

Railway Recruitment Board

Non-Technical / Clerical Cadre

Solved Question Paper - 2014

1. Point out the irrelevant statement from the following in the procedure of the impeachment of the President:
- A) Impeachment can be initiated in either House of Parliament.
- B) Charges in the form of resolutions signed by 1/4th of the members of the total strength of the House and moved after 14 days notice.
- C) Such resolution must be passed by at least 2/3rd of the total membership of the House.
- D) Charges then to be investigated by the other House.
- E) Other House also to pass the resolution by a $\frac{2}{3}$ rd majority.
- A) A B) D & E
C) B, D & E
D) None of the above statements is irrelevant
2. Which plan was ratified as Indian Independence Act 1947?
- A) Cabinet Mission Plan
B) Mountbatten Plan
C) Wavell Plan
D) Cripps Mission Plan
3. Which Raga is supposed to have emanated from the throat of Lord Shiva and sung prior to dawn for invoking vitality?
- A) Raga Vilavala
B) Raga Dipaka
C) Raga Vibhasa
D) Raga Bhairvi
4. The permanent secretariat of SAARC has been set up at
- A) Kathmandu, Nepal
B) New Delhi, India
C) Islamabad, Pakistan
D) Colombo, Sri Lanka
5. Which instrument is used for the measurement of angular distances between two objects?
- A) Sextant B) Telstar
C) Spherometer
D) Refractometer
6. The outer part of a railway track near the bend or a curve is generally raised
- A) To prevent the fast wear and tear of the railway track
B) To produce the necessary centripetal force
C) To produce the necessary gravitational force
D) To enhance the speed of the train

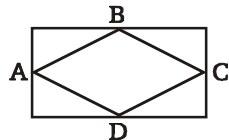
7. **An order of the Supreme Court or the High Court commanding a person or a body to do that which is his duty to do is known as :**
A) Mandamus
B) Certiorari
C) Obiter Dictum
D) Quo Warranto
8. **Who was the founder of Lodhi Dynasty ?**
A) Sikandar Lodhi
B) Bahlol Lodhi
C) Ibrahim Lodhi
D) Daulat Khan Lodhi
9. **What are Sunspots?**
A) These are great flames of gases which shoot out of the Sun
B) These are cooler areas which move about on the Sun's surface and show up as dark spots
C) These are areas of the Sun where the heat is most intense which shows up as dark spots
D) These are areas of the Sun where nuclear fission takes place
10. **From the following, choose the set in which names of Secretary-Generals of the UNO are arranged in correct chronological order?**
A) U Thant, Kurt Waldheim, Dag Hammarskjöld, Trygve Lie
B) Trygve Lie, U Thant, Dag Hammarskjöld, Kurt Waldheim
C) Trygve Lie, Dag Hammarskjöld, U Thant, Kurt Waldheim
D) U Thant, Kurt Waldheim, Dag Hammarskjöld, Trygve Lie
11. **A light year, as a unit of measurement of distances of heavenly bodies, is equal to**
A) 6 million, million km
B) 9.5 million, million km
C) 7.5 million, million km
D) 11.5 million, million km (speed of light is equal to 3,00,000 km/per sec)
12. **In which one of the following States is the literacy rate more than the National average as per Census 2001 ?**
A) Andhra Pradesh
B) Haryana
C) Meghalaya
D) Rajasthan
13. **Whereas the National Development Council is headed by the Prime Minister, who happens to be the Secretary of the National Development Council ?**
A) Finance Minister
B) Secretary, Planning Commission
C) Leader of the Opposition, Lok Sabha
D) Deputy Prime Minister

14. **How is the new membership of the United Nations effected?**
A) The admission of any State as member will be effected by a decision of the Security Council on the recommendation of the General Assembly
B) The admission of any State as member will be effected by a decision of the General Assembly on the recommendation of the Security Council
C) The admission of any State as member will be effected by a joint decision of the Security Council and General Assembly
D) The admission of any State as member will be effected by a decision of new membership council followed by a voting in General Assembly
15. **Find out the incorrect statement out of the following.**
A) Normal period of Lok Sabha is five years and in any case it cannot be extended even by an Act passed by the Parliament.
B) Rajya Sabha is a permanent body and is not subject to dissolution.
C) An all India service can be created by Rajya Sabha by passing resolution by 2/3rd majority.
A) A only
B) C only
C) A and C both
D) None of the statements 'A', 'B' & 'C' is incorrect
16. **The latitude difference between India and Pakistan for their Standard time is**
A) 7° B) 7.5°
C) 8° D) 8.5°
17. **Which of the following minerals is found in beach sand ?**
A) Gypsum B) Ilmenite
C) Gold D) Kyanite
18. **Who among the following introduced the Permanent Settlement of Bengal?**
A) Warren Hastings
B) Lord William Bentinck
C) Lord Cornwallis
D) Lord Dalhousie
19. **Name the Indian who was associated with the discovery of Mohenjodaro.**
A) Rakhaldas Banerjee
B) R.D. Chatterjee
C) W.C. Banerjee
D) S.N. Banerjee
20. **Humayun's Tomb was built by**
A) Bu Hatima
B) Nur Jahan
C) Hazi Begum
D) Akbar

21. Number of players on each side of the Volleyball, Basketball and Baseball games are respectively
A) 5, 6, 9 B) 6, 9, 5
C) 6, 5, 9 D) 6, 5, 7
22. Plaster of Paris is obtained from
A) Limestone B) Silica
C) Bauxite D) Gypsum
23. Which of the following is used as antifreeze for the automobile engine?
A) Propyl alcohol
B) Ethanol
C) Methanol
D) Ethylene glycol
24. Antigen is a substance which
A) Lowers body temperature
B) Destroys harmful bacteria
C) Triggers the immune system
D) Is used as an antidote to poison
25. Touch corpuscles are present in which part of the body?
A) Epidermis B) Dermis
C) Blood D) Muscles
26. Which organ of the body is affected in typhoid?
A) Stomach B) Kidney
C) Lungs D) Intestine
27. Find the incorrect statement :
A) Spring tide is caused by the gravitational pull of the moon and the sun together in the same direction
B) A line on a map that joins all the places of the same height above sea level is called contour line
C) Full moon occurs when the moon comes between the earth and the sun
D) The difference in minutes between the Greenwich time and the local time at a place can be derived by multiplying the longitude of the place by four
28. The highest grade of coal whose surface shines and has the highest calorific value is
A) Anthracite B) Lignite
C) Hematite
D) None of these
29. In which folk paintings of India valuable stones and pieces of glass are pasted?
A) Nath Dwara B) Tanjore
C) Kalighat
D) Jagannath Puri
30. The number of images of an object formed by two mirrors inclined at an angle of 60° is
A) 6 B) 5
C) 4 D) 7
31. If the length of a rectangle is increased by 20% and the width is decreased by 20%, then the area of the rectangle
A) Decreases by 20%
B) Decreases by 4%
C) Increases by 40%
D) Remains unchanged
32. If n and p are both odd numbers, then which of the following is an even number?
A) np B) $np + 2$
C) $n + p + 1$ D) $n + p$

33. A tyre has two punctures. The first puncture alone would have made the tyre flat in 9 minutes and the second alone would have done it in 6 minutes. If the air leaks out at a constant rate, then how long does it take, in minutes, for both the punctures together to make it flat?
A) $3\frac{3}{5}$ B) $3\frac{1}{2}$
C) $1\frac{1}{2}$ D) $4\frac{1}{4}$
34. Given that 'a' is less than 'b', then which of the following is greater than 'a' and less than 'b' ?
A) $b^2 - a^2$ B) $\frac{ab}{2}$
C) ab D) $\frac{a+b}{2}$
35. For integer n , if n^3 is odd, then which of the following statements are true?
I) n is odd
II) n^2 is odd
III) n^2 is even
A) I only B) II only
C) I & III only D) I & II only
36. If the radius of a circle is increased by 6%, then its area is increased by
A) 0.36% B) 12.36%
C) 36% D) 3.6%
37. If three metallic spheres of radii 6 cm, 8 cm and 10 cm are melted to form a single sphere, then the diameter of the new sphere will be
A) 12 cm B) 24 cm
C) 30 cm D) 36 cm
38. The sum of the present ages of a son and a father is 60 years. Six years ago, the father's age was twice his son's present age. The father's age is
A) 42 years B) 40 years
C) 36 years D) 54 years
39. Shyam is travelling on his cycle and has calculated to reach the point 'A' at 2 PM, if he travels at 10 kmph. He will reach there at 12 noon, if he travels at 15 kmph. At what speed must he travel to reach A at 1 PM ?
A) 12 kmph B) 14 kmph
C) 8 kmph D) 11 kmph
40. Two circular metallic discs have a thickness of 15 mm. Their areas are in the ratio 9 : 1. The smaller dia disc is pressed against the bigger disc and rotated around it on a flat surface. How many times will the small disc rotate before it completes one circle of the bigger disc ?
A) 3 B) 3π
C) π
D) None of these
41. A metallic cuboid weighs 16 kg. How much would a miniature cuboid of metal weigh, if all the dimensions are reduced to $\frac{1}{4}$ of the original ?

- A) 0.50 kg B) 0.25 kg
C) 0.75 kg D) 1.0 kg
42. ABCD are mid points of the rectangle. AB = 10 cm, If one of the sides of the rectangle is 12 cm, then what is the area of ABCD ?



- A) 100 sq cm
B) 96 sq cm
C) 192 sq cm
D) 154 sq cm
43. Three pipes A, B and C can fill a tank in 30 minutes, 20 minutes and 10 minutes respectively. When the tank is empty, then all the three pipes are opened. Pipes A, B and C discharge chemical solutions 'Q', 'R' and 'S' respectively. What is the proportion of solution 'S' in the liquid in the tank after 3 minutes?
- A) $\frac{7}{11}$ B) $\frac{5}{11}$
C) $\frac{6}{11}$ D) $\frac{8}{11}$
44. What is the ratio of the area of a right isosceles triangle inscribed in a circle to that of the area of the circle in which it is inscribed ?
- A) π B) $\frac{\pi}{2}$

- C) $\frac{\pi}{4}$ D) $\frac{1}{\pi}$
45. The fluid contained in a bucket can fill four "large" bottles or seven "small" bottles. A full large bottle is used to fill an empty small bottle. What fraction of the fluid is left over in the large bottle when the small one is full?
- A) $\frac{5}{7}$ B) $\frac{3}{7}$
C) $\frac{4}{7}$ D) $\frac{2}{7}$
46. In a History examination, the average for the entire class was 80 marks. If 10% of the students scored 95 marks and 20% scored 90 marks, then what were the average marks of the remaining students of the class ?
- A) 65.5 B) 85
C) 75 D) 72.5
47. A large tanker can be filled by two pipes A and B in 60 minutes and 40 minutes respectively. How many minutes will it take to fill the tanker, if pipe B is used for half the time and pipes A and B fill it together for the other half ?
- A) 30 min B) 15 min
C) 20 min D) 27.5 min

48. The relation between the side(s) of a metallic cube and the radius (r) of a sphere which can be cast from each other is expressed as
- A) $r^2 = S^2 \sqrt{4\pi}$
B) $\frac{r}{S^2} = \sqrt{S \cdot \frac{4\pi}{3}}$
C) $rS = \sqrt[3]{\frac{3}{4\pi}}$
D) $r = S^3 \sqrt[3]{\frac{3}{4\pi}}$
49. There are six chairs and six persons A B C D E F to be photographed. If without asking their names, the photographer randomly asks them to sit down, then what are the chances that they are sitting in the alphabetical order of their surnames, given that no surnames are the same?
- A) $\frac{1}{6}$ B) $\frac{1}{360}$
C) $\frac{1}{720}$ D) $\frac{1}{5760}$
50. The weight of the container alone is 25% of the container filled with a certain fluid. When some fluid is removed, then the weight of the container and the remaining liquid is 50% of the original total weight. What fractional part of the liquid has been

removed?

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

51. The formula for the number of diagonals in a polygon of n sides is $d = \frac{1}{2}[n(n - 3)]$. If the number of diagonals in a polygon is twice the number of sides, then what is the number of sides ?
- A) 3 B) 5
C) 7 D) 8
52. A machinist, by increasing his normal rate of work by $12\frac{1}{2}\%$, could produce 15 items more in a given period of time. How many items can he produce if he works at 80% of his normal rate ?
- A) 100 B) 90
C) 80 D) 96
53. The height of a room is 5 m and capacity is 500 cu. m. If the room is a square, then how much paper of two-metre width is required to cover the walls?
- A) 120 m B) 90 m
C) 100 m D) 60 m
54. The diagonals of a rhombus are 45 and 30. The area of the rhombus is
- A) 675 B) 1350
C) 2700 D) 2010

55. Vivek is standing at a point "A" and walks North-east for 4 kilometres. He stops, faces South and walks till he can see point 'A' exactly to his West. How far is he now from the point A ?

- A) 2 km
- B) $2\sqrt{2}$ km
- C) $2\sqrt{3}$ km
- D) None of these

56. A man standing under a lone tree in a desert at night walks in the direction of the pole star for 5 km. He then turns 90° to his right and walks another 5 km. He has a compass. In which direction should he walk to get back to the original starting point ?

- A) South
- B) South-east
- C) South-west
- D) West

57. A farmer owns a square of land $500\text{ m} \times 500\text{ m}$. One diagonal of the square has a East-west direction. While walking along the perimeter, in which direction can he never walk ?

- A) North-east
- B) South-east
- C) North-west
- D) None of these

Directions (Qs. 58 to 60) : Select the alternative to satisfy the relationship in these questions :

58. ACEG : BDFH :: PRTV : ?

- A) Q R U W
- B) Q S U W
- C) S T U R
- D) Q R S T

59. Thermometer : Degrees :: Ammeter : ?

- A) Volts
- B) Current
- C) Watts
- D) Amperes

60. Arctic : Antarctic :: Cancer :

- A) Capricorn
- B) Disease
- C) Equator
- D) Population

Directions (Qs. 61 & 62) : Pick the odd one out.

61. A) Cactus B) Sand
C) Mirage D) Pine

62. A) Cube B) Cone
C) Cylinder
D) Trapezium

Directions (Qs. 63 & 64) : Complete the letter series given in these questions :

63. A B C C B A D E F F E D G H I _____

- A) I
- B) H
- C) G
- D) J

64. J K M P _____

- A) T
- B) U
- C) V
- D) W

Directions (Qs. 65 & 66) : In these questions, complete the given number series:

65. 17, 19, 23, 29, _____

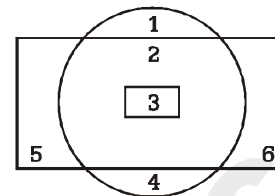
- A) 33
- B) 31
- C) 34
- D) 37

66. 204, 100, 48, 22, _____

- A) 10
- B) 9
- C) 13
- D) 7

Directions (Qs. 67 to 70) : In the diagram given below, the circle represents the educated; the large rectangle represents the healthy

and the small rectangle, the rich people.



67. The educated people who are neither rich nor healthy are partly represented by

- A) 1
- B) 2
- C) 5
- D) 6

68. The non-educated who are not healthy are represented by

- A) 2
- B) 4
- C) 6
- D) None of these

69. Select the statement which is not true:

- A) Education is essential for being rich
- B) Health is essential for being rich
- C) All rich are healthy and educated
- D) None of these

70. Select the statement which is true:

- A) The number of the educated who are not rich and healthy is nil
- B) There are some rich who are not educated
- C) The health of people moving from 2 to 5 will change
- D) People in 4 differ from people in 2 only in the status of health

Directions (Qs. 71 to 75) : Read the following passage carefully to answer these questions on the basis of the contents of the passage and what is stated and implied therein.

Listen to our body's wisdom, which expresses itself through signals of comfort and discomfort. When choosing a certain behaviour, ask your body, "How do you feel about this?" If your body sends a signal of physical or emotional distress, watch out. If your body sends a signal of comfort and eagerness, proceed.

Live in the present, for it is the only moment you have. Keep your attention on what is here and now look for the fullness in every moment. Accept what comes to you totally and completely so that you can appreciate it, learn from it, and then let it go. The present is as it should be. It reflects infinite laws of Nature that have brought you this exact thought, this exact physical response.

This moment is as it is because the universe is as it is. Don't struggle against the infinite scheme of things; instead, be at one with it.

Take time to be silent, to meditate, to quiet the internal dialogue. In moments of silence, realise that you are recontacting your source of pure awareness. Pay attention to your inner life so that you can be guided by intuition rather than externally imposed

interpretations of what is or isn't good for you.

Relinquish your need for external approval. You alone are the judge of your worth and your goal is to discover infinite worth in yourself, no matter what anyone else thinks. There is great freedom in this realisation.

When you find yourself reacting with anger or opposition to any person or circumstance, realise that you are only struggling with yourself. Putting up resistance is the response of defenses created by old hurts. When you relinquish this anger, you will be healing yourself and cooperating with the flow of the universe.

Know that the world "Out there" reflects your reality "in here". The people you react to most strongly, whether with love or hate, are projections of your inner world. What you most hate is what you most deny in yourself. What you most love is what you most wish for in yourself. Use the mirror of relationships to guide your evolution. The goal is total selfknowledge. When you achieve that, what you most want will automatically be there, and what you most dislike will disappear.

Shed the burden of judgement-you will feel much lighter. Judgement imposes right and wrong on situations that just are. Everything can be understood and forgiven, but when

you judge, you cut off understanding and shut down the process of learning to love. In judging others, you reflect your lack of self-acceptance. Remember that every person you forgive adds to your self-love.

Don't contaminate your body with toxins, either through food, drink or toxic emotions. Your body is more than a life-support system. It is the vehicle that will carry you on the journey of your evolution. The health of every cell directly contributes to your state of wellbeing, because every cell is a point of awareness within the field of awareness that is you.

Replace fear-motivated behaviour with love-motivated behaviour. Fear is the product of memory, which dwells in the past. Remembering what hurt us before, we direct our energies towards making certain that an old hurt will not

repeat itself. But trying to impose the past on the present will never wipe out the threat of being hurt. That happens only when you find the security of your own being, which is love. Motivated by the truth inside you, you can face any threat because your inner strength is invulnerable to fear.

Understand that the physical world is just a mirror of a deeper intelligence. Intelligence is the invisible organiser of all matter and energy.

71. According to the passage the author's advice on how to be guided best in life is

- A) Through scientific analysis
- B) Through exercise & diet
- C) Through better education
- D) Through one's intuition

72. What, according to the author, is the best way to quieten the inner turmoil that goes on within us ?

- A) Yogic exercises
- B) Deep breathing
- C) Meditation
- D) Avoiding hate

73. When there is a doubt as to what attitude or form of behaviour we should adopt in a particular situation, who should we listen to ?

- A) Our close friends
- B) Our family elders
- C) A good doctor
- D) Our ownself

74. Which of the following statements is not true according to the passage ?

- A) We must seek need for external approval
- B) We should accept whatever comes totally
- C) We are ourselves the judges of our own worth
- D) We should avoid passing judgement on situations

75. According to the author, the best way to guide our evolution is through

- A) Avoidance of anger
- B) Cultivation of love and happiness

C) Using the mirror of relationship

D) Give up fear-related behaviour

Directions (Qs. 76 to 78) : In these questions, a word is followed by four choices. Select the choice that best explains the meaning of the given word.

76. Contraband

- A) Illegal goods
- B) Customs inspector
- C) Money belt
- D) Latin musical group

77. Variegated

- A) In rows
- B) Genetically-altered
- C) Well-watered
- D) Having different colours

78. Cavalcade

- A) Procession
- B) Water fall
- C) Avalanche
- D) A great banquet

Directions (Qs. 79 to 81): In these questions, a word is followed by four answer choices. Choose the word or phrase most nearly opposite in meaning to the given word :

79. Coy

- A) Weak
- B) Brazen
- C) Old
- D) Tiresome

80. Debonair

- A) Strong
- B) Windy
- C) Awkward
- D) Quiet

81. Ethereal

- A) Critical
- B) Alcoholic
- C) Long lasting
- D) Earthy

Directions (Qs.82 to 86) : In these questions, pick the choice to complete the sentence correctly:

82. They have no house to _____
 A) Live B) Live for
 C) Live in D) Live on
83. I hope you don't mind _____
 A) My coming in
 B) Me to come in
 C) I coming in
 D) I to come in
84. His visit is to know _____ the plight of the people.
 A) Himself
 B) By himself
 C) For himself
 D) In himself
85. It is too difficult _____
 A) Problem for me
 B) Problem to me
 C) The problem to me
 D) A problem for me
86. Within a moment he burst _____ tears.
 A) In B) Out in
 C) Off into D) Into

Directions (Qs. 87 to 90): Each of these questions has one or two blanks. Beneath the sentence there are four choices for the blanks. Choose the word or set of words for each blank which best fits the meaning of the sentence as a whole.

87. Criticism that tears down without suggesting areas of improvement is not _____ and should be avoided if possible.

- A) Representative
 B) Constructive
 C) Mandatory
 D) Pertinent
88. Unable to _____ his dislike fo the opponent, Mr. Raj continued to make _____ c o m m e n t s throughout the meeting.
 A) Control, open
 B) Express, quiet
 C) Disguise, caustic
 D) Hide, appreciative
89. The businessman was very gentle when he mentioned his friends but was bitter and ___ when he discussed people who ___ him.
 A) Noisy, encouraged
 B) Calm, discouraged
 C) Angry, distressed
 D) Expressive, disliked
90. The dean tried to retain control of the situation on the campus but his attempt was _____ by the board of trustees.
 A) Endorsed
 B) Frustrated
 C) Disclosed
 D) Justified

Directions (Qs. 91 to 95): In these questions, a sentence is given with the underlined portions A, B, C & D) Select the choice where you consider that an error exists.

91. On A) / 15th August, people gethered B) / together to C) / celebrate the Independence Day . D)
 A) A B) B
 C) C D) D

92. The A) / beautiful surround- ing B) / of the place C) / enchanted me . D)
 A) A B) B
 C) C D) D
93. Ram went to A) / the B) / market and bought C) / three dozens. D) / of oranges.
 A) A B) B
 C) C D) D
94. He educated not only A) / his nephew, but also B) / set him C) / up in business . D)
 A) A B) B
 C) C D) D
95. The cause for A) / the sudden explosion B) / in the aircraft C) / had not been . D) / discovered till today.
 A) A B) B
 C) C D) D

Directions (Qs.96 & 97) : In these questions, there are four choices for the spellings of a word. Point out the choice in which the word is correctly spelt :

96. A) Machiavellien
 B) Machiavellian
 C) Machaveillian
 D) Machaveillian
97. A) Anomotopoeia
 B) Onamotopoeia
 C) Onomatopoeia
 D) Onomatopoiea

Directions (Qs. 98 to 100) : In these questions, four parts of a sentence are given in sequence as A), B), C) & D). Point out the choice which is not acceptable in standard English.

98. A) I paid
 B) the price of
 C) this car
 D) by cash
99. A) Passing by the damage house
 B) a brick was dislodged
 C) and fell
 D) on my shoulder
100. A) Until you
 B) remain restless
 C) you cannot
 D) concentrate

ANSWERS

- | | | | | | | |
|---------|----------|---------|---------|---------|---------|---------|
| 1. (B) | 2. (B) | 3. (C) | 4. (A) | 5. (A) | 6. (B) | 7. (A) |
| 8. (B) | 9. (B) | 10. (C) | 11. (B) | 12. (B) | 13. (B) | 14. (B) |
| 15. (D) | 16. (B) | 17. (B) | 18. (C) | 19. (A) | 20. (C) | 21. (C) |
| 22. (D) | 23. (D) | 24. (B) | 25. (B) | 26. (C) | 27. (C) | 28. (A) |
| 29. (A) | 30. (B) | 31. (B) | 32. (D) | 33. (A) | 34. (D) | 35. (D) |
| 36. (B) | 37. (B) | 38. (A) | 39. (A) | 40. (A) | 41. (B) | 42. (A) |
| 43. (C) | 44. (D) | 45. (B) | 46. (C) | 47. (B) | 48. (D) | 49. (B) |
| 50. (A) | 51. (C) | 52. (D) | 53. (C) | 54. (A) | 55. (B) | 56. (C) |
| 57. (D) | 58. (B) | 59. (B) | 60. (A) | 61. (C) | 62. (D) | 63. (A) |
| 64. (A) | 65. (D) | 66. (B) | 67. (A) | 68. (D) | 69. (D) | 70. (D) |
| 71. (D) | 72. (D) | 73. (D) | 74. (A) | 75. (C) | 76. (A) | 77. (D) |
| 78. (A) | 79. (B) | 80. (B) | 81. (D) | 82. (C) | 83. (A) | 84. (C) |
| 85. (D) | 86. (D) | 87. (B) | 88. (C) | 89. (C) | 90. (B) | 91. (B) |
| 92. (B) | 93. (D) | 94. (A) | 95. (D) | 96. (B) | 97. (C) | 98. (D) |
| 99. (A) | 100. (A) | | | | | |

EXPLANATORY ANSWERS

33. A) In one minute,
 $\frac{1}{9} + \frac{1}{6} = \frac{15}{54}$
 $= \frac{5}{18}$ of the tyre becomes flat.
 ∴ The complete tyre will be flat in
 $\frac{18}{5} = 3\frac{3}{5}$ minutes
36. B) If radius of the circle = 100 units,
 $= \pi r^2 = \pi \times 10000$ sq units.
 then area
 If radius of the circle becomes 106 units, then area becomes
 $\pi \times \pi \times 106 \times 106 = 11236$ sq units π sq units.
 ∴ Percent increase in area
 $= \frac{1236}{10000} \times 100 = 12.36$
37. B) Let R be the radius of the new sphere.
 ∴ $\frac{4}{3} \pi R^3$
 $= \frac{4}{3} \pi \times (6^3 + 8^3 + 10^3)$
 $\Rightarrow R^3 = 216 + 512 + 1000$
 $= 1728 \Rightarrow R = 12$
 ∴ Diameter of the new sphere = 24cm

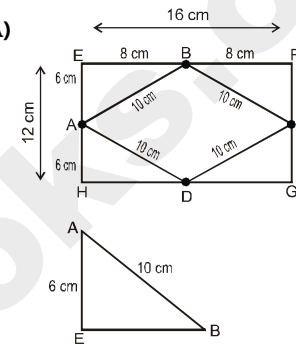
38. A) $S + F = 60$
 $2S = F - 6$
 $\Rightarrow 2S - F = -6$
 ∴ $S = 18, F = 42$
39. A) Suppose Shyam covers the distance in x hours @ 10 km/hr so as to reach the point A by 2 P.M.
 Suppose, he covers the same distance in $(x - 2)$ hours @ 15 km/hr so as to reach the point A by 12 Noon.
 ∴ $10x = 15(x - 2) \Rightarrow x = 6$
 \Rightarrow Shyam starts his journey at 8 A.M. and the length of the journey = 60 km.
 \Rightarrow So as to reach the point A at 1 PM, Shyam must travel @ 12 km/hr.
40. A) The radii of the circular discs are in the ratio 3 : 1. Therefore, the smaller disc will rotate three times before it completes one circle of the bigger disc.
41. B) If side of the cube = 1 cm, then its volume = 1 cu. cm.
 \Rightarrow 1 cu. cm weighs 16 kg.
 If side of the cube becomes $\frac{1}{4}$ cm, then its volume

$$= \frac{1}{64} \text{ cu. cm.}$$

$$\therefore \frac{1}{64} \text{ cu. cm.}$$

weighs 0.25kg

42. A)



By Pythagoras theorem,

$$EB = \sqrt{10^2 - 6^2} = \sqrt{100 - 36} = \sqrt{64} = 8 \text{ cm}$$

$$\therefore EB = 8 \text{ cm}$$

$$\therefore \text{Area of rectangle} = 16 \times 12 = 192 \text{ Sq.cm}$$

$$\therefore \text{Area of ABCD} = 10 \times 10 = 100 \text{ Sq.cm}$$

43. C) In one minute,

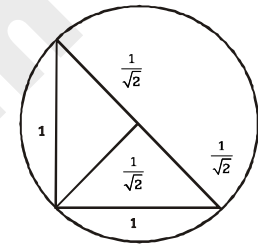
$$\frac{1}{30} + \frac{1}{20} + \frac{1}{10} = \frac{11}{60} \text{ of the}$$

tank can be filled.

∴ Proportion of solutions by pipe C in three minutes

$$= \frac{3 \times \left(\frac{1}{10}\right)}{3 \times \left(\frac{11}{60}\right)} = \frac{6}{11}$$

44. D)



Area of the triangle (Right isosceles)

: Area of the circle

$$= \frac{1}{2} : \frac{1}{2} \pi = 1 : \pi = \frac{1}{\pi}$$

45. B) 4 large bottles = 7 small bottles

$$\therefore 1 \text{ small bottle} = \frac{4}{7}$$

large bottle.

$$\Rightarrow \frac{3}{7} \text{ of the fluid in large}$$

bottle is left after filling one small bottle from it.

46. C) Let the total number of students be 100.

∴ Required be 100.

$$= \frac{80 \times 100 - 10 \times 95 - 20 \times 90}{70}$$

$$= \frac{8000 \times 950 - 1800}{70}$$

$$= \frac{5250}{70}$$

47. B) In one minute, pipe A can

$$\text{fill } \frac{1}{60} \text{ of the tank.}$$

In one minute, pipe B can

fill $\frac{1}{40}$ of the tank.

In one minute, both the pipes A & B together can

fill $\frac{1}{60} + \frac{1}{40} = \frac{1}{24}$ of the tank.

If the whole tank is filled in $2x$ minutes, then in x minutes pipe B alone can

fill $\frac{x}{40}$ of the tank.

Remaining, $1 - \frac{x}{40}$

= $\frac{40-x}{40}$ of the tank will

be filled by both the pipes A and B together in x minutes.

$$\therefore \frac{x}{24} = \frac{40-x}{40}$$

$$\Rightarrow 40x = 960 - 24x$$

$$\Rightarrow 64x = 960 \Rightarrow x = 15$$

\therefore The tank will be filled in 30 minutes

48. D) Let S be the side of the Cube.

$$\therefore S^3 = \frac{4}{3}\pi r^3$$

$$\Rightarrow r = S \times \sqrt[3]{\frac{3}{4\pi}}$$

49. B) $\frac{2}{60} = \frac{2}{720} = \frac{1}{360}$

50. A) Suppose, weight of the container+fluid = 100 kg.
 \therefore Weight of the container = 25 kg

Weight of the fluid in the container = 75 kg

51. C) $d = 2n$

$$\Rightarrow \frac{1}{2}[n(n-3)] = 2n$$

$$\Rightarrow n^2 - 3n = 4n \Rightarrow n^2 = 7n$$

$$\Rightarrow n = 7$$

52. D) Suppose the normal rate of work = 100, in which the machinist can produce x items.

\therefore If the normal rate of work is increased to

$112\frac{1}{2}$, then the machinist

can produce $(x+15)$ items.

$$\therefore \frac{x+15}{112\frac{1}{2}} = \frac{x}{100}$$

