 21%

Hence, option (b) is correct.

61. (c)

Company	% Distribution of Production of Bicycles	Value of Distribution of Bicycles	Production Ratio		Value of Production Ratio		% Profit		Value of profit	
			L	M	L	M	L	M	L	M
A	20%	12800000	13	13	8320000	4480000	25%	32%	2080000	1433600
B	14%	8960000	9	9	5760000	3200000	28%	30%	1612800	960000
C	22%	14080000	6	6	7680000	6400000	20%	24%	1536000	1536000
D	13%	8320000	6	6	3840000	4480000	35%	25%	134400	112000
E	10%	6400000	2	2	2560000	3840000	24%	21%	614400	806400
F	21%	13440000	11	11	7040000	6400000	30%	20%	2112000	1280000

Thus, Option (c) is correct.

62. (a) Profit earned by Companies B and C together on Model M (in ₹ crore) is 960000 + 1536000 = Rs. 2496000

In crores amount will be 0.2496

Thus, option (a) is correct.

63. (b) The ratio of the cost of production of model L by Company D to that of model M by Company F is 3840000 : 6400000 = 3:5

Hence, option (b) is correct.

64. (d) The difference between the profit earned by Company C on model L and by Company E on model M = 1536000 - 806400 = 729600

In crores the amount will be 0.07296

Hence, option (d) is correct.

65. (a) The ratio of the profit earned on model L by Company B to that of model M by Company D is 161280 : 112000 = 36:25

Hence, option (a) is correct.

66. (a) Production of car C in 2019 = 4,50,000 × 30% = 1,35,000

Production of car C in 2020 = 5,20,000 × 25% = 1,30,000

Difference of car C in both = 1,35,000 - 1,30,000 = 5,000

Hence, option (a) is correct.

67. (d) Production of car E in 2019 = 4,50,000 × 20% = 90,000

Production of car E in 2020 = 5,20,000 × 10% = 52,000

Total unsold cars = 1,42,000 × 15% = 21,300

Hence, option (d) is correct.

68. (b) Production of car A in 2019 = 4,50,000 × 15% = 67,500

Production of car A in 2020 = 67,500 × 100 / 5,20,000 = 12.98

= 13% (Approx.)

Hence, option (b) is correct.

69. (c) Production of car C in 2019 = 4,50,000 × 30% = 1,35,000

- Production of car D in 2020 = $5,20,000 \times 25\% = 1,30,000$
 Ratio = $1,30,000:1,35,000 = 26:27$
 Hence, option (c) is correct.
70. (c) The percentage is the same as car B in 2020 as of 2019 which is 25%.
 So, production calculation will be done on that basis
 Production of car B in 2020 = $5,20,000 \times 25\% = 1,30,000$
 Hence, option (c) is correct.
71. (b)
 Train 1001's per km cost = $3000/1200 = 2.5$
 Train 1002's per km cost = $3600/1080 = 3.3$
 Train 1003's per km cost = $2800/1280 = 2.1$
 Train 1004's per km cost = $2900/1250 = 2.3$
 Train 1005's per km cost = $3200/1180 = 2.7$
 Hence, option (b) is correct.
72. (c) $A = 30/100 \times 35 = 10.5$
 $B = 15/100 \times 35 = 5.25$
 $C = 15/100 \times 35 = 5.25$
 Total number of Laptops of models A, B and E produced in 2019 was
 $A + B + C = 21$
 Hence, option (c) is correct.
73. (b) $F(2019) = \frac{10}{100} \times 35 = 3.5$
 $C(2020) = \frac{15}{100} \times 44 = 6.6$
 The ratio of number of Model-F Laptops produced in 2019 to the number of Model-C Laptops produced in 2020 is 35 : 66
 Hence, option (b) is correct.
74. (a) $B(2019) = \frac{15}{100} \times 35 = 5.25$ lakhs
 $B(2020) = \frac{20}{100} \times 44 = 8.8$ lakhs
 Difference in the number of Model-B Laptops produced in 2019 and 2020 is 3.55 lakhs
 Hence, option (a) is correct.
75. (b) if the percentage production of Model-A Laptops in 2020 was the same as that in 2019 which is 30% then
 the number of Model-A Laptops produced in 2020 would have been
 $30/100 \times 44 = 13.2$
 Hence, option (b) is correct.
76. (c) Number of model D in 2019 = $10/100 \times 35 = 3.5$ lakhs
 Number of model D in 2020 = $10/100 \times 44 = 4.4$ lakhs
 Total number of model D laptops produced in both years = 7.9 lakhs
 90% of 3.5 lakhs = 3.15 lakhs
 90% of 4.4 lakhs = 3.96 lakhs
 Total number of model D laptops sold in both years = 7.11 lakhs
 Therefore, 79000 model D laptops were unsold.
 Hence, option (c) is correct.
77. (d) The number of transgenders greater than 500 is:
 University B = 24% of 4375 = 1050
 University C = 20% of 2625 = 525
 University D = 40% of 6000 = 2400
 University E = 32% of 4250 = 1360
 Hence, four universities have transgenders greater than 500.
 Hence, option (d) is correct.
78. (a) Number of females in university B = 36% of 4375 = 1575
 Number of females in university E = 30% of 4250 = 1275
 Therefore, $M = 1575 + 1275 = 2850$
 Number of males in university C = 24% of 2625 = 630
 Number of males in university F = 45% of 1360 = 612
 Therefore, $N = 630 + 612 = 1242$
 Therefore, $M - N = 2850 - 1242 = 1608$
 Hence, option (a) is correct.
79. (a) The total number of transgender in universities A, B, C, D, E, F = $300 + 1050 + 525 + 2400 + 1360 + 204 = 5839$
 The total number of females in universities A, B, C, D, E, F = $900 + 1575 + 1470 + 1500 + 1275 + 544 = 7264$
 Therefore, The total number of transgenders working in all six universities is approximately 80% of the total number of females working in all six universities
 $= \frac{5839}{7264} \times 100 = 80.38$
 Hence, option (a) is correct.
80. (c) Number of females working in university F = 40% of 1360 = 544
 Number of transgenders working in university A = 12.5% of 2400 = 300
 Hence, Number of females more in university F than transgender in university A is $544 - 300 = 244$

Percentage of females more in university F than transgender in university A = $244/300 \times 100 = 81.33$

Therefore, the number of females working in university F is 81% more than the number of transgenders working in university A.

Hence, option (c) is correct.

81. (b) The ratio of the number of males working in university D to the number of females working in university C is:

= Male in university D : Females in university C

= 35% of 6000 : 56% of 2625

= 2100 : 1470

= 10 : 7

Hence, option (b) is correct.

82. (a) City F (male) + City C (female) + City B (female)

$$= 100 + \left\{ \left(\frac{28}{100} \times 4500 \right) - 600 \right\} + \left\{ \left(\frac{16}{100} \times 4500 \right) - 400 \right\}$$

$$= 100 + 660 + 320$$

$$= 1080$$

Hence, option (a) is correct.

83. (d) City D (female) = $\frac{x}{100} \times$ City A (total)

$$\left\{ \left(\frac{15}{100} \times 450 \right) - 100 \right\} = \frac{x}{100} \times \left(\frac{14}{100} \times 450 \right)$$

$$575 = \frac{x}{100} \times 630$$

$$x = \frac{57500}{630}$$

$$= 91.26 \text{ or } 91\%$$

Hence, option (d) is correct.

84. (c)

City↓	Percentage of (%) Teachers	Total	Number of Male Teachers	Number of female Teachers
A	14%	630	200	430
B	16%	720	400	320
C	28%	1260	600	660
D	15%	675	100	575
E	21%	945	500	445
F	06%	270	100	170

Hence, option (c) is correct.

85. (b) Total City E – Total City F (female)

$$= 945 - 170$$

$$= 775$$

Hence, option (b) is correct.

86. (c)
= City C (male): city B (female)
= 600 : 320
= 15 : 8

Hence, option (c) is correct.

87. (b) Number of students studying in college P during the year 2018

$$580 - 420 = 160$$

In the year 2017

$$660 - 440 = 220$$

$$160 + 2250 + 220 = 2630$$

Number of students studying in college Q during the year 2018

$$650 - 430 = 220$$

$$900 - 500 = 400$$

$$220 + 400 + 2100 = 2750$$

Number of students studying in college R during the year 2018

$$800 - 500 = 300$$

$$840 - 460 = 380$$

$$380 + 300 + 2400 = 3080$$

Number of students studying in college S during the year 2018

$$800 - 520 = 280$$

$$850 - 500 = 350$$

$$280 + 350 + 3200 = 3810$$

Number of students studying in college T during the year 2018

$$760 - 460 = 300$$

$$700 - 450 = 250$$

$$300 + 250 + 3100 = 3650$$

Average number of students studying in all five colleges

$$2630 + 2720 + 3080 + 3810 + 3650/5$$

$$= 3178$$

Hence, option (b) is correct.

88. (c) Number of students studying in Q in 2017

$$900 - 500 = 400$$

In the year 2018

$$650 - 430 = 220$$

In the year 2019

$$570 - 420 = 150$$

In the year 2020

$$600 - 380 = 220$$

Total number of students studying in Q till 2020

$$2100 + 400 + 220 + 150 + 220 = 3090$$

Hence, option (c) is correct

89. (c) Number of students who left college Q from 2016 – 2021

$$500 + 430 + 420 + 380 + 440 = 2170$$

Number of students who have taken admissions in Q from 2016-2021

$$900 + 650 + 570 + 600 + 680 = 3400 + 2100 = 5500$$

$$\begin{aligned} \text{Required percentage} &= \frac{2170}{5500} \times 100 \\ &= 39.45 \end{aligned}$$

Hence, option (c) is correct.

90. (a) Number of students admitted to college Q from 2017 - 2021

$$N = 900 + 650 + 570 + 600 + 680 = 3400$$

$$M = 880 + 800 + 790 + 840 + 920 = 4230$$

$$M - N = 4230 - 3400 = 830$$

Hence, option (a) is correct.

91. (d) In the college S

Number of students admitted

$$880 + 800 + 790 + 840 + 920 = 4230 + 3200 = 7430$$

$$\text{Student left} = 500 + 520 + 440 + 450 + 480 = 2390$$

$$\text{Students studying} = 5040$$

$$\% \text{ increase} = \frac{(5040 - 3200)}{3200} = 57.5\%$$

In college P

$$660 + 580 + 690 + 760 + 700 + 2250 = 5640$$

$$440 + 420 + 400 + 500 + 460 = 2220$$

$$\text{Student studying} = 3420$$

$$\% \text{ increase} = \frac{(3420 - 2250)}{2250} = 52\%$$

In college R

$$840 + 800 + 720 + 680 + 820 + 2400 = 6260$$

$$\text{Students left} = 460 + 500 + 450 + 480 + 560 = 2450$$

$$\text{Students studying} = 3810$$

$$\% \text{ increase} = \frac{(3810 - 2400)}{2400} = 58.75\%$$

In college T

$$700 + 760 + 820 + 880 + 850 + 3100 = 7110$$

$$\text{Students left} = 450 + 460 + 440 + 420 + 430 = 2200$$

$$\text{Students studying} = 4910$$

$$\% \text{ increase} = \frac{(4910 - 3100)}{3100} = 58.38\%$$

Hence, option (d) is correct.

92. (d) The number of students qualifying exam in 2020 = 750

$$750 \times \frac{(14 + 16 + 10)}{100} = \frac{750 \times 40}{100} = 300$$

The number of students qualifying exam in 2020 from schools B, C, and D is equal to the total number of students qualifying exam in 2021 i.e. 900.

The number of students qualifying for the exam in 2021 from schools E, F, G

$$= 900 \times \frac{(16 + 18 + 15)}{100}$$

$$= 900 \times \frac{44}{100}$$

$$= 396$$

$$\text{Required ratio} = 300 : 396$$

$$= 25:33$$

Hence, option (d) is correct.

93. (a) The number of students qualifying exam in 2020 = 750

From schools B, C, and D

$$= 750 \times \frac{(14 + 16 + 10)}{100}$$

$$= 750 \times \frac{40}{100}$$

$$= 300$$

$$P = \frac{300}{3} = 100$$

The number of students qualifying exam in 2021 from school E, F, G

$$= 900 \times \frac{(16 + 18 + 15)}{100}$$

$$= 900 \times \frac{44}{100}$$

$$= 396$$

$$Q = \frac{396}{3} = 132$$

$$Q - P = 132 - 100 = 32$$

Hence, option (a) is correct.

94. (d) Number of students qualifying from School G in 2020 = 90

12% of 90

$$100\% = \frac{90}{12} \times 100$$

$$= 750$$

Number of students qualifying exam in 2020 = 750

Number of students qualifying from School G and E in 2020

$$\left[750 + \frac{(18 + 12)}{100} \right] = 225$$

Number of students qualifying for exam in 2021 from school B = 900

Percentage of Number of students qualifying for exam in 2021 from school B

$$= \frac{900 \times 8}{100} = 72$$

$$\text{Required percentage} = \frac{225}{72} \times 100$$

$$= 312.5$$

Hence, option (d) is correct.

95. (c) Total number of students qualifying for exam in 2020 = 750
 The number of students qualifying exam from school D in 2020 = $\frac{750 \times 10}{100}$
 = 75
 Total number of students qualifying for exam in 2021 = 900
 The number of students qualifying for exam from school D in 2021 = $\frac{900 \times 14}{100}$
 = 126
 Required percent rise = $126 - \frac{75}{75} \times 100$
 = $\frac{51}{75} \times 100$
 = 68%
 Hence, option (c) is correct.
96. (b) Total number of students qualifying for the exam in 2020 = 750
 Number of students qualifying in 2020 from school A = $750 \times \frac{21}{100}$
 = 157.5
 Number of students qualifying in 2020 from school B = $750 \times \frac{14}{100}$
 = 105
 Number of students qualifying in 2020 from school C = $750 \times \frac{16}{100}$
 = 120
 Number of students qualifying in 2020 from school D = $750 \times \frac{10}{100}$
 = 75
 Number of students qualifying in 2020 from school E = $750 \times \frac{18}{100}$
 = 135
 Number of students qualifying in 2020 from school F = $750 \times \frac{9}{100}$
 = 67.5
 Number of students qualifying in 2020 from school G = $750 \times \frac{12}{100}$
 = 90
 Total number of students from A - G = 750
 Similarly, the total number of students qualifying for the exam in 2021 = 900
 Required percent = $\frac{900}{750} \times 100$
 = 120%
- Hence, option (b) is correct.
97. (c) Total number of admissions to the college in science = 100 + 150 + 350 + 300 = 900
 Total number of admissions to the college in Art = 100 + 100 + 300 + 350 = 850
 Total number of admissions to the college in Engineering = 50 + 50 + 150 + 150 = 400
 Number of students admitted to medical stream = 150 + 50 + 50 + 100 = 350
 Total number of admissions to the colleges = 2500
 Required percentage = $\frac{350}{2500} \times 100$
 = $\frac{7}{50} \times 100$
 = 7 × 2
 = 14
 Hence, option (c) is correct.
98. (a) Total number of admissions to the college in science = 100 + 150 + 350 + 300 = 900
 Total number of admissions to the college in Engineering = 50 + 50 + 150 + 150 = 400
 Required ratio = $\frac{900}{400}$
 = 9:4
 Hence, option (a) is correct.
99. (b) Total number of admissions to the college in Art = 100 + 100 + 300 + 350 = 850
 Total colleges of arts = 4
 Required average = $\frac{850}{4}$
 = 212.5
 Hence, option (b) is correct.
100. (b) Total number of admissions to the college in science = 100 + 150 + 350 + 300 = 900
 Total number of admissions to the college in Art = 100 + 100 + 300 + 350 = 850
 Total number of admissions to the college in Engineering = 50 + 50 + 150 + 150 = 400
 Number of students admitted to medical stream = 150 + 50 + 50 + 100 = 350
 So, we can conclude that the highest number of admission is in the Science stream.
 Hence, option (b) is correct.
101. (d) Total number of seats is 3000
 Number of admissions = 2500
 Vacant seats = 500
 Percentage = $\frac{500}{3000} \times 100$
 = 16.67
 Hence, option (d) is correct.

102. (a)

Year	BSc	
	A	Q
2016	3.4	1.2
2017	3.6	1.8
2018	4.2	2.1
2019	4.8	2.3
2020	3.8	1.9
Total	19.8	9.3

The difference between the appeared and Qualified is $19.8 - 9.3 = 10.5$

Average = Difference between the appeared and Qualified / No. of years = $10.5 / 5 = 2.1$

Since the data given is in thousands, hence $2.1 \times 1000 = 2100$

Hence, option (a) is correct.

103. (d)

Not Qualified (NQ) is the difference between the appeared and qualified candidates for respective exams.

Year	BA			BSc			Difference NQ(BA)- NQ(BSc)
	A	Q	NQ	A	Q	NQ	
2016	6.4	2.3	4.1	3.4	1.2	2.2	$4.1 - 2.2 = 1.9$
2017	6.6	2.5	4.1	3.6	1.8	1.8	$4.1 - 1.8 = 2.3$
2018	7.2	2.8	4.4	4.2	2.1	2.1	$4.4 - 2.1 = 2.3$
2019	6.8	2.6	4.2	4.8	2.3	2.5	$4.2 - 2.5 = 1.7$

Clearly, among the last column year, 2019 has the least difference.

Hence, Option (d) is the correct answer.

104. (c)

Difference between the average of Qualified candidates (2016-2020) for M.Sc. and the average of Qualified candidates (2016-2020) for MA

$$= 13.1 - \frac{6.1}{5} = \frac{7}{5} = 1.4$$

Since the data are given in thousands then $1.4 \times 1000 = 1400$

Year	MA			MSc	
	A	Q	NQ	A	Q
2016	4.8	2.4	2.8	1.3	
2017	4.7	2.3	2.4	1.1	
2018	4.6	2.5	2.2	1.2	
2019	4.9	2.7	2.5	1.2	
2020	5.2	3.2	2.6	1.3	
Total		13.1		6.1	

Hence, option (c) is correct.

105. (b) Difference between the total number of students who qualified for graduate-level examination (B.Sc. + B.A.) and postgraduate level (MSc + MA) examination during 2016-2020

$$= (9.3 + 13.4) - (6.1 + 13.1) \times 1000$$

$$= 3500$$

Year	BSc	BA	MSc	MA
	Q	Q	Q	Q
2016	1.2	2.3	1.3	2.4
2017	1.8	2.5	1.1	2.3
2018	2.1	2.8	1.2	2.5
2019	2.3	2.6	1.2	2.7
2020	1.9	3.2	1.3	3.2
Total	9.3	13.4	6.1	13.1

Hence, option (b) is correct.

106. (d)

Year	BSc			BA			MSc			MA		
	A	Q	NQ	A	Q	NQ	A	Q	NQ	A	Q	NQ
2018	4.2	2.1	2.1	7.2	2.8	4.4	2.2	1.2	1.0	4.6	2.5	2.1
2019	4.8	2.3	2.5	6.8	2.6	4.2	2.5	1.2	1.3	4.9	2.7	2.2

Non-qualified candidates from the years 2018 = $2.1 + 4.4 + 1 + 2.1 = 9.6$

Non-qualified candidates from the years 2019 = $2.5 + 4.2 + 1.3 + 2.2 = 10.2$

$$10.2 - 9.6 = 0.6 \times 1000 = 600$$

Hence, option (d) is correct.

107. (b) Number of students in class B = 12% of 600 = 72

The ratio of boys & girls = 3:1

$$3x + x = 72$$

$$x = 18$$

Number of boys = 54

Number of girls = 18

In class F

Number of students in class F = 16% of 600 = 96

The ratio of boys & girls = 1:1

$$x + x = 96$$

$$2x = 96$$

$$x = 48$$

Number of boys = 48

Number of girls = 48

We know that quantity A is x% greater than quantity B:

$$A - \frac{B}{B} = \frac{x}{100}$$

$$54 - \frac{48}{48} = \frac{x}{100}$$

$$\frac{6}{48} = \frac{x}{100}$$

$$8x = 100$$

$$x = 12.5$$

Hence, option (b) is correct.

108. (c) Number of students in class A = 20% of 600 = 120

The ratio of boys&girls = 3:2

$$3x + 2x = 120$$

$$x = 24$$

Number of boys = 72

Number of girls = 48

$$\text{Difference} = 72 - 48 = 24$$

Number of students in class C = 16% of 600 = 96

The ratio of boys&girls = 5 : 3

$$5x + 3x = 96$$

$$x = 12$$

Number of boys = 60

Number of girls = 36

$$\text{Difference} = 60 - 36 = 24$$

$$P = 24$$

$$Q = 24$$

then the percentage of P with reference to Q = 100%.

Hence, option (c) is correct.

109. (d) Number of students in class A = 20% of 600 = 120

The ratio of boys&girls = 3:2

$$3x + 2x = 120$$

$$x = 24$$

Number of boys = 72

Number of girls = 48

Number of students in class B = 12% of 600 = 72

The ratio of boys&girls = 3 : 1

$$3x + x = 72$$

$$x = 18$$

Number of boys = 54

Number of girls = 18

Number of students in class C = 16% of 600 = 96

The ratio of boys&girls = 5 : 3

$$5x + 3x = 96$$

$$x = 12$$

Number of boys = 60

Number of girls = 36

Number of students in class D = 15% of 600 = 90

The ratio of boys&girls = 8 : 7

$$8x + 7x = 90$$

$$15x = 90$$

$$X = 6$$

Number of boys = 48

Number of girls = 42

Number of students in class E = 21% of 600 = 126

The ratio of boys&girls = 4 : 3

$$4x + 3x = 126$$

$$x = 18$$

Number of boys = 72

Number of girls = 54

In class F

Number of students in class F = 16% of 600 = 96

The ratio of boys&girls = 1 : 1

$$x + x = 96$$

$$2x = 96$$

$$X = 48$$

Number of boys = 48

Number of girls = 48

Total number of boys = 72 + 54 + 60 + 48 + 72 + 48 = 354

Total number of girls = 48 + 18 + 36 + 42 + 54 + 48 = 246

$$\text{Difference} = 354 - 246 = 108$$

Hence, option (d) is correct.

110. (a) Number of students in class A = 20% of 600 = 120

The ratio of boys&girls = 3 : 2

$$3x + 2x = 120$$

$$x = 24$$

Number of boys = 72

Number of girls = 48

Number of students in class B = 12% of 600 = 72

The ratio of boys&girls = 3 : 1

$$3x + x = 72$$

$$x = 18$$

Number of boys = 54

Number of girls = 18

Number of students in class C = 16% of 600 = 96

The ratio of boys&girls = 5:3

$$5x + 3x = 96$$

$$x = 12$$

Number of boys = 60

Number of girls = 36

Number of students in class D = 15% of 600 = 90

The ratio of boys&girls = 8 : 7

$$8x + 7x = 90$$

$$15x = 90$$

$$X = 6$$

Number of boys = 48

Number of girls = 42

Number of students in class E = 21% of 600 = 126

The ratio of boys&girls = 4:3

$$4x + 3x = 126$$

$$x = 18$$

Number of boys = 72

Number of girls = 54

In class F

Number of students in class F = 16% of 600 = 96

The ratio of boys&girls = 1 : 1

$$x + x = 96$$

$$2x = 96$$

$$x = 48$$

Number of boys = 48

Number of girls = 48

The average number of girls in all six classes =

$$\frac{48 + 18 + 36 + 42 + 54 + 48}{6} = \frac{246}{6} = 41$$

Hence, option (a) is correct.

111. (c) Number of students in class D = 15% of 600 = 90

The ratio of boys&girls = 8 : 7

$$8x + 7x = 90$$

$$15x = 90$$

$$x = 6$$

Number of boys = 48

Number of girls = 42

In class F

Number of students in class F = 16% of 600 = 96

The ratio of boys&girls = 1 : 1

$$x + x = 96$$

$$2x = 96$$

$$x = 48$$

Number of boys = 48

Number of girls = 48

So, in class D&F the number of boys is equal.

Hence, option (c) is correct.