# R.R.B. PATNA
Jr. Engineer Exam

PREVIOUS PAPER – 2011 (Based on Memory)

1. The 'Shera" song of the Commonwealth Games was conceived and produced by ....

1) Vikramjit Sahney   2) A.R.Rehman   3) Shibani Kashyap   4) Milind

2. The Red Fort at Delhi was built by ....

1) Akbar   2) Jahangir   3) Shah Jahan   4) Aurangzeb

3. The standard distance for the marathon race, set by the IAAF is ....

1) 40.26 km   2) 41.86 km   3) 42.75 km   4) 42.195 km

4. India's national animal is ....

1) Cow   2) Lion   3) Tiger   4) Elephant

5. Who is the Union Minister for Railways in India?

1) Sonia Gandhi   2) Meria Kumar   3) Mamatha Banerjee   4) Mayavati

6. An 800 car parking lot is divided into 3 sections. There are 270 spots in section 1 and 150 more in section 2 than in section 3. How many spots are there in section 2?

1) 270   2) 190   3) 340   4) 420

7. Sunil loves basketball and can sink the ball in the net 65% of the time. If he takes 30 shots, how many times will he sink the ball?

1) 19   2) 21   3) 25   4) 30

8. If your allowance was a Rs.1 and it is doubled everyday, how many days would it take for you to have over Rs.35?

1) 6 days   2) 7 days   3) 9 days   4) 10 days

9. When the birthday cake was about to be served, you were told you could have 0.6, 60%, $\frac{3}{2}$, 6%. Which two will give you the same size portion?

1) 0.6.6%   2) 0.6, $\frac{3}{2}$ 3) 0.6, 60%   4) $\frac{3}{2}$ and 60%

10. $\frac{4}{7}$ of the birthday cake was eaten on your birthday. The next day your dad are $\frac{1}{2}$ of what was left. You want to finish the cake. How much is left?

1) $\frac{1}{4}$ 2) $\frac{3}{2}$ 3) $\frac{3}{4}$ 4) $\frac{3}{14}$

11. In a village one half of the population work in the fields. Half of the people who do not work in fields are working in factories.

Select the appropriate diagram in which shaded region is best representing people working in factories.

1)   2)   3)   4)
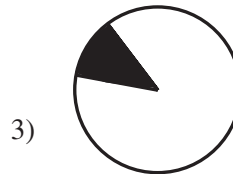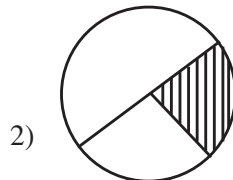
12. JK : QR :: .... : ....

    1) ST : UV   2) WX : ZY   3) CF : JL   4) BC : IJ

13. A die has A, B, C, D written in a clockwise order on the adjacent faces and E and F at the top and bottom respectively. When C is at the top, what will be at the bottom?

    1) B   2) A   3) C   4) F

14. If A is B's brother. B is C's sister and C is D's father then D is A's ....

    1) B   2) A   3) C   4) F

15. In a certain code, '7 8 6' means 'bring me apple' and '9 5 8' means 'peel green apple' and '6 4 5' means 'bring green fruit'. Which of the following is the code for 'me'?

    1) 8   2) 6   3) 7   4) Cannot be estimated

16. If '+' means '×', '×' means '−', '−' means '+' and '÷' means '+', then $18 \div 4 + 3 \times 2 - 2 = ?$

    1) 45   2) 48   3) 29   4) 39
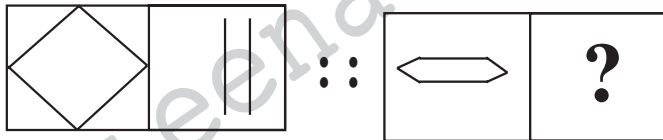
17. Complete the sequence 4, 2, 5, 4, 7, 6, 10, 8, 14, ...
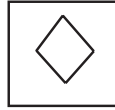
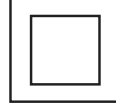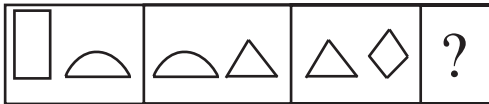   1) 10   2) 12   3) 18   4) 19

18.

19. Find the appropriate figure from the answer figures so that question figures form a series.

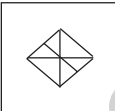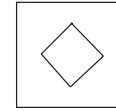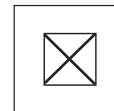**20.**
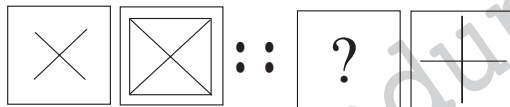
21. The regulator is provided in fans to vary the speed of the fan by changing

    1) current   2) voltage

    3) polarity of the starting winding   4) terminals of the running winding
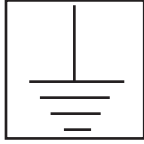
22. In an n−p−n transistor current flows out of the ....
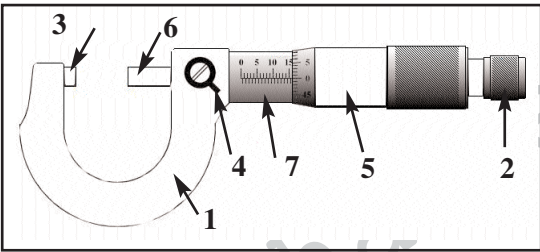
    1) Emitter   2) Base   3) Collector   4) None of these

23. When two resistances R_1 and R_2 are connected in parallel, the total equivalent resistance is equal to ....

1) $\dfrac{R_1 R_2}{R_1 + R_2}$ 2) $R_1 + R_2$ 3) $\dfrac{R_1 + R_2}{R_1 R_2}$ 4) $R_1 R_2$

24. The commercial unit of electrical energy is ....

1) joule   2) watt−hour   3) kilowatt−hour   4) watt−second

25. Which one is the correct symbol of chassis ground in the following symbols?

1)   2)   3)   4)

26. Which one of the following processes is used for removing scratches from the previous operation?

1) Enamelling   2) Painting   3) Oxidation   4) Polishing

27. Lead−acid cells are used in ....

1) automobiles   2) quartz watches

3) portable radio receivers   4) All of these

28. Which of the following conductors is used in heating elements?

1) Tungsten   2) Carbon   3) Copper   4) Nichrome

29. Scriber is made of ....

1) Copper   2) High carbon steel

3) Mild steel   4) Cast iron

30. The value of one micron is ....

1) 0.00001 mm   2) 0.0001 mm   3) 0.001 mm   4) 0.01 mm

31. In amplifiers, transistors are used for ....

1) enlarging small signals   2) reducing a signal

3) converting an a.c. signal into d.c. signal   4) All of these stated purposes

32. What is drawn in the cylinder of diesel engine during suction stroke?

1) A mixture of air and fuel   2) Pure air alone

3) Fuel alone   4) Gas

33. In diesel engine, the fuel is ignited by ....

1) a glow plug   2) a spark plug

3) an injector   4) virtue of temperature of compressed air

34. The purpose of transmission in an automobile is to vary the ....

1) speed of the automobile   2) torque of the automobile

3) power of the automobile   4) fuel efficiency of the automobile

35. Piston rings are generally made of ....

1) Brass   2) Copper

3) Cast iron   4) Aluminium

36. Which of the following is the symbol of the metal that occurs in liquid form at ordinary temperature?

1) Na   2) Sa   3) Pb   4) Hg

37. A temperature difference of 27°C on the Kelvin scale is ....

1) 27 K   2) 300 K   3) –246 K   4) zero

38. Heat flows as a result of difference of ....

1) temperature   2) weight   3) mass   4) None of these

39. If the area of a square field is 400 cm^2 then its side is ....

1) 20 cm   2) 2 cm   3) 200 m   4) 2 m

40. $\log_e e^x$ is equal to ....

1) e   2) 1   3) x   4) 10

41. Scale $\dfrac{1}{2000}$ represents the scale as ....

1) 1 cm to 2.00 m   2) 1 cm to 20 m   3) 1 mm to 2.00 m   4) 1 cm to 2000 mm

42. The fuel used for engines used for bulk transportation of goods and passengers is ....

1) petrol   2) kerosene   3) natural gas   4) diesel

43. Match the parts of micrometer given below with the parts numbered in the figure ......

P. Spindle

Q. Anvil

R. Lock nut

S. Thimble

1) P3 Q6 R4 S5   2) P6 Q1 R5 S7
3) P3 Q6 R2 S7   4) P6 Q3 R4 S5

44. Striking voltage as compared to voltage during arc welding is-

1) less   2) same   3) more   4) unpredictable

45. Material used for coating the electrode is called

1) flux   2) slag   3) protective layer   4) deoxidiser

46. Mahatma Gandhi started his Dandi March from

1) Dandi   2) Porbandar   3) Ahmedabad   4) Surat

47. The words 'Satyameva Jayate' inscribed below the base plate of the emblem of India are taken from-

1) Ramayana   2) Mundak Upanishad

3) Rig–Veda   4) Satpath Brahmana

48. ELISA test is prescribed for ....

1) Cancer   2) Typhoid   3) Polio   4) AIDS

49. River Godavari flows through ....

1) Maharashtra and Andhra Pradesh

2) Maharashtra, Orissa and Andhra Pradesh

3) Maharashtra, Karnataka and Andhra Pradesh

4) Maharashtra, Karnataka, Orissa and Andhra Pradesh

50. The highest peak of the Himalayas in India is in the state of ....

1) Uttar Pradesh 2) Kashmir 3) Sikkim 4) Himachal Pradesh

51. The grocery store parking lot will hold 1000 vehicles. $\frac{2}{5}$ of the parking spaces are for cars. When you went to buy groceries, there were 200 cars and some trucks in the parking lot. The parking lot was $\frac{3}{4}$ full. How many trucks were in it?

1) 500 trucks 2) 550 trucks 3) 600 trucks 4) 620 trucks

52. Jatin is making snowballs to build a fort on the winter break. Jatin can build 15 snowballs in an hour but 2 snowballs melt every 15 minutes. How long will it take him to build 210 snowballs?

1) 35 hrs. 2) 32 hrs. 3) 30 hrs. 4) 25 hrs.

53. Tarun built a fence around his rectangular shaped pool. The posts are 2 yards apart. There are 4 posts along the width and 8 posts along the length. How many posts does Tarun need?

1) 26 2) 20 3) 24 4) 28

54. A bag of marbles can be shared equally among 3, 5 or 6 students with none left over. What is the least amount of marbles that can be in the bag?

1) 42 2) 40 3) 30 4) 35

55. If there are 150 people born in the world every minute, how many are born every hour?

1) 9000 2) 900 3) 1900 4) 2900

56. A tin contains 60 litres of oil. Due to leakage $4\frac{1}{2}$ litres oil was lost. The per cent of oil still present in the tin is-

1) 90.5% 2) 86.5% 3) 88.5% 4) 92.5%

57. In the given figure, PQ // RS, then the value of X is .....
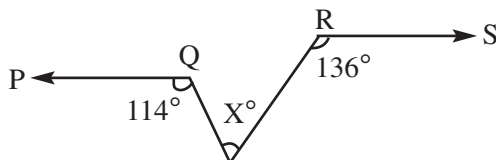
1) 114° 2) 136° 3) 122° 4) None

58. A square and a rectangular plot of land have same perimeter. If the square is of side 60 cm and rectangle is of length 70 cm, then the area of the rectangle is ....

1) 3500 cm^2 2) 2800 cm^2 3) 2500 cm^2 4) 2200 cm^2

59. Mean of 12 observations was found to be 28. Later on, it was detected that an observation 62 was misread as 26. Then the correct mean of the observations is

1) 28 2) 31 3) 33 4) 36

60. A ludo die is rolled. The probability (chance) that the number of dots on its upper face is less than 5 is-

1) $\frac{2}{3}$ 2) $\frac{5}{6}$ 3) $\frac{1}{3}$ 4) $\frac{1}{6}$
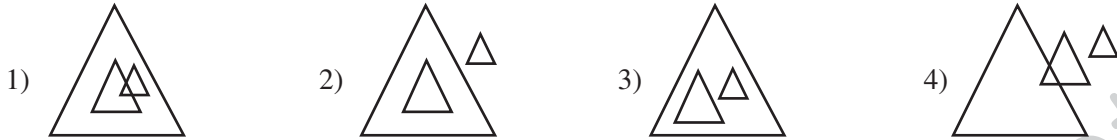
61. The number opposite to 3 is
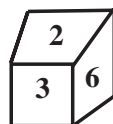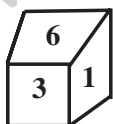
1) 2 2) 3 3) 4 4) 6

62. Which of the following represents the relationship between animals, elephants and lions?

1)   2)   3)   4)

63. Which of the following numbers does not fit in the given series?

0, 1, 3, 6, 10, 15, 21, 28, 37, 45

1) 0   2) 21   3) 37   4) 45

64. If 4th January, 2008 falls on Fridays, what day of week will fall on 4th January, 2009?

1) Monday   2) Friday   3) Wednesday   4) Sunday

65. Ram goes $\sqrt{12.5}$ km towards west from a certain point. Then after turning to his right he again goes same distance. In the end he goes 25 km towards South-East. How far is he now from his starting point?

1) 10 km   2) 20 km   3) 15 km   4) 5 km

66. What is the primary function of a fuse?

1) to protect the appliances   2) to open the circuit

3) to prevent high current flow   4) to protect the line

67. The colour TV system adopted in India is

1) PAL system   2) NTSC system   3) CCTV system   4) None of these

68. A multimeter consists of

1) voltmeter and current meter   2) voltmeter and ohmmeter

3) current meter and ohmmeter   4) voltmeter, current meter and ohmmeter

69. In p − type semiconductor, minority carriers are

1) electrons   2) holes   3) both 1 and 2   4) None of these

70. What is the current rating of MCB, when it is used for 165 litre refrigerators?

1) 10 amp   2) 5 amp   3) 1.5 amp   4) 7.5 amp

71. Clearance between mating parts is measured by

1) dial gauge   2) 'Go' gauge   3) feeler gauge   4) caliper gauge

72. What is the main purpose of annealing?

1) To improve machinability   2) to improve magnetism

3) to increase hardness   4) To increase toughness

73. Forging is done when the metal is in

1) liquid condition   2) plastic condition   3) elastic condition   4) None of these

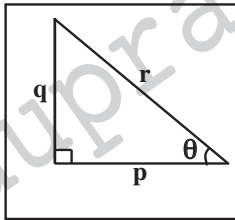74. The portion of the shaft, which is carried in the bearing, is called

1) Inner race   2) outer race   3) cage   4) journal

75. A dimension is stated as 25 ± 0.02 mm in a drawing. What is the tolerance?

1) 25.00 mm   2) + 0.02 mm   3) −0.02 mm   4) 0.04 mm

76. In case of an accident, the victim should immediately be

1) asked to take rest   2) enquired about the accident

3) attended to   4) left to himself without treatment

77. Which one of the following is not the advantage of CNC machine?

    1) Reduces inspection time   2) Reduces tooling time

    3) Higher initial cost   4) Higher rate of production

78. Spring washers are used under nuts to prevent

    1) damage to the bolt   2) damage to the nut

    3) damage to the job   4) slackness of nuts due to vibration

79. The main cause of fire in electrical cables is

    1) low fuse rating   2) overloading

    3) loose connections   4) all three causes stated

80. A virus cannot damage

    1) operating system   2) hard disc   3) keyboard   4) program files

81. The value of $(-5) \times (-4) \times (-3) \times (-2) \times (-1) \times 0 + 0 \times (1) \times (2) \times (3) \times (4) \times (5)$ is ....

    1) 120   2) −120   3) 240   4) 0

82. The value of $9x^2 + 49y^2 - 42xy$ when x = 15 and y = 3 is

    1) 636   2) 576   3) 386   4) 456

83. Environmental pollution has taken place on a large scale in

    1) rural and urban areas   2) industrial and urban areas

    3) industrial and rural areas   4) All of these

84. Which of the following is not responsible for soil erosion?

    1) Destruction of forests   2) Overgrazing

    3) Direct impact of rainfall on the soil   4) Bunding the lands

85. If the momentum of a body is doubled, the kinetic energy

    1) is halved   2) is unchanged   3) is doubled   4) becomes 4 times

86. See θ is equal to (see the diagram)

    1) $\dfrac{p}{r}$ 2) $\dfrac{q}{r}$

    3) $\dfrac{r}{p}$ 4) $\dfrac{r}{q}$

87. Density of water is greater than that of oil. The Statement is

    1) false   2) true   3) cannot determine   4) None of these

88. In an engineering drawing dashed line represent

    1) visible edges   2) centreline   3) invisible edges   4) None of these

89. The representation of area in terms of dimensional units M, L, T is (where M, L, T have their usual meaning)

    1) $M^1L^1T^1$ 2) $M^0L^0T^0$ 3) $M^1L^2T^1$ 4) $M^0L^2T^0$

90. An extension of building having sloped roof at lower level is called

    1) Minor roof   2) Secondary roof   3) Lean to roof   4) Addition roof

ANSWERS

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