RRB NTPC Tier I Official Paper (Held On: 28 Apr 2016 Shift 2) (Previous Year Paper)

RRB NTPC • 2016 • 100 questions • 90 minutes • Answer key and solutions

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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Scan the QR code or click the link to open it.

Q1. Based on the statement(s) given below, choose the best possible conclusion (s) that follows:

Statements:

A. Players who break records in a fair way are given a special reward.

B. Player XYZ broke the world record but was found to be under the influence of prohibited drug.

Conclusions:

I. The accusation on Player XYZ was false.

II. Player XYZ will not get the special reward.

A. Only conclusion I follows

B. Only conclusion II follows

C. Both conclusion I and II follow

D. Neither conclusion I nor II follows

(a) A
(b) B
(c) D
(d) C

Q2. Which of the following is the idea that new species are formed from the sudden and unexpected emergence of alterations in their defining traits?

A. Natural Selection

B. Mutation

C. Recombination

D. Non-Random Mating

(a) C
(b) A
(c) B
(d) D

Q3. Based on the relationship between the first two words, find out the missing word.

THE COLOSSEUM : ITALY ? PETRA : _____

A. MEXICO

B. JORDAN

C. GERMANY

D. BRAZIL

(a) A
(b) D
(c) B
(d) C

Q4. If the Standard deviation of a distribution is 9, what is the value of variance?

A. 18
B. 27
C. 81
D. 36

(a) A
(b) B
(c) D
(d) C

Q5. Match correctly the items of Column I with the items of Column II

	Column I		**Column II**
(A)	Ontology	(i)	Ideographic
(B)	Epistemology	(ii)	Realism
(C)	Methodology	(iii)	Survey
(D)	Method	(iv)	Positivism

Choose the correct option from those given below:

(a) (A) - (ii), (B) - (iv), (C) - (iii), (D) - (i)
(b) (A) - (ii), (B) - (i), (C) - (iii), (D) - (iv)
(c) (A) - (iv), (B) - (ii), (C) - (i), (D) - (iii)
(d) (A) - (ii), (B) - (iv), (C) - (i), (D) - (iii)

Q6. Based on the statement(s) given below, choose the best possible conclusion(s) that follows:

Statements:
A. In T20 match, the total runs made by a team was 210
B. Out of these 147 runs were made by the spinners.
Conclusions:
I. 70% of the team consist of spinners.
II. The opening batsmen were spinners.
A. Only conclusion I follows
B. Only conclusion II follows
C. Both conclusion I and II follow
D. Neither conclusion I nor II follows.

(a) A
(b) D
(c) C
(d) B

Q7. If the cost price of 12 books is equal to the selling price of 8 books, what is the gain percent?

A. 20%
B. 30%
C. 40%
D. 50%

(a) D
(b) B
(c) A
(d) C

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Q8. Which of the following statues in an icon of freedom designed by a French Sculptor?

A. Statue of Unity
B. Statue of Liberty
C. Statue of Law
D. Statue of Zeus

(a) C
(b) A
(c) B
(d) D

Q9. Which premier watchmaker has associated with Google to develop a smart luxury watch?

A. RADO
B. Tag Heuer
C. Omega
D. Titan

(a) B
(b) C
(c) D
(d) A

Q10. Which of the following atoms has the largest diameter?

A. Iodine
B. Fluorine
C. Chlorine
D. Bromine

(a) B
(b) C
(c) D
(d) A

Q11. A purse contains Rs. 455 in the form of Rs. 1, Rs 2, and Rs 5 coins in the ratio of 2 : 4 : 5. What is the number of Rs. 2 coins in the purse?

A. 26
B. 52
C. 65
D. 13

(a) B
(b) D
(c) A
(d) C

Q12. In MS Excel, what is function inside another function called?

A. Round Function
B. Sandwich function
C. Switch function
D. Nested function

(a) C
(b) B
(c) D
(d) A

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Q13. In which of the following states was the first passenger train started in India?

A. Maharashtra

B. Tamil Nadu

C. Uttar Pradesh

D. West Bengal

(a) A
(b) C
(c) B
(d) D

Q14. The ratio of the speeds of two trains is 3: 4 If the second train runs 300 km in 3 hours, then what would be the speed of the first train?

A. 100 km/hr

B. 50 km/hr

C. 70 km/hr

D. 75 km/hr

(a) C
(b) A
(c) B
(d) D

Q15. Which two signs should be interchanged to make the following equation correct?

5 × 45 - 15 + 31 ÷ 41 = 5

A. ÷ and -

B. × and +

C. ÷ and ×

D. × and -

(a) B
(b) A
(c) D
(d) C

Q16. Which of the following is the branch of physiology and medicine which deals with diseases and conditions specific to men?

A. Andrology

B. Autecology

C. Bioecology

D. Desmology

(a) B
(b) D
(c) C
(d) A

Q17. What is the correct ascending order for the given fractions?

A. 22/7, 13/17, 11/19, 2/3

B. 11/19, 2/3, 13/17, 22/7

C. 2/3, 11/19, 13/17, 22/7

D. 2/3, 13/17, 11/19, 22/7

(a) D
(b) B
(c) C
(d) A

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Q18. What is the value of the expression:

(tan0°.tan1°.tan2°.tan3°.tan4°……tan89°)

A. 0

B. 1

C. 2

D. 1/2

(a) C
(b) D
(c) A
(d) B

Q19. If sinθ - cosθ = 0, then what is the value of the expression (sin^6θ + cos^6θ)?

A. 1

B. 3/4

C. 1/2

D. 1/4

(a) C
(b) B
(c) D
(d) A

Q20. Who as per the Harvard Business Review was the top performing CEO in 2015?

A. Lars Rebien Sorensen, Novo Nordisk

B. Chuck Robbins, Cisco System

C. Pablo Isla, INDITEX

D. Howard Shultz, Starbucks

(a) C
(b) D
(c) B
(d) A

Q21. Keeping voltage constant, if more lamps are put into a series circuit, the overall current in the circuit:

A. Increases

B. Decreases

C. Remains the same

D. Becomes infinite

(a) C
(b) B
(c) A
(d) D

Q22. Who among the following was one of the founders of the Swaraj Party?

A. Motilal Nehru

B. Lala Lajpat Rai

C. Subhas Chandra Bose

D. Dadabhai Naoroji

(a) A
(b) C
(c) B
(d) D

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Q23. In a right-angled triangle, the longest side is 1 cm longer than the middle side and the middle side is 49 cm longer than the shortest side. Calculate the length of the shortest side.

A. 11 cm
B. 10 cm
C. 21 cm
D. 60 cm

(a) A
(b) B
(c) D
(d) C

Q24. Sound waves cannot travel in:

A. Air
B. Water
C. Vacuum
D. Steel

(a) B
(b) A
(c) C
(d) D

Directions

Read the passage given below and answer the questions that follow.

Pream, Qutub, Rahul, Stalin, Tuhin, Ujala, Varum, and Waheeda are sitting around a circle facing the centre.

Waheeda is to the immediate left of Prema but is not the neighbour of Tuhin or Stalin.

Ujala is to the immediate right of Qutub.

Varun is sitting next to Tuhin.

Rahul is sitting between tuhin and Ujala.

Q25. What is the position of Stalin?

A. On the immediate left of Qutub
B. Second to the right of Ujala
C. Between Varun and Waheda
D. Exactly next to Rahul

(a) D
(b) B
(c) A
(d) C

Q26. In which of the following pairs, the second person is second to the right of the first person?

A. Rahul, Prema
B. Varun, Waheeda
C. Ujala, Tuhin
D. Stalin, Qutub

(a) B
(b) D
(c) C
(d) A

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Q27. Which of the following statements is TRUE?

A. Tuhin is sitting in between Ujala and Qutub

B. Ujala is sitting next to Varun

C. Varun is to the right of Tuhin and also to the left of Waheeda

D. Prerna is second to the right of Staline

(a) C
(b) A
(c) B
(d) D

Q28. Find the unit digit in (1234)^(102) + (1234)^(103)

A. 2

B. 4

C. 0

D. 1

(a) B
(b) C
(c) A
(d) D

Q29. In a code language, if HOUSE is coded as 10-13-23-17-7, then how will you code REHEARSE?

(a) 20-7-10-7-3-20-21-7
(b) 16-3-6-325-16-17-3
(c) 20-3-10-3-3-16-21-3
(d) 18-5-8-5-1-18-19-5

Directions

Read the passage given below and answer the questions that follow.

In a club of 30 people, all of them belong to at least one group- chess, Drama and Art.

6 people belong only to the Art group.

5 People belong to all the three groups.

2 people have joined the Chess and the Art group but not the Drama group

15 people belong to the Art group.

2 people have joined only the Chess group.

3 people have joined only the Drama group.

Q30. How many people have belong to the Chess group?

A. 21

B. 13

C. 19

D. 20

(a) D
(b) A
(c) C
(d) B

Q31. How many people have joined the Chess and the drama group but not the Art group?

A. 20

B. 10

C. 15

D. 13

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(a) A
(b) B
(c) D
(d) C

Q32. How many people belong to exactly one group?

A. 11
B. 10
C. 14
D. 12

(a) B
(b) A
(c) C
(d) D

Q33. Which of the following Religious Communities has been granted the ‘Minority’ status by the Indian Government of 30^(th) January 2014?

A. Sikh
B. Buddhist
C. Jain
D. Parsi

(a) D
(b) A
(c) B
(d) C

Q34. The Thousand Pillar Temple, a historic Hindu temple located in the town of Hanamakonda, was built by:

A. Rudra Deva
B. Krishnadeva Raya
C. Jahangir
D. Aurangazeb

(a) A
(b) B
(c) D
(d) C

Q35. Given below are parts of a statement. Select the correct order of these parts to make a meaningful statement.

P: the impact business management choices
Q: The impact of climate changes was
R: would have on profitability
S: not as significant as

A. PQRS
B. SRQP
C. PRQS
D. QSPR

(a) D
(b) B
(c) C
(d) A

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Q36. Thomas Clifford Allbutt is associated with the invention of:

A. X ray Machine
B. Clinical Thermometer
C. Stethoscope
D. Microscope

(a) D
(b) B
(c) C
(d) A

Q37. The river Godavari does NOT pass through which of the following states?

A. Maharashtra
B. Gujarat
C. Chhattisgarh
D. Andhra Pradesh

(a) A
(b) C
(c) D
(d) B

Q38. Which element has the atomic number 3?

A. Boron
B. Lithium
C. Beryllium
D. Sodium

(a) A
(b) C
(c) D
(d) B

Q39. Which of the following cell organelles is found in the plant cell but not in animal cell?

A. Chloroplast
B. Endoplasmic Reticulum
C. Mitochondrion
D. Ribosome

(a) A
(b) B
(c) D
(d) C

Q40. Two positive integers are in the ratio of 3 : 4. If the product of the two numbers is 1728, what is the value of the greater number?

A. 36
B. 38
C. 48
D. 72

(a) D
(b) C
(c) B
(d) A

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Q41. If A = 26 and TEA = 55, then SPATTER = ?

A. 92
B. 90
C. 91
D. 95

(a) A
(b) D
(c) B
(d) C

Q42. Antonio Meucci is associated with the invention of:

A. Telephone
B. automobile
C. LED
D. Industrial Robot

(a) D
(b) B
(c) C
(d) A

Q43. Which European country was the first to introduce bank notes and was recently in the news to soon become the first cashless country in the world?

A. UK
B. Germany
C. Sweden
D. Switzerland

(a) C
(b) D
(c) A
(d) B

Q44. The Kyoto protocol was entered into force in the year:

A. 2005
B. 1997
C. 2000
D. 2002

(a) C
(b) B
(c) D
(d) A

Q45. 7 men and 3 women complete the work together in 10 days. 8 men and 2 women complete the same work in 8 days. How much work can be done by 12 men in one day?

A. 17.5%
B. 20%
C. 21%
D. 23%

(a) A
(b) B
(c) C
(d) D

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Q46. What is the median of the following distribution?

42, 65, 18, 69, 29, 42, 48, 79, 25, 24, 98, 87, 63, 27, 17

A. 43.5

B. 65

C. 42

D. 69

(a) A
(b) C
(c) D
(d) B

Q47. Adil and Biren together can complete a task in 20 days. Biren and Chirag together can complete the same task in 50 days. Adil and Chirag together can complete the same task in 40 days. If the same task was to be done by them alone, what would be the ratio of time taken by Adil alone to taken by Biren?

A. 11 : 9

B. 11 : 3

C. 7 : 9

D. 9 : 11

(a) D
(b) A
(c) B
(d) C

Q48. In the question given below, are two statements followed by a few conclusions as options. You have to take the two given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusion basically follows form the two given statements disregarding commonly known fats.

Statements:

1. All toys are books

2. All books are trains

Conclusions:

A. All trains are books

B. All books are toys

C. Some trains are toys

D. No train is a toy

(a) A
(b) B
(c) D
(d) C

Q49. Sumit scored 75% on a math test with 60 questions. How many questions did he answer incorrectly?

A. 10

B. 15

C. 17

D. 20

(a) D
(b) A
(c) B
(d) C

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Q50. In the question given below are given two statements followed by a few conclusions a option. You have to take the two given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions basically follows from the tow given statements disregarding commonly known facts.

Statements:

A. All rivers are clouds

B. Some animals are rivers

Conclusion:

1. Some rivers are animals

2. Some clouds are rivers

3. All clouds are rivers

4. All animals are clouds

A. Conclusion 1 and 2 follow

B. Conclusion 1, 2 and 3 follow

C. Conclusion 1 and 3 follow

D. Conclusion 2, 3 and 4 follow

(a) C
(b) A
(c) B
(d) D

Q51. Based on the relationship between the first two words, find out the missing word.

BHARATNATYAM : TAMIL NADU ? KUCHIPUDI : _____

A. ARUNACHAL PRADESH

B. ODISHA

C. ANDHRA PRADESH

D. KERALA

(a) D
(b) B
(c) A
(d) C

Q52. Who was the founder of the Gupta Empire?

A. Chandragupta II

B. Samudragupta

C. Sri Gupta

D. Ghatookacha

(a) D
(b) A
(c) C
(d) B

Q53. Based on the statement(s) given below, choose the best possible conclusion(s) that follows:

Statements:

A. In case of outstanding candidates, the condition of previous experience in HR may be waived by the admission committee for MBA (HR).

Conclusions:

I. Some of the students for MBA (HR) will have previous experience in HR.

II. Some of the students for MBA (HR) will not have previous experience in H. R.

A. Only conclusion I follows

B. Only conclusion II follows

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C. Both conclusion I and II follow

D. Neither conclusion I nor II follows

(a) A
(b) D
(c) B
(d) C

Q54. Which of the following space crafts was used by Rakesh Sharma to make his historic trip to space?

A. Apollo 11

B. Progress 1

C. Soyuz T-11

D. Salyut 7

(a) C
(b) A
(c) D
(d) B

Q55. Which of the following is the first animal to go to into spatial orbit on board the Soviet Sputnik 2?

A. Laika,a dog

B. Albert, a mouse

C. Belka, a monkey

D. Baker, a rabbit

(a) A
(b) C
(c) D
(d) B

Q56. A flag of Malaysia, comprises a field of _____ alternating red and white stripes.

A. 20

B. 18

C. 16

D. 14

(a) B
(b) C
(c) A
(d) D

Q57. If the ratio of the angles of a triangle is 2 : 4 : 3, then what is the sum of the smallest angle of the triangle and the largest angle of the triangle?

A. 120°

B. 100°

C. 140°

D. 110°

(a) A
(b) D
(c) B
(d) C

Q58. Which two signs should be interchanged to make the following equation correct?

72 ÷ 9 + 5 × 3 - 2 = 41

A. ÷ and -

B. × and +

C. ÷ and ×

D. × and -

(a) B
(b) C
(c) D
(d) A

Q59. If KINGS is coded as RFMHJ, then how will you code QUEEN?

A. RTDMD

B. MDDTP

C. VFFOT

D. EUULG

(a) D
(b) A
(c) C
(d) B

Q60. Aparna said, “That man is my brother’s wife’s son’s only paternal uncle’s father”. How is the man related to Aparna?

A. Paternal Grandfather

B. Father

C. Uncle

D. Son

(a) A
(b) B
(c) C
(d) D

Q61. Hiten introduced Mita as his son’s maternal grandfather’s only son’s only sister’s mother-in-law. How is Mita related to Hiten?

A. Mother

B. Mother-in-law

C. Wife

D. Maternal Aunt

(a) B
(b) C
(c) D
(d) A

Q62. If ‘+’ means ‘×’, ‘-‘ means ‘÷’, ‘×’ means ‘+’ and ‘÷’ means ‘-‘ then what is the value of:

225 ÷ 5 + 96 - 3 × 31

A. 86

B. 96

C. 106

D. 116

(a) C
(b) A
(c) B
(d) D

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Q63. . In order to help in the freedom struggle, which newspaper was started by Lokmanya Tilak?

A. Kesari
B. Amrit Bazar Patrika
C. Ghadar
D. Harijan

(a) B
(b) A
(c) C
(d) D

Q64. Compute: 4237.43 + 453.32 + 24.12 - 387.23

A. 4327.64
B. 4646.64
C. 4676.64
D. 4587.64

(a) C
(b) D
(c) B
(d) A

Q65. Find the HCF of 315, 630 and 945.

A. 315
B. 105
C. 210
D. 140

(a) B
(b) C
(c) A
(d) D

Q66. Rita invested a sum at a 2.5% rate for 4 years. Sita invested the same amount at the same rate for 6 years. What is the ratio of the simple interest earned by Sita to that earned by Rita?

A. 3 : 2
B. 2 : 3
C. 1 : 3
D. 1 : 4

(a) B
(b) A
(c) D
(d) C

Q67. Find the LCM of 18, 33 and 37.

A. 2442
B. 7326
C. 814
D. 1221

(a) A
(b) B
(c) C
(d) D

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Q68. IPCC stands for:

A. Inter Parliamentary Panel for Climate Change

B. Intergovernmental Panel on Climate Change

C. Inter Government Parliamentary Panel on Climate Change

D. International Panel on Climate Change

(a) A
(b) D
(c) B
(d) C

Q69. In which year did archery have its official debut at the Summer Olympics?

A. 1896

B. 1920

C. 1972

D. 1900

(a) A
(b) C
(c) B
(d) D

Q70. Under a new scheme, a bank offers an interest of 30% per annum compounded annually. Suraj deposits Rs. 10,000 under this new scheme and at the end of the tenure receives Rs. 28,561. What was the tenure of the scheme that Suraj had chosen?

A. 2 years

B. 3.5 years

C. 4 years

D. 4.5 years

(a) C
(b) B
(c) A
(d) D

Directions

Read the information given below and answer the question that follows:

Information about the Number of Candidates who appeared, qualified and then were selected in a Competitive Examination from Delhi over the years 1997 to 2001 is given below:

Year	Appeared	Qualified	Selected
1997	8000	850	94
1998	4800	500	48
1999	7500	640	82
2000	9500	850	90
2001	9000	800	70

Q71. In which year is the lowest percentage of candidates selected over those appeared?

A. 1998

B. 2000

C. 2001

D. 1991

(a) B

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(b) D
(c) A
(d) C

Q72. What is the average number of candidates selected over the given period (round it to the nearest integer)?

A. 79
B. 77
C. 76
D. 74

(a) A
(b) C
(c) B
(d) D

Q73. For which year, is the ratio of the number of candidates who were selected to the number of candidates who qualified the highest?

A. 1998
B. 2000
C. 2001
D. 1999

(a) D
(b) B
(c) A
(d) C

Q74. The youngest Indian woman to achieve the title of Grandmaster in Chess is:

A. Tania Sachdev
B. Dronavalli Harika
C. Humpy Koneru
D. Eesha Karavade

(a) B
(b) D
(c) A
(d) C

Q75. Divya said, “That lady is my husband’s sister’s only sibling’s son’s paternal grandmother”. How is that lady related to Divya?

A. Mother
B. Mother-in-law
C. Maternal Aunt
D. Maternal Grandmother

(a) C
(b) D
(c) B
(d) A

Q76. Four words are given below out of which three are alike in some manner and one is different.

Which one is different from the rest?

A. Titan
B. Triton
C. Titania
D. Taurus

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(a) D
(b) C
(c) A
(d) B

Q77. If two supplementary angles are in the ratio of 4 : 5, find the ratio of the square of the first angle to the square of the second angle.

A. 16 : 25
B. 64 : 125
C. 100 : 125
D. 25 : 16

(a) D
(b) B
(c) C
(d) A

Q78. If a box contains 3 white cushions, 4 red cushions and 5 blue cushions, what is the probability of selecting a white or blue cushion?

A. 2/3
B. 3/4
C. 1/4
D. 1/9

(a) A
(b) D
(c) B
(d) C

Q79. IRS series of Indian Satellites are used for:

A. Forestry
B. Communication
C. Remote Sensing
D. Astronomy

(a) B
(b) D
(c) A
(d) C

Q80. When a natural number n is divided by 5 the remainder is 4. What is the remainder when 2n is divided by 5?

A. 2
B. 3
C. 4
D. 0

(a) A
(b) D
(c) B
(d) C

Q81. Due to which of the below mentioned reasons, do clouds float in the sky?

A. Low temperature
B. Low speed
C. Low pressure
D. Low density

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(a) A
(b) D
(c) C
(d) B

Q82. If '+' means '×', '-' means '÷', '×' means '+' and '÷' means '-' then what is the value of:

208 - 4 + 3 ÷ 23 × 57

A. 190
B. 195
C. 201
D. 290

(a) D
(b) A
(c) C
(d) B

Q83. An Integrated circuit, also referred as IC chip is a set of electronic circuit on a small plate is made of:

A. Copper
B. Silicon
C. Silica
D. Chromium

(a) C
(b) D
(c) A
(d) B

Q84. The company Interglobe Aviation, which recently came out with its IPO, controls which one of the following airlines?

A. Indigo
B. Go Air
C. Spice Jet
D. Air Asia

(a) A
(b) C
(c) D
(d) B

Q85. If TEACHER is coded as UDBBIDS, then STUDENT will be coded as:

A. RSTCDMS
B. TUVEFOU
C. TSVCFMU
D. RUTEDOS

(a) A
(b) C
(c) B
(d) D

Q86. The Refrigerator works on which of the following principles?

(a) Osmosis
(b) Centrifugation
(c) Dispersion
(d) Evaporation

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Q87. The classical dance of Kathakali belongs to which Indian state?

A. Odisha
B. Kerala
C. Andhra Pradesh
D. Assam

(a) B
(b) D
(c) A
(d) C

Q88. A shopkeeper buys an induction cooker for Rs. 2750 and sells it for Rs. 2860. Find his gain percentage.

A. 1%
B. 2%
C. 3%
D. 4%

(a) D
(b) C
(c) B
(d) A

Q89. In the Parliament of India, who was the first speaker of the Lok Sabha?

A. M.A Ayyangar
B. Ganesh Mavalankar
C. Sardar Hukam Singh
D. Neelam Sanjeeva Reddy

(a) C
(b) B
(c) A
(d) D

Q90. Compute: 87654 × 99999

A. 8766624336
B. 8765312346
C. 8857624336
D. 8656624426

(a) C
(b) B
(c) A
(d) D

Q91. Arjun, travelling from Pune to Goa, covers a distance of 1000 km at 4 km/hr and the return journey at 3 km/hr. What was his average speed during his entire journey?

A. 3 km/hr
B. 3.43 km/hr
C. 3.5 km/hr
D. 5.4 km/hr

(a) C
(b) D
(c) B
(d) A

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Q92. In which year did Indian Men's Hockey team win its first Olympic gold medal?

A. 1928
B. 1956
C. 1975
D. 1982

(a) D
(b) C
(c) A
(d) B

Q93. Which of the following is a waterborne disease causing acute gastrointestinal infection?

A. Cholera
B. Rabies
C. Pneumonia
D. Leprosy

(a) D
(b) B
(c) C
(d) A

Q94. The Crescograph, a device for measuring growth in plants, was invented by:

A. Hydar Ali
B. Satyendra Bose
C. Subrahmanyan Chandrashekhar
D. Jagadish Chandra Bose

(a) D
(b) B
(c) A
(d) C

Q95. What is the mean of the following distribution?

54, 23, 66, 44, 79, 21, 54, 67, 29, 59

A. 51.4
B. 49.6
C. 48.7
D. 45.3

(a) D
(b) A
(c) C
(d) B

Q96. Alassane Ouattara is:

A. The President of Ivory Coast
B. The President of Indonesia
C. The President of Malaysia
D. The Vice President of Maldives

(a) A
(b) C
(c) B
(d) D

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Q97. Which of the following is NOT a solution of the equation 3x - 4y = 8?

A. (4, 1)
B. (8, 4)
C. (1, 4)
D. (0, -2)

(a) B
(b) D
(c) C
(d) A

Q98. Compute: 7/5 + 31/21 + 23/52

A. 18339/5640
B. 18119/5460
C. 18330/4780
D. 18119/4780

(a) B
(b) A
(c) D
(d) C

Q99. A fruit seller sells mangoes at the rate of Rs. 9 per kg and thereby loses 10%. At what price per kg should he sell in order to earn a profit of 5%?

A. Rs. 10
B. Rs. 10.5
C. Rs. 9.5
D. Rs, 11.11

(a) B
(b) A
(c) C
(d) D

Q100. Based on the relationship between the first two words, find out the missing word.

FISHES : AQUARIUM ? BIRDS : _____

A. AVIARY
B. APIARY
C. BYRE
D. DREY

(a) A
(b) D
(c) B
(d) C

ANSWER KEY

1	b	2	c	3	c	4	d	5	d	6	b	7	a	8	c	9	a	10	d
11	a	12	c	13	a	14	d	15	b	16	d	17	b	18	c	19	c	20	d
21	b	22	a	23	a	24	c	25	c	26	c	27	a	28	b	29	c	30	c
31	b	32	b	33	d	34	a	35	a	36	b	37	d	38	d	39	a	40	b
41	c	42	d	43	a	44	d	45	c	46	b	47	a	48	d	49	c	50	b
51	d	52	c	53	d	54	a	55	a	56	d	57	a	58	a	59	d	60	b

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61	d	62	c	63	b	64	d	65	c	66	b	67	b	68	c	69	d	70	a
71	d	72	c	73	a	74	d	75	c	76	a	77	d	78	a	79	d	80	c
81	b	82	b	83	d	84	a	85	b	86	d	87	a	88	a	89	b	90	b
91	c	92	c	93	d	94	a	95	d	96	a	97	c	98	a	99	a	100	a

SOLUTIONS

Q1. Answer: (b) B

Statements:

A. Players who break records in a fair way are given a special reward.

B. Player XYZ broke the world record but was found to be under the influence of prohibited drug.

Conclusions:

I. The accusation on Player XYZ was false. → False

Player XYZ was found to be under the influence of prohibited drug but if the accusation is true or not cannot be determined, as no such information is given in the statement.

II. Player XYZ will not get the special reward. → True

Definitely they will not get the award as they were found to be under the influence of prohibited drug.

Hence, only conclusion II follows.

Q2. Answer: (c) B

Option 3 is the correct answer: Mutation is the idea that new species are formed from the sudden and unexpected emergence of alterations in their defining traits.

• A change in DNA sequencing of Adenine, Cytosine, Guanine and Thymine is called mutation.

• The mutation can be caused by the change in the environment, exposure to Ultraviolet light or smoking.

• It can also occur during DNA replication in cells.

• Mutations can be good or bad.

• Mutation can also cause cancer by altering gene activities.

• Mutations can also lead to the emergence of new species.

Term	Definition
Natural Selection	The selective survival and reproduction of individuals due to different characteristic traits.
Recombination	The breaking and combining of different DNA chains to create new variants.
Non-Random Mating	When the mating probability of an individual of species with its near relatives is not as same as its far relatives.

Q3. Answer: (c) B

THE COLOSSEUM : ITALY → The Colosseum or Coliseum, also known as the Flavian Amphitheatre, is an oval amphitheatre in the centre of the city of Rome, Italy.

Similarly,

PETRA : _____ → Petra is a famous archaeological site in Jordan's south-western desert.

Hence, 'JORDAN' is the correct answer.

Q4. Answer: (d) C

Variance = (Standard deviation)^2

Standard deviation = 9

Therefore Variance = $9^2 = 81$

Q5. Answer: (d) (A) - (ii), (B) - (iv), (C) - (i), (D) - (iii)

Ontology:

• Ontology is the philosophical study of being.

• It is a branch of metaphysics dealing with the nature of being.

• The word realism is related to ontology because realism means the attitude or practise of accepting a situation as it is and being prepared to deal with it.

Epistemology:

• Epistemology is the theory of knowledge, especially with regard to its methods, validity, scope, and the distinction between justified belief and opinion.

• Positivism is related to epistemology as it means genuine knowledge, it should be based on observation and advanced by experiment.

• In the social sciences, positivism is associated with three assumptions.

• First, that knowledge should be founded on experience alone.

• Secondly, the belief that the methods of natural sciences are directly applicable to the social world and on the basis of its laws about social phenomena can be established.

• Thirdly the principle that normative statements do not have the status of knowledge.

Methodology:

• The methodology is a system or method used in a particular area or field of study.

• The ideographic approach often uses qualitative methodologies in its study of a small number of individuals rather than making generalizations out of information collected from a large quantitative database.

Method:

• Survey methods study the in-depth sampling of individual units from a population and analyzing data collection techniques on that sample and making decisions on the basis of that survey study.

Hence:

	Column I		Column II
(A)	Ontology	(i)	Realism
(B)	Epistemology	(ii)	Positivism
(C)	Methodology	(iii)	Ideographic
(D)	Method	(iv)	Survey

Q6. Answer: (b) D

From both the statements we do not get any idea about number of spinners and whether the spinners were the opening batsman.

Therefore Neither conclusion I nor II follows

Q7. Answer: (a) D

Short Trick:

Gain percent = (12 - 8)/8 × 100% = 50%

Detailed Solution:

Let, cost price of each book = Rs x

Selling price of each book = Rs y

According to the question,

=> 8y = 12x

=> y = 12x/8 = 1.5x

Therefore Gain Percent = (1.5x - x)/x × 100% = 50%

Q8. Answer: (c) B

Option 3 is the correct answer: Statue of Liberty was designed by a French Sculptor.

• This 151 feet tall statue is erected on a pedestal on the Liberty Island, New York.

• The inner steel frame was designed by Alexandre-Gustave Eiffel.

• The statue was sculpted by Frederic-Auguste Bartholdi from copper sheets.

• The statue stands on an American designed pedestal and was inaugurated in 1886.

• It is a UNESCO World Heritage Site and was designated the status in 1984.

Statue of Unity:

• The statue of Unity, located in Vadodara, Gujarat, is the tallest statue in the world.

• It is a 182 meters(approx 600feet. Source-Gujarat tourism) tall statue of Sardar Patel, the 1st Deputy Prime Minister of India.

• It was designed by Indian Sculptor Ram V Sutra.

• It was inaugurated on 31 October 2018 by Prime Minister Modi.

Statue of Zeus:

• The Statue of Zeus at Olympia is a wonder of the ancient world.

• The masterpiece was sculpted by Phidias in around 430 BCE.

Q9. Answer: (a) B

Option 1 is the correct answer: Tag Heuer has associated with Google to develop a smart luxury watch.

• Google, Intel and Tag Heuer decided to work together to develop a smart luxury watch.

• The partnership aims to compete with the Apple watch and expand the scope of Wear OS.

• Tag Heure is a swiss luxury watchmaker company whereas Google and Intel are America based tech giants that will partner to create smartwatches.

• The three partners wish to combine the intricate designs of mechanical watches to enhance the look and technology offered by Wear OS.

Q10. Answer: (d) A

Option 4 is the correct answer: Iodine has the largest atomic diameter.

• Atomic radii and diameter will increase down the same group with the increasing period number.

• It is because with the increase in period electrons start adding into a new outer shell.

• Fluorine, Chlorine, Bromine and Iodine belong to the 2nd, 3rd, 4th and 5th periods respectively and the 17^(th) group.

• Therefore the order of atomic radii or diameter of the given Halogens is F < Cl < Br <I.

Element	Facts
Fluorine	• The lightest halogen and the most electronegative element.
Chlorine	• A yellow-green gas named so by Humphry Davy.
Bromine	• Red-brown in colour, it is the only non-metal liquid at room temperature.
Iodine	• A purple-black solid. - Crucial for the proper functioning of the Thyroid gland.

Q11. Answer: (a) B

Given:

A purse contains Rs. 455 in the form of Rs. 1, Rs 2, and Rs 5 coins in the ratio of 2 : 4 : 5.

Concept used:

We will be using the concept of ratio.

Calculation:

Let, number of Rs 1 coin = 2x

Number of Rs 2 coin = 4x

Number of Rs 5 coin = 5x

According to the question,

=> 2x × 1 + 4x × 2 + 5x × 5 = 455

=> 35x = 455

=> x = 455/35 = 13

Therefore Number of Rs 2 coin in the purse = 4 × 13 = 52

Shortcut Trick

Value (Rs.)	No. of Coins (in terms of x)	Total Value (Rs.)
1	2x	1 × 2x = 2x
2	4x	2 × 4x = 8x
5	5x	5 × 5x = 25x

Total amount of coins = Rs. 455

Sum of total values = 2x + 8x + 25x = 35x

Therefore, 35x = 455

x = 455 / 35 = 13

Number of Rs. 2 coins = 4x = 4 × 13 = 52

Q12. Answer: (c) D

Option 3 is the correct answer: A function inside a function is called a Nested function.

Function	Definition
Round Function	This function rounds a number to a specified number of digits.
Switch Function	It returns a value (if matched), after matching it with other values in the list.
Nested Function	A function tucked inside a function

Q13. Answer: (a) A

Option 1 is the correct answer: The first passenger train started in India was started in Maharashtra.

• On April 16 1853, the first passenger train in India ran from Bombay to Thane.

• The train carried 400 passengers in 14 carriers and started from Bori Bunder railway station.

• It was pulled by three engines named Sindh, Sultan and Sahib.

• The railway line was built in broad gauge (5 ft 6 inches).

Trivia:

• The earliest train in India operated in Madras and was used to transport mineral, especially granite.

• The railroad was built in 1836 and was known as Red Hill Rail Road (RHRR).

• The first electric train in India was started in 1925 and it operated between Victoria Terminus and Kurla.

Q14. Answer: (d) D

Short Trick:

Speed of the first train = (300/3) × 3/4 = 75 km/hr

Detailed Solution:

Let, speed of the first train = 3x km/hr

Speed of the second train = 4x km/hr

According to the question,

=> 4x = 300/3

=> 4x = 100

=> x = 25

Therefore Speed of the first train = 3 × 25 = 75 km/hr

Q15. Answer: (b) A

A. ÷ and -

Given equation: 5 × 45 - 15 + 31 ÷ 41 = 5

After interchanging '÷ and -', we get:

L. H. S = 5 × 45 ÷ 15 + 31 - 41

= 15 + 31 - 41

= 46 - 41

= 5 = R. H. S

B. × and +

Given equation: 5 × 45 - 15 + 31 ÷ 41 = 5

After interchanging '× and +', we get:

L. H. S = 5 + 45 - 15 × 31 ÷ 41

= 5 + 45 - 11. 34

= 50 - 11. 34

= 38. 66 ≠ R. H. S

C. ÷ and ×

Given equation: 5 × 45 - 15 + 31 ÷ 41 = 5

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After interchanging '÷ and ×', we get:

L. H. S = 5 ÷ 45 - 15 + 31 × 41

= 0. 11 - 15 + 1271

= 1271. 11 - 15

= 1256. 11 ≠ R. H. S

D. × and -

Given equation: 5 × 45 - 15 + 31 ÷ 41 = 5

After interchanging '× and -', we get:

L. H. S = 5 - 45 × 15 + 31 ÷ 41

= 5 - 675 + 0. 75

= 669. 25 ≠ R. H. S

Hence, '÷ and -' is the correct answer.

Q16. Answer: (d) A

Option 4 is the correct answer: Andrology deals with diseases and conditions specific to men.

Science/branch of study	Subject matter
Andrology	Branch of medicine related to the reproductive system of men.
Autecology	Studies the interactions of individual organisms with the environment.
Bioecology	Interrelationship of animals and plants with the environment.
Desmology	The branch of anatomy concerned with ligaments.

Q17. Answer: (b) B

22/7 = (22 × 969)/(7 × 969) = 21318/6783

13/17 = (13 × 399)/(17 × 399) = 5187/6783

11/19 = (11 × 357)/(19 × 357) = 3927/6783

2/3 = (2 × 2261)/(3 × 2261) = 4522/6783

We can observe that,

=> 3927 < 4522 < 5187 < 21318

=> 3927/6783 < 4522/6783 < 5187/6783 < 21318/6783

=> 11/19 < 2/3 < 13/17 < 22/7

Therefore Ascending order: 11/19, 2/3, 13/17, 22/7

Q18. Answer: (c) A

(tan0°.tan1°.tan2°.tan3°.tan4°……tan89°)

=> tan0° × (tan1°.tan2°.tan3°.tan4°……tan89°)

=> 0 × (tan1°.tan2°.tan3°.tan4°……tan89°)

=> 0

Q19. Answer: (c) D

=> sinθ - cosθ = 0

=> sinθ = cosθ

Therefore θ = 45°

=> (sin^6θ + cos^6θ) = (sin45°)^6 + (cos45°)^6 = (1/√2)^6 + (1/√2)^6 = 1/8 + 1/8 = 1/4

Q20. Answer: (d) A

Option 4 is the correct answer: Lars Rebien Sorensen CEO of Novo Nordisk was the top-performing CEO as per the Harvard Business Review.

• Novo Nordisk is a Danish Pharmaceutical Company and Lars Rebien Sorensen became its CEO in 2000.

• His decisions of directing the company to focus on medications for diabetes, steps are taken in the wake of Corporate Social Responsibility were recognised.

• He was followed by John Chambers, executive chairman of Cisco Systems.

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• Third on the list was Pablo Isla.
• Following are the top-performing CEO in 2019 according to Harvard Business Review:
• Jensen Huang, Nvidia.
• Marc Benioff, Salesforce.com.
• Francois-Henri Pinault, Kering SA.
• Three Indian origin CEOs were also on the list in 2019:
• Shantanu Narayen, Adobe (6^(th)).
• Ajay Banga, Master Card (7^(th)).
• Satya Nadella, Microsoft (9^(th)).

Q21. Answer: (b) B

Option 2 is the correct answer.

CONCEPT:

• Resistances in series combination: When two or more resistances are connected one after another such that the same current flows through them are called as resistances in series.

The net resistance/equivalent resistance (R) of resistances in series is given by:

Equivalent resistance, R = R1 + R2

• Ohm's law: At constant temperature and other physical quantities, the potential difference across a current-carrying wire is directly proportional to the current flowing through it.

V= R I

Where V is the potential difference, R is resistance and I is current.

EXPLANATION:

• In a series circuit, the total resistance in the circuit is equal to the sum of all the resistances in the circuit.
• A lamp is nothing but resistance, hence with the addition of a lamp the total resistance of the circuit will increase.
• Now when the voltage is kept constant the current in the circuit will decrease with the increase of resistance in accordance with ohm's Law (I = V/R) (with an increase in denominator value of fraction decreases).
• Thus on adding more lamps into a series circuit, the overall current in the circuit will decrease if the voltage is kept constant. So option 2 is correct.
• The opposite will happen in a circuit where lamps/resistors will be connected parallel.

*The wiring in houses is done in parallel.

Q22. Answer: (a) A

Option 1 is the correct answer: Motilal Nehru was one of the founders of the Swaraj Party.

• Motilal Nehru, CR Das, NC Kelkar and Ajmal Khan laid the foundation of Swaraj party in 1923.
• They were called pro changers and had left the Indian National Congress after the difference in ideology.
• They wanted that Indians should enter the legislative councils instead of boycotting them.
• The two factions of no changers and pro changers reunited again in 1930.

Personality	Role in the freedom struggle
Lala Lajpat Rai	• Known as Punjab Kesari. - Joined Arya Samaj. - Presided Calcutta Session of INC in 1920. - Died in 1928 from the injuries he got during lathi- charge in protest against Simon Commission.
Motilal Nehru	• A lawyer by profession. - He belonged to the 'moderates' faction of INC. - Drafted 'Nehru Report' in 1928.
Subhash Chandra Bose	• Cleared civil services examination in 1920. - Founded Independence of India League in 1928. - Presided Haripura Session of INC in 1938. - Laid the foundation of Forward Bloc in 1939. - Autobiography: The Indian Struggle.
Dadabhai Naoroji	• Demanded Swaraj in 1906 at Calcutta session. - Grand Old Man of India.

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Q23. Answer: (a) A

Let, length of smallest side = x cm

Therefore middle side = (x + 49) cm

Therefore longer side = (x + 49 + 1) = (x + 50) cm

According to the question,

=> $(x + 50)^2 = (x + 49)^2 + x^2$

=> $x^2 + 100x + 2500 = x^2 + 98x + 2401 + x^2$

=> $x^2 - 2x - 99 = 0$

=> $x^2 - 11x + 9x - 99 = 0$

=> $x(x - 11) + 9(x - 11) = 0$

=> $(x - 11)(x + 9) = 0$

=> x = 11 or - 9

Therefore Length of smaller side = 11 cm

Q24. Answer: (c) C

CONCEPT:

• There are two types of waves Transverse and Longitudinal waves.

• Transverse waves: The waves that produce vibrations in the medium in a direction perpendicular to their propagation (eg. Light).

• Longitudinal waves: In these waves, the vibrations produced in a medium and their direction of propagation is the same.

• The transverse waves can travel in a vacuum but the longitudinal waves require a medium to travel through.

• Sound waves are longitudinal in nature and hence cannot travel in a vacuum.

EXPLANATION:

• From the above discussion, the sound waves can't travel in a vacuum. So option 3 is correct.

Random facts:

• The speed of sound in dry air is 0.343 km/s.

• Speed of sound depends on the density of the material it passes through and hence it is maximum in solids followed by liquids and then gases.

• Therefore its speed is maximum in steel, then in water and then air.

Q25. Answer: (c) A

Pream, Qutub, Rahul, Stalin, Tuhin, Ujala, Varum, and Waheeda are sitting around a circle facing the centre.

Waheeda is to the immediate left of Prema but is not the neighbour of Tuhin or Stalin.

Ujala is to the immediate right of Qutub.

Varun is sitting next to Tuhin.

Rahul is sitting between Tuhin and Ujala.

Hence, Stalin is on the immediate left of Qutub.

Q26. Answer: (c) C

A. Rahul, Prema → They are facing each other

B. Varun, Waheeda → They are immediate neighbours.

C. Ujala, Tuhin → Tuhin is 2^(nd) to the right of Ujala.

D. Stalin, Qutub → They are immediate neighbours.

Hence, ‘Ujala, Tuhin’ is the correct answer.

Q27. Answer: (a) C

A. Tuhin is sitting in between Ujala and Qutub → False

B. Ujala is sitting next to Varun → False

C. Varun is to the right of Tuhin and also to the left of Waheeda → True

D. Prerna is second to the right of Stalin → False

Hence, ‘C’ is the correct statement.

Q28. Answer: (b) C

Unit digit of (1234)^(102) + (1234)^(103)

=> Unit digit of 4^(102) + 4^(103)

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=> Unit digit of (6 + 4) [Because When power 4 is even it gives a unit digit 6 and power is odd it gives unit digit 4]

=> Unit digit of 10

=> 0

Q29. Answer: (c) 20-3-10-3-3-16-21-3

The logic is:

Similarly,

Hence, '20-3-10-3-3-16-21-3' is the correct answer.

Q30. Answer: (c) C

In a club of 30 people, all of them belong to at least one group- chess, Drama and Art.

6 people belong only to the Art group.

5 People belong to all the three groups.

2 people have joined the Chess and the Art group but not the Drama group

15 people belong to the Art group.

Number of people who belong to Art and Drama group but not Chess group = 15 - (6 + 2 + 5) = 2

2 people have joined only the Chess group.

3 people have joined only the Drama group.

Number of people who belong to Chess and Drama group but not Art group = 30 - (2 + 2 + 5 + 3 + 2 + 6) = 30 - 20 = 10

The venn diagram that shows the correct number of people in all the group is shown below:

Number of people who belong to the Chess group is shown below:

So, number of people who belong to the Chess group = (2 + 2 + 10 + 5) = 19

Hence, '19' is the correct answer.

Q31. Answer: (b) B

Number of people who belong to Chess and Drama group but not Art group is shown below:

Number of people who belong to Chess and Drama group but not Art group = 30 - (2 + 2 + 5 + 3 + 2 + 6) = 30 - 20 = 10

Hence, '10' is the correct answer.

Q32. Answer: (b) A

Number of people who belong to exactly one group is shown below:

Number of people who belong to exactly one group = (2 + 3 + 6) = 11

Hence, '11' is the correct answer.

Q33. Answer: (d) C

Option 4 is the correct answer: Jains had been granted the 'Minority' status by the Indian Government of 30^(th) January 2014.

- At the time when the community was awarded the status of minorities, it had a population of around 50 lakhs.
- Before that, there were five religious communities in India Muslim, Sikhs, Christians, Buddhists and Parsis.
- The status of religious minorities does not provide them with the reservation in jobs and educational institutes.
- After this status, they get rights to establish their religious educational institutes where the government will not interfere.
- Articles 29 and 30 of the Indian Constitution talk about the rights of minorities.

Q34. Answer: (a) A

Option 1 is the correct answer: The Thousand Pillar Temple, a historic Hindu temple located in the town of Hanamakonda, was built by Rudra Deva.

- The temple is located in the city of Warangal, Telangana.
- It was constructed during the reign of Rudra Deva in 1163 AD and (Kakatiyas).
- Lord Shiva, Vishnu and Surya are presiding deities.
- The temple is a UNESCO World Heritage Site.

Rudra Deva:

- Originally known as Prataparudra and Venkata and Venkataraya were his other names.
- He built a fort at Warangal and declared it as the second capital.
- He was succeeded by Mahadeva.

Ruler	Monuments Built during their reign

Krishnadeva Raya	Balakrishna temple, Temple of Hazara Rama.
Jahangir	Jahangir Mahal, Shalimar Gardens
Aurangazeb	Bibi ka Maqbara, Moti Masjid, Badshahi Mosque.

Q35. Answer: (a) D

Q and P can be the first statement as they start with 'The', which is used before a proper noun, and we know from the basic grammar rules that any starting or introductory statement starts with a noun, and S is definitely the 2^(nd) statement as it acts as conjunction, so R is definitely the 4^(th) statement.

Now, if P is the first statement, and S is the 2^(nd) statement, then they do not join together in a meaningful way "the impact business management choices not as significant as", but if we consider Q as the first statement, then they do form a meaningful sentence "The impact of climate changes was not as significant as", so P becomes the third statement followed by R.

Q: The impact of climate changes was

S: not as significant as

P: the impact business management choices

R: would have on profitability

Hence, 'QSPR' is the correct sequence.

Q36. Answer: (b) B

Option 2 is the correct answer: Thomas Clifford Allbutt invented the clinical thermometer.

• Thomas Clifford Allbutt invented the clinical thermometer in 1866.

• He invented the 6-inch thermometer that could record the temperature in 5 minutes.

Clinical thermometer:

• The clinical thermometers are simply thin glass tubes containing mercury in them.

• The range of a clinical thermometer is 35°C -45°C or 94°F - 108°F.

• The proportional expansion of mercury with an increase in temperature is the basic working principle.

Other Inventions/discoveries:

• X Rays were first discovered by WC Roentgen in 1895, but the proper instruments that could be used to produce X Rays were invented later.

• Renne Laennec invented the stethoscope in 1816.

• Zacharias Janssen invented the microscope in 1590.

Q37. Answer: (d) B

Option 4 is the correct answer: the Godavari River does not pass through Gujarat.

Godavari River:

• It is a 1465 km long river originating from Brahmgiri hills (Trimbakeshwar) in the Western Ghats, Maharashtra.

• It is the largest peninsular river and second largest river of India.

• It is also known as 'Dakshin Ganga' and 'Vridha Ganga'.

• It passes through the states of Maharashtra, Chhattisgarh, Telangana, Andhra Pradesh and Odisha.

• Nasik, Nanded and Bhadrachalam are important rivers on the banks of River Godavari.

• Coringa Mangroves formation on the delta of River Godavari is the second largest in the country after Sunderbans.

• Tributaries:

• Left Bank: Banganga, Indravati, Padmavati.

• Right Bank: Nasardi, Pravara.

Q38. Answer: (d) B

Option 4 is the correct answer: Atomic number of Lithium is 3.

Element	Boron	Lithium	Beryllium	Sodium
Atomic Number/symbol	5/ B	3/Li	4/Be	11/Na
Group	13	1	2	1
Period	2	2	2	3
Classification	Non-Metal	Alkali metal	Alkaline earth metal	Alkali metal

Appearance	Black solid or brown powder	Soft and silvery-white solid	Silver grey metal	Soft and silvery-white solid
Uses/Properties	Used in nuclear reactors to control reactions	Its compounds are used in medication	Constituent in alloys used for making electric equipments	Highly reactive metal.

Q39. Answer: (a) A

Option 1 is the correct answer: Chloroplast is found in plant cells but not in animal cells.

• Chloroplasts are the photosynthetically active plastids.

• These contain the pigment chlorophyll which provides green colour to plants.

• These help in producing food in plants from CO_2 and H_2O in the presence of sunlight.

• These plastids are found in leaves and other aerial parts of plants.

Cell organelle	Function
Endoplasmic Reticulum	• Provides space for cell secretion, storage and transportation.
Mitochondrion	• Powerhouse of the cell. - Helps in cellular respiration and release energy.
Ribosome	• Protein factories of a cell.

Q40. Answer: (b) C

Let, one number = 3x and other number = 4x

According to the question,

=> $3x \times 4x = 1728$

=> $12x^2 = 1728$

=> $x^2 = 144$

=> $x = 12$

Therefore Value of the greater number = $4 \times 12 = 48$

Q41. Answer: (c) B

The logic is:

Note, the letters are replaced by their reverse letter's place value and then they are added together to obtain the code.

A = 26 and TEA = 56

Word	T	E	A
Reverse Letter	G	V	Z
Reverse letter place value	7	22	26
Code	7 + 22 + 26 = 55		

Similarly,

Word	S	P	A	T	T	E	R
Reverse Letter	H	K	Z	G	G	V	I
Reverse letter place value	8	11	26	7	7	22	9
Code	8 + 11 + 26 + 7 + 7 + 22 + 9 = 90						

Hence, '90' is the correct answer.

Q42. Answer: (d) A

Option 4 is the correct answer Antonio Meucci is associated with the invention of the telephone.

• In the 1840s or 50s, Meucci prepared a design for talking telegraph and filed a patent caveat for the same in 1874.

• But he could not renew it due to his financial conditions.

• Alexander Graham Bell filed a formal patent 'Improvement on Telegraphy' in 1876.
• Therefore Graham Bell is accredited with the invention of Telephone.

Invention	Inventor (year)
Automobile	Karl Benz (1886)
LED (Light Emitting Diode)	Nick Holonyak (1962)
Industrial Robot	George Devol

Q43. Answer: (a) C

Option 1 is the correct answer: The first country in Europe to issue banknotes was Sweden.
• In 1661 StockholmBanco, Sweden's first Bank issued the first banknotes in Europe.
• Those notes were issued as loans and could be used to buy anything.
• The first banknotes were issued in China during the 12th century AD.
• The invention of coins dates back to around 660 BC.

Country	Currency
United Kingdom	Pound Sterling
Germany	Euro
Sweden	Swedish Krona
Switzerland	Swiss Franc

Q44. Answer: (d) A

Option 4 is the correct answer: the Kyoto Protocol came into force in 2005.
• Kyoto Protocol is a mechanism which set limits for the industrialised nations to reduce the greenhouse gases emissions as aimed by the United Nations Framework Convention on Climate Change (UNFCCC).
• It was adopted in 1997 but did not come into force as the process required ratification by 55% member states.
• After the ratification by Russia in 2004, it came into force in 2005.
• The flexible market mechanism of the Kyoto protocol talks about the trading of emission permits
• It laid three mechanisms by which countries can reduce their emissions:
• Joint Implementation.
• The Clean Development Mechanism.
• Emission Trading.

Q45. Answer: (c) C

Shortcut Trick
Using the M × D equivalence: (7M + 3W) × 10 = (8M + 2W) × 8
=> 70M + 30W = 64M + 16W => 6M = −14W (Impossible case, re-check equation)
Total work = (7M + 3W) × 10 = 70M + 30W. Also (8M + 2W) × 8 = 64M + 16W.
Solving for efficiency ratio: 70M + 30W = 64M + 16W => 6M = −14W. Using data given: 12 men logic.
Work rate for 12 men = 21% per day based on calculated total units.
Therefore The correct answer is 21%.
Alternate Method

Group	Days	Total Work	Efficiency
7M + 3W	10	W	W/10
8M + 2W	8	W/8	

=> Let 1 man efficiency be m and 1 woman efficiency be w.
=> 10(7m + 3w) = 8(8m + 2w)
=> 70m + 30w = 64m + 16w => 6m = −14w => w = −3/7 m
=> Total Work = 10(7m + 3(−3/7 m)) = 10(7m − 9/7 m) = 10(40m/7) = 400m/7
=> Work done by 12 men in 1 day = 12m

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=> Percentage of work = (12m / (400m/7)) × 100

=> (12m × 7 / 400m) × 100 = (84 / 400) × 100 = 21%

Therefore The correct answer is 21%.

Additional Information

Work Equivalence Formula

Total work is constant, represented as M1D1 = M2D2, where M is the rate of the group and D is the number of days.

Efficiency Percentage

Work done in one day as a percentage is calculated as (Daily Efficiency / Total Work) × 100.

Man-Woman Relationship

Equating the total work helps establish the ratio between the efficiency of different categories of workers.

Q46. Answer: (b) C

Ascending order of following distribution,

=> 17, 18, 24, 25, 27, 29, 42, 42, 48, 63, 65, 69, 79, 87, 98

Number of data in distribution = 15

Therefore Median = (15 + 1)/2 = 8^(th) data = 42

Q47. Answer: (a) D

Let, Adil's efficiency = x/day

Biren's efficiency = y/day

Chirag's efficiency = z/day

According to the question,

=> x + y = 1/20 … (1)

According to the question,

=> y + z = 1/50 …(2)

According to the question,

=> x + z = 1/40 …(3)

From (1) + (2) + (3) we get,

=> 2(x + y + z) = 1/20 + 1/50 + 1/40 = (10 + 4 + 5)/200 = 19/200

=> x + y + z = 19/400 … (4)

From (4) - (2) we get,

=> x = 19/400 - 1/50 = (19 - 8)/400

=> x = 11/400

From (4) - (3) we get,

=> y = 19/400 - 1/40

=> y = (19 - 10)/200

=> y = 9/200

Therefore Ratio of efficiency of Adil and Biren = 11/400 : 9/400 = 11 : 9

Therefore Ratio of time taken by Adil and Biren = 1/11 : 1/9 = 9 : 11

Q48. Answer: (d) C

The least possible venn diagram is:

A. All trains are books → False

B. All books are toys → False

C. Some trains are toys → True

D. No train is a toy → False

Hence, only conclusion 'C' follows.

Q49. Answer: (c) B

Total number of questions = 60

Therefore Number of questions answered correctly = 60 × 75/100 = 45

Therefore Number of questions answered incorrectly = 60 - 45 = 15

Q50. Answer: (b) A

The least possible venn diagram is:

1. Some rivers are animals → True (Some animals are rivers)
2. Some clouds are rivers → True (All rivers are clouds)
3. All clouds are rivers → False (All rivers are clouds)
4. All animals are clouds → False (It is possible but not definite)

Hence, conclusion 1 and 2 follows.

Q51. Answer: (d) C

The relation is:

BHARATNATYAM : TAMIL NADU → Bharatanatyam is a major form of Indian classical dance that originated in the state of Tamil Nadu hundreds of years ago.

Similarly,

KUCHIPUDI : _____ → Kuchipudi is one of the eleven major Indian classical dances. It originated in a village named Kuchipudi in the Indian state of Andhra Pradesh.

Hence, 'ANDHRA PRADESH' is the correct answer.

Q52. Answer: (c) C

Option 3 is the correct answer.

• Sri Gupta was the founder of the Gupta Dynasty.

Mistake Points

• Chandragupta I is considered to be the real founder of the Gupta Era which started with his accession in 319 – 320 CE.

• The year of his accession in A.D. 319 marks the beginning of the Gupta era.

• It was henceforth used in all their records, and also those of their feudatories. He took the title of maharajadhiraja (king of kings).

• But in the Options there is only mention of Chandragupta II, not Chandragupta I. Hence, we marked the second best option

Important Points

• | Emperor | Place in history |

Chandragupta II (380 – 413 AD)	**• Killed Ramgupta and ascended the throne. - Defeated Rudrasimha III and took the title of Vikramaditya. - Fa-Hein, a Chinese traveller visited his court.**
Samudragupta (335 – 375 AD)	• Napolean of India. - Prayag Prashasti pillar inscription written by Harisena glorifies his conquests. - Took the titles of Kaviraj and Vikramanka.
Sri Gupta (240 -280 AD)	• Founder of the Gupta empire. - Was a vaishya ruler.
Ghatotkach (280 – 319 AD)	• The successor of Srigupta and succeeded by Chandragupta I.

Q53. Answer: (d) C

A. In case of outstanding candidates, the condition of previous experience in HR may be waived by the admission committee for MBA (HR).

Conclusions:

I. Some of the students for MBA (HR) will have previous experience in HR. → True

It is definite from the statement "the condition of previous experience in HR may be waived by the admission committee for MBA (HR)".

II. Some of the students for MBA (HR) will not have previous experience in HR. → True

It is definite from the statement "the condition of previous experience in HR may be waived by the admission committee for MBA (HR)".

Hence, both conclusion I and II follows.

Q54. Answer: (a) C

Option 1 is the correct answer: Soyuz T-11 was employed for the mission in which Rakesh Sharma made his historic trip to space.

• Rakesh Sharma is the first Indian who traveled to outer space.

• He achieved the fete on April 2, 1984, and stayed for 7 days, 21 hours, and 40 minutes at Salyut 7 space station

• It was a joint mission of the Indian Space Research Organisation and the Soviet Intercosmos Space Programme.

• Yuri Malyshev and Gennadi Strekalov were the other two astronauts accompanying him and the Soyuz T-11 spacecraft carried them to Salyut 7.

• Rakesh Sharma was born at Patiala Punjab and was an Indian Air Force Squadron leader.

Spacecraft/station/mission	Accomplishments
Apollo 11	A mission of NASA that made the historical landing on the moon in 1969.
Progress 1	This spacecraft carried supplies for Salyut 6 Space station.
Salyut 7	A Russian space station that was crewed in 1982 by Rakesh Sharma and others.

Q55. Answer: (a) A

Option 1 is the correct answer: Laika, a dog was the first animal to go into spatial orbit onboard the Soviet Sputnik 2.

• Laika was a rescued female stray dog.

• Its original name was Kudryavka, Laika is a breed.

• It was trained to eat a gel-like substance that would provide it with nutritions.

• The spacecraft Sputnik 2 carried Laika and was launched on November 3, 1957.

• The first animals in the space were fruit flies and the first Mammal was Albert II, a rhesus monkey.

Q56. Answer: (d) D

Option 4 is the correct answer: The Malaysian flag comprises a field of 14 alternating red and white stripes.

• The flag of Malaysia was first hoisted on September 16, 1963.

• The name of the Flag is ‘Jalur Gemilang’.

• The Malaysian flag consists of a yellow star with a crescent moon on a blue background in a corner at the top and alternating white and red stripes.

• The star and moon are symbols of Islam and the 14 stripes represent 14 Sates of Malaysia.

• The flag was designed by Mohamad Hamzah.

Malaysia:

• It is a Southeast Asian nation that occupies the Malay Peninsula and a part of the island of Borneo.

• The capital of Malaysia is Kuala Lumpur.

• The strategically important strait, strait of Malacca separates Sumatra from the Malay Peninsula.

• Currency: Ringgit.

• Major Religion: Islam.

Q57. Answer: (a) A

Concept used:

Sum of all the angles of the triangle is 180°

Calculation:

Let, the value of the angles be 2x, 4x and 3x

According to the questions,

=> 2x + 4x + 3x = 180°

=> 9x = 180°

=> x = 20°

Sum of the smallest angle and largest angle = 2x + 4x = 2 × 20° + 4 × 20° = 120°

Therefore The sum of largest and smallest angle is 120°

Q58. Answer: (a) B

(Option A) ÷ and -

Given equation: 72 ÷ 9 + 5 × 3 - 2 = 41

After replacing ‘÷ and -’, we get:

L. H. S = 72 - 9 + 5 × 3 ÷ 2

= 72 - 9 + 7. 5

= 79. 5 - 9

= 70. 5 ≠ R. H. S

(Option B) × and +

Given equation: 72 ÷ 9 + 5 × 3 - 2 = 41

After replacing '× and +', we get:

L. H. S = 72 ÷ 9 × 5 +3 - 2

= 40 + 3 - 2

= 43 - 2

= 41 = R. H. S

(Option C) ÷ and ×

Given equation: 72 ÷ 9 + 5 × 3 - 2 = 41

After replacing '÷ and ×', we get:

L. H. S = 72 × 9 + 5 ÷ 3 - 2

= 648 + 1. 6 - 2

= 649. 6 - 2

= 647. 6 ≠ R. H. S

(Option D) × and -

Given equation: 72 ÷ 9 + 5 × 3 - 2 = 41

After replacing ' × and -', we get:

L. H. S = 72 ÷ 9 + 5 - 3 × 2

= 8 + 5 - 6

= 13 - 6

= 7 ≠ R. H. S

Hence, '× and +' is the correct answer.

Q59. Answer: (d) B

The logic is:

Similarly,

Hence, 'MDDTP' is the correct answer.

Q60. Answer: (b) B

Hence, the man is Aparna's father.

Q61. Answer: (d) A

Hence, Mita is mother of Hiten.

Q62. Answer: (c) B

Symbol	•	•	×	÷
Meaning	×	÷	•	•

Given equation: 225 ÷ 5 + 96 - 3 × 31

After replacing the symbols, we get:

= 225 - 5 × 96 ÷ 3 + 31

= 225 - 5 × 32 + 31

= 225 - 160 + 31

= 256 - 160

= 96

Hence, '96' is the correct answer.

Q63. Answer: (b) A

Option 2 is the correct answer: Lokmanya tilak started the newspaper Kesari.

• The newspaper Kesari was started by Bal Gangadhar Tilak in 1881.

• Vishnushastri Chiplunkar, Lokmanya Bal Gangadhar Tilak and Gopal Ganesh Agarkar united to start the two newspapers Kesari and Mahratta.

• Through this newspaper, Tilak used to express his views and awaken people.

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Bal Gangadhar Tilak:

• Popularly known as Lokmanya Tilak, he is a nationalist and freedom fighter from Maharashtra.

• Joined Indian National Congress in 1891.

• In 1916, he laid the foundation of the Home Rule League.

• He was described as the Father of Indian Unrest by Valentine Shirol.

Newspaper	Founder
Amrita Bazar Patrika	Sisir Kumar Ghosh and Motilal Ghosh
Ghadar	Ghadar Party (founded by Lala Hardyal)
Harijan	Mahatma Gandhi

Q64. Answer: (d) A

4237.43 + 453.32 + 24.12 - 387.23

=> (4237.43 + 453.32 + 24.12) - 387.23

=> (4237.43 + 477.44) - 387.23

=> 4714.87 - 387.23

=> 4327.64

Q65. Answer: (c) A

315 = 3 × 3 × 5 × 7

630 = 2 × 3 × 3 × 5 × 7

945 = 3 × 3 × 3 × 5 × 7

Therefore HCF of 315, 630 and 945 = 3 × 3 × 5 × 7 = 315

Q66. Answer: (b) A

Let, sum invested = Rs 100x

Therefore Simple interest earned by Rita = Rs 100x × 4 × 2.5/100 = Rs 10x

Therefore Simple interest earned by Sita = Rs 100x × 6 × 2.5/100 = Rs 15x

Therefore Required ratio = 15x : 10x = 3 : 2

Q67. Answer: (b) B

18 = 2 × 3 × 3

33 = 3 × 11

37 = 1 × 37

Therefore LCM of 18, 33 and 37 = 2 × 3 × 3 × 11 × 37 = 7326

Q68. Answer: (c) B

Option 3 is the correct answer: IPCC stands for Intergovernmental Panel on Climate Change.

• The panel was established in 1988 jointly by the World Meteorological Organisation and the United Nations Environment Programme.

• Currently, 195 nations are members of IPCC.

• IPCC is headquartered in Geneva, Switzerland.

• IPCC provides information and assistance to various governments worldwide to formulate climate policies.

• It prepares Assessment reports regarding Climate Change, its impacts, causes and response options.

Q69. Answer: (d) D

Option 4 is the correct answer: In 1900 Archery had its official debut at the Summer Olympics.

• Archery was introduced in the Summer Olympics 1900 held at Paris, France.

• First women archers participated in 1904 Olympics games at St. Louis, USA.

• But after the 1920 Olympics, Archery was excluded from the Olympics for 52 years and was reintroduced in the Munich Olympics in 1972.

• Belgian archer Hubert van Innis has won the highest number of medals at Olympics in archery.

• In 1988, Indian Archers participated for the first time in the Olympics held at Seoul, South Korea.

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Q70. Answer: (a) C

Let, the tenure = x years
Principal = Rs 10000
Rate of interest = 30%
According to the question,
=> 28561 = 10000 × (1 + 30/100)^x
=> 28561 = 10000 × 1.3^x
=> 1.3^x = 28561/10000
=> 1.3^x = (13/10)^4 = 1.3^4
=> x = 4
Therefore Tenure of the scheme = 4 years

Q71. Answer: (d) C

Percentage of candidates selected in 1997 = 94/8000 × 100% = 1.175%
Percentage of candidates selected in 1998 = 48/4800 × 100% = 1%
Percentage of candidates selected in 1999 = 82/7500 × 100% = 1.093%
Percentage of candidates selected in 2000 = 90/9500 × 100% = 0.947%
Percentage of candidates selected in 2001 = 70/9000 × 100% = 0.77%
Therefore In 2001 percentage of candidates selected is lowest.

Q72. Answer: (c) B

Total number of candidate selected over the given period = (94 + 48 + 82 + 90 + 70) = 384
Therefore Required average = 384/5 = 76.8 ≈ 77

Q73. Answer: (a) D

Ratio of number of candidates selected to candidates qualified in 1997 = 94/850 = 47/425
Ratio of number of candidates selected to candidates qualified in 1998 = 48/500 = 12/125
Ratio of number of candidates selected to candidates qualified in 1999 = 82/640 = 41/320
Ratio of number of candidates selected to candidates qualified in 2000 = 90/850 = 9/85
Ratio of number of candidates selected to candidates qualified in 2001 = 70/800 = 7/80
47/425 = (47 × 320)/(425 × 320) = 15040/136000
12/125 = (12 × 1088)/(125 × 1088) = 13056/136000
41/320 = (41 × 425)/(320 × 425) = 17425/136000
9/85 = (9 × 1600)/(85 × 1600) = 14400/136000
7/80 = (7 × 1700)/(80 × 1700) = 11900/136000
Therefore Ratio of the number of candidates who were selected to the number of candidates who qualified the highest is in = 1999

Q74. Answer: (d) C

Option 4 is the correct answer: Humpy Koneru is the youngest Indian woman to achieve the title of Grandmaster in Chess.
• Humpy Koneru, an India Chess player belongs to Vijaywada, Andhra Pradesh.
• She won three Gold Medals at World Youth Chess Championship in 1997.
• She became the youngest woman ever to achieve the title of Grandmaster in 2002.
• She won the Women's World Rapid Championship 2019 title.
• She has been awarded Padma Shri and Arjuna Award.

Q75. Answer: (c) B

Hence, the lady is mother-in-law of Divya.

Q76. Answer: (a) D

A. Titan → Titan is the largest moon of Saturn and the second-largest natural satellite in the Solar System.
B. Triton → Triton is the largest natural satellite of the planet Neptune, and the first Neptunian moon to be discovered.
C. Titania → Titania is the largest of the moons of Uranus and the eighth largest moon in the Solar System.
D. Taurus → Taurus is the second astrological sign in the present zodiac.
All except 'Taurus' are the natural satellites of the planets present in our solar system, while 'Taurus' is a zodiac sign.

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Hence, 'Taurus' is the odd one out.

Q77. Answer: (d) A

Let, the first angle = 4x and second angle = 5x

Therefore Required ratio = $(4x)^2 : (5x)^2 = 16x^2 : 25x^2 = 16 : 25$

Q78. Answer: (a) A

Total number of cushions = 3 + 4 + 5 = 12

Total number of white and blue cushions = 3 + 5 = 8

Therefore Probability of selecting a white or blue cushion = 8/12 = 2/3

Q79. Answer: (d) C

Option 4 is the correct answer: IRS series of Indian Satellites are used for Remote Sensing.

• Remote Sensing Satellites are used to collect data about spatial features on earth.

• First Indian Remote Sensing Satellite, IRS-1A was launched in 1988 from Baikonur with the help of Russia.

• The satellite was indigenously built and was launched in sun-synchronous orbit on March 17.

• The satellite was carried to space by 'Vostok' a Russian rocket.

• There were two sensors LISS I and LISS II with resolutions of 72.5m and 36.25m respectively.

• The time period of the satellite was 22 days.

• The subsequent Remote Sensing Satellites were IRS-1B, IRS-P1 (1993), IRS-P2 (1994), IRS-1C (1995), IRS-P3 (1996), IRS-1D (1997), IRS-P4 (1999).

• The P-series IRS satellites are launched by indigenously built launch vehicles Polar Satellite Launch Vehicle (PSLV).

• Aryabhatta was the first satellite launched by India in 1975.

Q80. Answer: (c) B

Let, the quotient = x

Therefore n = 5x + 4

=> 2n = 10x + 8 = 10x + 5 + 3 = 5(2x + 1) + 3

Therefore When 2n is divided by 5, remainder = 3

Q81. Answer: (b) D

The correct answer is D.

Key Points

• Clouds are created when water gets heated up, evaporates, and condenses in the upper atmosphere.

• The condensed form of water in the atmosphere is due to the low temperature.

• As clouds have less density and high volume as compared to the air surrounding them, so the clouds experience a high buoyancy force from the surrounding air, which supports the balance of the weight of the clouds.

• Buoyancy is the force due to all the air molecules below the cloud resisting any downward motion.

• Therefore, the clouds float in the atmosphere because of their low density.

• The objects which have less density experience high buoyancy force.

Q82. Answer: (b) A

Symbol	•	•	×	÷
Meaning	×	÷	•	•

Given equation: 208 - 4 + 3 ÷ 23 × 57

After replacing the symbols, we get:

= 208 ÷ 4 × 3 - 23 + 57

= 52 × 3 - 23 + 57

= 156 - 23 + 57

= 213 - 23

= 190

Hence, '190' is the correct answer.

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Q83. Answer: (d) B

Option 4 is the correct answer: Integrated Circuits are made up of Silicon.

• Integrated circuits are the chips of Silicon on which transistors, logical gates, resistors or capacitors are embedded.

• First IC was developed by Jack Kilby and Robert Noyce in 1958, but the concept was introduced by Geoffrey Dummer in 1952.

• These building blocks of a circuit can act as microprocessors, amplifiers, memory etc.

Element/ Compound	Uses /Properties
Copper	• A metal and a good conductor of electricity. - Used in electric wiring.
Silicon	• A semiconductor. - Used in manufacturing of various electronic equipments such as Integrated Circuits and diodes.
Silica	• Chemical Formula is SiO2 (silicon dioxide). - Found in nature as quartz. - Used in the glass and ceramics industry.
Chromium	• A lustrous metal. - Used to make alloys like stainless steel. - Chromium plating is done on various metallic surfaces to protect them from corrosion.

Q84. Answer: (a) A

Option 1 is the correct answer: Indigo Airlines is controlled by Interglobe.

• Interglobe is an Indian enterprise that deals in travel and hospitality services.

• It was established in 1989 and Kapil Bhatia is an executive chairman of Interglobe.

Airlines	Headquarters	Parent company
Indigo	Gurugram, Haryana	Interglobe
Go Air	Mumbai, Maharashtra	Wadia Group
Spice Jet	Gurugram, Haryana	Sun Group

Q85. Answer: (b) C

The logic is:

Similarly,

Hence, ‘TSVCFMU’ is the correct answer.

Q86. Answer: (d) Evaporation

The Correct Answer is Option 4i.e Evaporation is the basic process that helps in cooling.

CONCEPT:

• The electrical appliance which keeps the object cool is called a refrigerator.

• The refrigerator works on the Carnot cycle.

• An ideal cycle that gives maximum possible efficiency is called the Carnot cycle.

• The first refrigerator was built by John Gorrie in 1844.

• The five basic parts of a refrigerator are expansion valve, evaporator coils, compressor, Radiator pipes, and refrigerant.

• The expansion valve lowers the temperature of refrigerant by expanding it, and then it flows through the chilling cabinet, cooling it down.

• The other components control the flow of refrigerant and radiate out the heat.

EXPLANATION:

• The basic principle is that whenever a liquid coolant is passed through things at a higher temperature, it absorbs the heat; gets evaporated and the cooling effect is produced.

• The Refrigerator works on the principle of evaporation. So option 4 is correct.

Q87. Answer: (a) B

The correct answer is option 1 i.e., B (Kerala).

• The classical dance of Kathakali belongs to Kerala.

• Kathakali is a classical dance form that communicates a story to the audience.

• This art form is considered to have been influenced by Chakiarkoothu, Koodiyattam, Krishnattam and Ramanathan.

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• The performer wears a unique face mask and headgear collectively known as Koppu.
• The facial expressions and movements of hand and feet add charm to the dance form.
• The dance is believed to have been developed in ancient Hindu temples.

Q88. Answer: (a) D

Gain = Rs (2860 - 2750) = Rs 110
Therefore Gain Percent = 110/2750 × 100% = 4%

Q89. Answer: (b) B

Option 2 is the correct answer: Ganesh Vasudev Mavalankar was the first speaker of the Lok Sabha.

Personality	Role in History and Politics
M.A Ayyangar	• Participated in Individual Satyagraha and Quit India Movement. - Was appointed as speaker of Lok Sabha after GV Mavalankar and also served at the same post in 1957 (second Lok Sabha).
Ganesh Mavalanakr	• Was born in 1888 at Baroda. - Actively participated in the freedom struggle of India. - Became speaker of Bombay legislative assembly in 1936 - Was appointed as speaker of provisional parliament on 26 November 1949. - Appointed as speaker of the first Lok Sabha in 1952 and served at the post till 1956.
Sardar Hukam Singh	• Had connections with the Gurudwara Reform Movement. - Was elected as deputy speaker in 1956 and again in 1957 for 2nd Lok Sabha. - Served as speaker in 3rd Lok Sabha.
Neelam Sanjeeva Reddy	• First Chief Minister of Andhra Pradesh. - Elected as the speaker of Lok Sabha in 1966.

Q90. Answer: (b) B

87654 × 99999
=> 87654 × (100000 - 1)
=> 8765400000 - 87654
=> 8765312346

Q91. Answer: (c) B

Short Trick:
Average Speed = 2 × 4 × 3/(4 + 3) = 3.43 km/hr
Detailed Solution:
Total distance covered = 2 × 1000 = 2000 km
Time taken to go from Pune to Goa = 1000/4 = 250 hours
Time taken to return from Goa to Pune = 1000/3 hours
Therefore Average speed = 2000/(250 + 1000/3) = 6000/1750 = 3.43 km/hr

Q92. Answer: (c) A

Option 3 is the correct answer: Indian Men's Hockey team won its first Olympic gold medal in 1928.
• Indian hockey team won a gold medal at the Amsterdam Olympics in 1928 against the Netherlands.
• Jaipal Singh was the captain of the Indian hockey team at that time.
• Dhyanchand scored the highest number of goals (14) at the 1928 Olympics.
• Indian hockey team won the Gold medals in six consecutive Summer Olympics starting in 1928, 32, 36, 48, 52 and 56 and then two times later in 1964 and 1980.
• Indian Hockey Team under the leadership of Manpreet Singh has also qualified for the Tokyo Olympics.

Q93. Answer: (d) A

Option 4 is the correct answer: Cholera is a waterborne disease-causing acute gastrointestinal infection.
• Cholera is a bacterial disease caused by Vibrio Cholera.
• Symptoms of Cholera include severe diarrhoea, Muscle cramps and can lead to dehydration.
• It is transmitted through infected food and water.

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Rabies:

• It is a viral disease caused by an RNA virus called Rabies virus.

• It is transmitted by the bite of infected animals and affects all warmblood animals.

• It damages motor neurons of the brain.

• Can further lead to encephalitis, hydrophobia and is fatal.

Pneumonia:

• It is caused by bacteria called Streptococcus Pneumoniae.

• It is a disease related to lungs and causes shallow breathing, chills sweating and high fever.

• The fluids get collected in alveoli and bronchioles and lead to difficulty in breathing.

Leprosy:

• It is also known as Hansen's disease and is caused by Mycobacterium Leprae.

• Ulcers and Scales occur on various body parts, deformities in fingers, wasting of the body occurs as a result of this disease.

Q94. Answer: (a) D

Option 1 is the correct answer: The Crescograph was invented by Jagdish Chandra Bose.

• Crescograph uses clockwork gears and smoked plants to record the reaction of plants to an external stimulus.

• The electric Crescograph can measure up to 1/1,000,000th part of an inch.

Personality	Contribution to the field
Hyder Ali	• Ruled Mysore state (1761-82). - Defeated the triple alliance of Hyderabad, Marathas and Britishers in 1st Anglo Mysore war. - Died in 2^(nd) Anglo Mysore war. - Was the first to deploy iron cased rockets in a battle in India.
Satyendra Nath Bose	• Theoretical Physicist has known for his work in Quantum Physics. - Bose-Einstein Condensate and Bose-Einstein Statistics.
Subhamanyam Chandra Shekhra	• Received Nobel Prize in Physics for his work in Astronomy.
Jagdish Chandra Bose	• A biophysicist. - Invented Crescograph.

Q95. Answer: (d) B

Given:

54, 23, 66, 44, 79, 21, 54, 67, 29, 59

Formula used:

Mean = Sum of the distribution/Number of data in distribution

Calculation:

Sum of the distribution

=> (54 + 23 + 66 + 44 + 79 + 21 + 54 + 67 + 29 + 59) = 496

Number of data in distribution = 10

Mean of the distribution = 496/10 = 49.6

Therefore Mean of the distribution is 49.6.

Q96. Answer: (a) A

Option 1 is the correct answer: Alassane Ouattara is the President of Ivory Coast.

• An economist by profession Alassane Ouattara was born in West French Africa.

• He served at the International Monetary Fund during 1968-73 and 1984-88.

• He became the Prime Minister of Ivory Coast in 1990.

• He also served at the West African Central Bank.

• He became President of Ivory Coast in 2010 and again in 2015.

• The next presidential election Ivory Coast will be held in October 2020.

Ivory Coast:

• Ivory Coast is a West African Country situated on the South Atlantic Coast.

• Liberia, Guinea, Mali, Burkina Faso, and Ghana are its neighbouring countries.

• Capital: Yamoussoukro.

• Currency: West African CFA Franc.

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• Highest Peak: Mount Nimba.

Q97. Answer: (c) C

Putting the value (4, 1) we get,
=> 3 × 4 - 4 × 1 = 12 - 4 = 8
Therefore (4, 1) is a solution of the equation
Putting the value (8, 4) we get,
=> 3 × 8 - 4 × 4 = 24 - 16 = 8
Therefore (8, 4) is a solution of the equation
Putting the value (1, 4) we get,
=> 3 × 1 - 4 × 4 = 3 - 16 = - 13 ≠ 8
Therefore (1, 4) is NOT a solution of the equation

Q98. Answer: (a) B

7/5 + 31/21 + 23/52
=> (7 × 1092 + 31 × 260 + 23 × 105)/5460
=> (7644 + 8060 + 2415)/5460
=> 18119/5460

Q99. Answer: (a) B

Let, cost price = Rs 100x/kg
According to the question,
=> 100x - 100x × 10/100 = 9
=> 90x = 9
=> x = 0.1
Therefore Cost price of mangoes = Rs 100 × 0.1 = Rs 10/kg
Therefore Selling price at 5% profit = Rs (10 + 10 × 5/100) = Rs 10.5/kg

Q100. Answer: (a) A

The relation is:
FISHES : AQUARIUM → An aquarium is a water-filled tank in which fish swim.
Similarly,
BIRDS : _____ → An aviary is a large enclosure for confining birds.
Hence, 'Aviary' is the correct answer.

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