Steel Authority of India (SAIL)

SAIL MT Exam Reasoning Previous Paper With Solution

1. How many cards of E type are inserted in brown envelopes?
    * Nil
    * One
    * Answer is: Two
    * Three
    * Data inadequate

2. Which of the following combinations of the type of cards and the number of cards is definitely correct in respect of yellow-coloured envelopes?
    * A-2, B-I, C-2
    * B-I, C-2. D-2
    * A-2, E-l, D-2
    * Answer is: A-3, B-1 C-1
    * None of these

3. Which of the following combinations of types of cards and the number of cards and colour of envelope is definitely correct?
    * Answer is: C-2, D-1, E-2, Brown
    * C-1,D-2,E-2,Brown
    * B-2, D-2, A-I, Red
    * A-2,B-2,C-1,Yellow
    * None of these

4. Which of the following combinations of colour of the envelope and the number of cards is definitely correct in respect of E type cards?
    * Red-2, Brown-l
    * Red-1,Yellow-2
    * Red-2, Yellow- 1
    * Yellow-1,Brown-2
    * Answer is: None of these

5. "Forty per cent of our products are sold in rural area, fifty-three per cent are sold in semi-urban area, sixty per cent of employees are from rural area." Which of the following statements is definitely true?
    * The company's products are purchased only by its employees and their family.
    * The company does not desire to recruit urban employees.

* The company's products are required in big urban cities and metro areas.
* The company holds approximately 90% of the market share in its product line.
* Answer is: None of these

6. "We do not advertise, our product speaks for itself."— Statement of manufacturer of two-wheeler 'BJA'.
Which of the following, if true, would support and strengthen this statement?
(i) The prices of BJA two-wheelers are on higher side.
(ii) 'BJA' has won award for Quality Control Systems.
(iii) The BJA two-wheeler is sleek-looking and has good colours.
(iv) The salaries of BJA employees are better than government services.
* Only (i) and (ii)
* Answer is: Only (ii) and (iii)
* Only (iii) and (iv)
* Only (i), (ii) and (iiii)
* None of these

Directions (Q. 7-13): Read the following in formation carefully and answer the following questions:
Following are the criteria for organizing interview of such candidates as have been selected from the promotion to officer's grade from assistant grade in the PRS Industrial Group Limited:
The candidate to be called for interview must:
(i) be a graduate with minimum 50% marks.
(ii) have minimum five years' experience in the clerical cadre job.
(iii) have obtained at least 'C' ratings in performance (speed of work) and the quality of work each during the last three years. For this five ratings A, 8, C, D and E-have been created on the basis of "Performance Appraisal Report" with the lowest ratings of A and the highest ratings of E.
(iv) have obtained at least 'D' ratings in the approach of work (dependability) and in the flexibility of work each for his/her works in the last three years. For this, seven ratings A, B,C, D, E, F and G have been formulated on the basis of "Performance Appraisal Report" with lowest ratings of A and the highest ratings of G.
However, in case of a candidate who fulfills all other criteria EXCEPT

(a)(i) above, but has passed Graduation Exam and has got 'E' ratings in the approach of work in the last three years, may be referred to the Assistant Manager (Personnel).
(b) (ii) above, but has experience of three years in clerical cadre job and has got at least 'D' ratings in the quality of work for his/her works in the last three years, may be referred to the Deputy Manager (Personnel).

Based on these criteria and information provided against each candidate, decide the course of action. You are not to assume anything. If the data provided are not adequate to decide the given course of action, your answer will be "Data inadequate". All the candidates fulfill the criterion of age. V Give answer
(1) if data are inadequate (2) if not to be selected (3) if selected for the interview (4) if case is referred to the Assistant Manager (5) if case is referred to the Deputy Manager

7. Mohammed Sheikh is a brilliant post-graduate in Science and has secured 63% and5 marks in graduation and post graduation respectively. He has 'E' grade for dependability and flexibility inPerformance Appraisal Report for last four years. He has got 'C' rating for quality of work and speed of work. He joined the Bank four years ago.
    * data are inadequate
    * Answer is: not to be selected
    * selected for the interview
    * case is referred to the Assistant Manager
    * case is referred to the Deputy Manager

8. Kiran Bala is a young lady and laborious assistant who joined this organisation six years ago after passing B. Commerce Exam. The ratings being given to her for the last 4 years are 'D' and 'C' respectively for quality of work and speed of work. She is one of the leaders of the clerks. She has got 'D' ratings for flexibility of work for the last 5 years.
    * Answer is: data are inadequate
    * not to be selected
    * selected for the interview
    * case is referred to the Assistant Manager
    * case is referred to the Deputy Manager

9. Marks details missing Mandar Rhave has passed his Graduation in Science and Diploma in Business Management with 58% and 62% respectively. lie is good player of chess. His rating on PAR are 'D' for 'dependability' and 'flexibility' whereas he has 'C' rating for 'quality of work' and 'D' rating for 'speed of work' for the last 4 years.
    * Answer is: data are inadequate
    * not to be selected
    * selected for the interview
    * case is referred to the Assistant Manager
    * case is referred to the Deputy Manager

10. Joining Date missing Anubhav Rege is with the company for last seven

years. For the last 4 years he has 'D' rating for 'quality of work', 'C' rating for 'speed of work', 'F' rating for 'dependability' and 'D' rating for 'flexibility'. His marks in graduation and post-graduation are 46% and 50% respectively. He is very fond of cultural activities
  * data are inadequate
  * not to be selected
  * selected for the interview
  * Answer is: case is referred to the Assistant Manager
  * case is referred to the Deputy Manager

12. Shivasundaram has got 'D' rating since he joined the bank three years ago on quality of work, speed of work, dependability and flexibility. He has passed his graduation and post graduation with 52% and 47% marks respectively. Shivasundaram is a popular employee because of his social activities.
  * data are inadequate
  * not to be selected
  * selected for the interview
  * case is referred to the Assistant Manager
  * Answer is: case is referred to the Deputy Manager

12. Seema Mukhi is working in the clerical cadre for last five-and-a-half years. She has got 'D' and 'E' ratings respectively on 'flexibility' and 'dependability' and 'C' rating for 'quality of work' and 'speed of work' for last four years. She has obtained 55% and 48% at SSC and graduation respectively.
  * data are inadequate
  * not to be selected
  * selected for the interview
  * Answer is: case is referred to the Assistant Manager
  * case is referred to the Deputy Manager

13. Anthony Cruz is a sportsman and is Vice-Captain of cricket team of PRS Industries Ltd. He is working with the company for last seven years in theclerical cadre. The rating being given to him for the last 3 years is 'C' and 'D' grade for quality of work and speed of work respectively. Similarly, he has 'D' grade for dependability and flexibility in PAR. He is an Arts graduate with 54% of marks
  * data are inadequate
  * not to be selected
  * Answer is: selected for the interview
  * case is referred to the Assistant Manager
  * case is referred to the Deputy Manager

Directions (Q. 14-18): In each question below is given a statement followed by three assumptions numbered I, II and III. An assumption is something supposed or taken for granted. You have to consider the statement and the assumptions and decide which of the assumptions is implicit in the statement. Then decide which of the answers (1), (2), (3) (4) and (5) is the correct answer.

14. Statement: "A rare opportunity to be a professional while you are at home..— An advertisement for computer-literate housewives by a computer company
Assumptions: I. Some housewives simultaneously desire to become professional.
IL Computer industry is growing at a fast pace.
III. It is possible to be a professional as well as a housewife.
    * Only I and II
    * Only II and III
    * Answer is: Only I and III
    * Only II
    * None of these

15. Statement: India's economic growth has come at a terrible price of increased industrial and vehicular pollution.
Assumptions: I. Pollution is a part of industrial society.
II. Indian economic growth is based on only industrial growth.
Ill. A country desires economic growth with manageable side-effects.
    * only I
    * Only II
    * Answer is: Only I and III
    * Only III
    * None of these

16. Statement: Efforts to develop technologies more appropriate to the needs of the poorest sections of society need to be further intensified.
Assumptions: I: Nothing is impossible if proper efforts are made. II. Technology needs are different for different sections of society. III It is possible to develop appropriate technologies for various economic sections of the society.
    * Only I
    * Only III
    * Only II
    * Answer is: Both II and III
    * None of these

17. Statement: "We have the distinction of being the only company in India

as well as the second in the world to have won an ISO 9002 quality certification in our line of business"- Statement of company X's Chairman. Assumptions: I. There were not many companies in the line of business of Company 'X'. II Getting ISO 9002 in the line of business of Company "X' is not easy. III. The company 'X' desires to expand its business.
   * Only I
   * Only II
   * Only III
   * Answer is: Only II and III
   * None of these

18. Its Difficult to get and Chairman is highlighting this fact only to expand business Statement: Co-operative social relationships contribute to develop individual potentialities. Assumptions: I Every society desires to prosper. II. Individuals desire to develop their potential. III It is possible to create and maintain co-operative environment in a society.
   * Answer is: Only II and III
   * Only II and I
   * Only I and III
   * Only II
   * None of these

19. In a school class there are 65 children boys outnumber the girls by 21. How many girls are in the class .
   * 21
   * Answer is: 22
   * 26
   * 28
   * None of these

20. John had appointment in Delhi .He Reached there on Sunday. He found that he was three days earlier than the meeting day. If he had reached on the following Friday how many days late would he has been.

   * one day
   * Answer is: two days
   * three days
   * four days
   * None of these

SAIL Placement Paper

1.) Terminal colors of Rainbow?
a: Violet&Red

2.)First lady in "Indian National Congress"?
a: Indira Gandhi
b: Sarogini Naidu etc

3.)First Nuclear plant in INDIA is situated in
a : Trombay
b: Nellore etc

4.)2 capacitances are in parallel gives 6 micro farad & in series gives 25 what will be the value of individual capacitance.

5.)Who invented "THERMOMETER"?
Ans: Fahrenheit

6.)Electrostatic potential is a Scalar Quantity or Vector Quantity?

7.) Among values 1 to100 Probability of occurrence of numbers ending with 9 is?
a:1/10
b:9/10
c:1
d:0

8.)Si,Ge lie in ……..block of periodic table
a: III
b: V
c: IVA(ANS)
d: IV B

9.)some equation was given x=20 sin 157t then calculate frequency

10.)Which Filter is used for passing only high frequency
a: Ladder
b. Crystal

11.)In Zener breakdown is proportional to
Ans Negative coefficient of temperature

12.)If water is heated from 0degree to 10 degree effect on volume
a: increase steadily
b: remain same
c: decrease steadily

13.)If we dig EARTH FROM North to South pole and a stone is dropped in it then effect on its velocity
a :increase continuously

b: First increase and become Zero in center
c. It Will Start Oscillate

14.)Dandi march was related t0 ……..
a: Salt
b: sugar etc

15.)Radiation pattern of loop antenna
a: cardioids
b. semicircular
c. circle
d. none

16.) "DENMARK" lie in which continent

17.)Cooks island is situated in which continent?

18.)Range of AM Signal?

19.)In an Electrolyte if rod is immersed then mass on rod will be proportional to
Ans: current passed in it

20.)Largest unit in energy

21.) Spelling check of SATELLITE

22.)Plural of "DIBIYA"IN HINDI

23.)Find out Sarvnam

24.)RADDISH is a
a: modified root
b: bulb
c; stem

25.) X Rays are …….Rays
Ans emw

26.) ass:bray::sheep:bleat

SAIL Latest Job Interview Placement Paper (Technical, Reasoning, English & Aptitude)

Questions:
1.where does a body have least weight?
a) at the equator
b) at the poles

c) at earth's center
d) none of these

2. what is the millman's theorem?

3. what happens if a dc motor is fed an ac signal?

4. calculate electron mobility.

5. power MOSFET is voltage controlled or current controlled?

6. if u want a 640 k RAM, what specification should u specify in the drive?

7. max efficiency of a class a amplifier?

8.what r resistors in IC made of?

9. 6 girls and 6 bos sitting randomly in a line. what probability of girls being together?

10.what is the prob. of two friends having birthdays in same month?

11. (D^2 + 4)y= kx what if PI?

12. lim x-infinity sinx/x

13. express x/(x+1) as taylor's series

14.principle of jet engine

15. why hydraulic systems used ina aircrafts instead of electrical?

16. steel + ? = corrosion-resistant material?

17. what happens to speed of em wave as frequency increases?

18. which char. of em wave does not change when it travels from one mdium to another?

19. circuit given. find attenuation in db.

20. circuit given. how much feedback?

21. (s-1)/(s+1) is high pass filter/ low pass filter?

22. fastest logic family among rtl, dtl, ttl?

23. in common emitter config. change in iC on changing vBE?

24. what happens if gate voltage of an ON scr is decreased?

25. fermi level change with temperature in n type semiconductor?

26. mosfet has threshold voltage 1v when n+ polysilicon is used in gate. what is threshold voltage when polysilicon used is of n+ type?

27. simple ckts using zener diode.

28. what is the p+ substrate in an isolated pn junction ic connected to?

29. opamp circuit given. open loop gain=100. closed loop gain=?

30. which type of parameters(h/y/z) suitable in particular application?

31. given parallel LC ckt. find angle between currents in branches at resonance.

32. what is Q of series RLC ckt? (voltage gain/ admttance etc.)

33. resonant freq of parallel RLC ckt. ?

34. thin metal foil inserted between capacitor plates. foil connected to one plate. change in capacitance?

35. ques on reflection of em wave at air= dielectric interface. dlc const=9

36. what is brewster's angle?

37. why microwave freq not used for ionospheric propagation?

38. uhf range?

39. freq range used in satellite comunication?

40. which ionospheric bands used for commercial purposes?

41. question on transmission line impedance matching?

42. flip- flop d, t 43. convert 32 k pulses to 1 hz pulses using decade counters etc.

44. ques on sets and relations

45. integration

46. rank of matrix

100 technical questions in 1 hr. +1/-.25

(Section 2): section 2 consists of:

a. general awareness (history, geography, civics, economics- basic on india)
b. english (passage, synonym, antonym, grmmatical error detection etc)
c. reasoning
d. apti all sections' and all parts of sec 2's cut-off should be cleared.

Sample Paper:

1) A 2 digit number is formed by either subtracting 16 from 8 times the sum of the digits or by adding 20 to 22 times the difference between difference of digits.find the number?

2) It takes 16 days for 24 men to plough 15 acres of land,the how many days would be required for 32 men to plough 30 acres of land?

3) A Work can be done by 8 men and 10 women in 25 days, the same work can be done by 10 children and 5 women . In how many days 2 children and 3 men can do the same work?

4) One man or two women or three boys can do a work in 44 days then one man, one women and one boy together can finish the same work in -days?

5) 4 years from now ,prakash's age will be 4 times his son's age.12 years from now,he will be 2.5 times his son's age.find their present ages?

6) In how many ways can a lock be opened if that lock has three digit number lock if
i) the last digit is 9
ii) and sum of the first two digits is less than or equal to the last digit.

7) If the numerator and denomenator of a certain fraction are increased by 2,the fraction becomes 3/5.If numerator and denomenator are increased by 1,it becomes 1/2.find the fraction?

There are 76 persons. 53 can read hindu,46 can read times,39 can read deccan and 15 can read all.If 22 can rea
d hindu and deccan and 23 can read deccan and times then what is the number of persons who read only times and hindu ?

9) In pure milk if 20% replaced by water and in this again 20% is replaced by water and again 20% is replaced by water then what is the proportion of milk in that mixture?

10) After 10 years A will be twice the age of B before 10 years.and now if the difference is 9 years between them then what is the age of B after 10 years?

11) Praveen's present age is twice that of Mahesh's age 4 yrs ago.Praveen would be twice as old as Mahesh today.Find sum of their present ages?

12) The cost of 2 balls,3 bats and 8 pair of gloves is 2500.While cost of 4 balls,5 bats and 10 pair of gloves is 4000.Find cost of each bat?

13) From a 20 l mixutre conatining milk and water in the ratio 3:5, 4 litres of mixture is replaced with 4 litres of water .Then what is the final ratio of milk and water?

14) The cost of 4 apples is equal to the selling price of 6 apples.find the profit/loss percentage?

15) Nikhil bought 12 kg of cashew for Rs.360.He was forced to sell them at a loss of as much money as the selling price of 3kg.find his selling price?

Steel Authority of India (SAIL)

SAIL MT Exam Reasoning Previous Paper With Solution

1. How many cards of E type are inserted in brown envelopes?
   * Nil
   * One
   * Answer is: Two
   * Three
   * Data inadequate

2. Which of the following combinations of the type of cards and the number of cards is definitely correct in respect of yellow-coloured envelopes?
   * A-2, B-I, C-2
   * B-I, C-2. D-2
   * A-2, E-l, D-2
   * Answer is: A-3, B-1 C-1
   * None of these

3. Which of the following combinations of types of cards and the number of cards and colour of envelope is definitely correct?
   * Answer is: C-2, D-1, E-2, Brown
   * C-1,D-2,E-2,Brown
   * B-2, D-2, A-I, Red
   * A-2,B-2,C-1,Yellow
   * None of these

4. Which of the following combinations of colour of the envelope and the number of cards is definitely correct in respect of E type cards?
   * Red-2, Brown-l
   * Red-1,Yellow-2
   * Red-2, Yellow- 1
   * Yellow-1,Brown-2
   * Answer is: None of these

5. "Forty per cent of our products are sold in rural area, fifty-three per cent are sold in semi-urban area, sixty per cent of employees are from rural area." Which of the following statements is definitely true?
   * The company's products are purchased only by its employees and their family.
   * The company does not desire to recruit urban employees.
   * The company's products are required in big urban cities and metro areas.
   * The company holds approximately 90% of the market share in its product line.
   * Answer is: None of these

6. "We do not advertise, our product speaks for itself."— Statement of manufacturer of two-wheeler

'BJA'.

Which of the following, if true, would support and strengthen this statement?

(i) The prices of BJA two-wheelers are on higher side.

(ii) 'BJA' has won award for Quality Control Systems.

(iii) The BJA two-wheeler is sleek-looking and has good colours.

(iv) The salaries of BJA employees are better than government services.

* Only (i) and (ii)
* Answer is: Only (ii) and (iii)
* Only (iii) and (iv)
* Only (i), (ii) and (iiii)
* None of these

Directions (Q. 7-13): Read the following in formation carefully and answer the following questions:

Following are the criteria for organizing interview of such candidates as have been selected from the promotion to officer's grade from assistant grade in the PRS Industrial Group Limited:

The candidate to be called for interview must:

(i) be a graduate with minimum 50% marks.

(ii) have minimum five years' experience in the clerical cadre job.

(iii) have obtained at least 'C' ratings in performance (speed of work) and the quality of work each during the last three years. For this five ratings A, 8, C, D and E-have been created on the basis of "Performance Appraisal Report" with the lowest ratings of A and the highest ratings of E.

(iv) have obtained at least 'D' ratings in the approach of work (dependability) and in the flexibility of work each for his/her works in the last three years. For this, seven ratings A, B,C, D, E, F and G have been formulated on the basis of "Performance Appraisal Report" with lowest ratings of A and the highest ratings of G.

However, in case of a candidate who fulfills all other criteria EXCEPT

(a)(i) above, but has passed Graduation Exam and has got 'E' ratings in the approach of work in the last three years, may be referred to the Assistant Manager (Personnel).

(b) (ii) above, but has experience of three years in clerical cadre job and has got at least 'D' ratings in the quality of work for his/her works in the last three years, may be referred to the Deputy Manager (Personnel).

Based on these criteria and information provided against each candidate, decide the course of action. You are not to assume anything. If the data provided are not adequate to decide the given course of action, your answer will be "Data inadequate". All the candidates fulfill the criterion of age. V Give answer

(1) if data are inadequate (2) if not to be selected (3) if selected for the interview (4) if case is referred to the Assistant Manager (5) if case is referred to the Deputy Manager

7. Mohammed Sheikh is a brilliant post-graduate in Science and has secured 63% and5 marks in graduation and post graduation respectively. He has 'E' grade for dependability and flexibility inPerformance Appraisal Report for last four years. He has got 'C' rating for quality of work and speed of work. He joined the Bank four years ago.

* data are inadequate
* Answer is: not to be selected
* selected for the interview
* case is referred to the Assistant Manager
* case is referred to the Deputy Manager

8. Kiran Bala is a young lady and laborious assistant who joined this organisation six years ago after passing B. Commerce Exam. The ratings being given to her for the last 4 years are 'D' and 'C' respectively for quality of work and speed of work. She is one of the leaders of the clerks. She has got 'D' ratings for flexibility of work for the last 5 years.

* Answer is: data are inadequate
* not to be selected
* selected for the interview
* case is referred to the Assistant Manager
* case is referred to the Deputy Manager

9. Marks details missing Mandar Rhave has passed his Graduation in Science and Diploma in Business Management with 58% and 62% respectively. lie is good player of chess. His rating on PAR are 'D' for 'dependability' and 'flexibility' whereas he has 'C' rating for 'quality of work' and 'D' rating for 'speed of work' for the last 4 years.
* Answer is: data are inadequate
* not to be selected
* selected for the interview
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10. Joining Date missing Anubhav Rege is with the company for last seven years. For the last 4 years he has 'D' rating for 'quality of work', 'C' rating for 'speed of work', 'F' rating for 'dependability' and 'D' rating for 'flexibility'. His marks in graduation and post-graduation are 46% and 50% respectively. He is very fond of cultural activities
* data are inadequate
* not to be selected
* selected for the interview
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12. Shivasundaram has got 'D' rating since he joined the bank three years ago on quality of work, speed of work, dependability and flexibility. He has passed his graduation and post graduation with 52% and 47% marks respectively. Shivasundaram is a popular employee because of his social activities.
* data are inadequate
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* Answer is: case is referred to the Deputy Manager

12. Seema Mukhi is working in the clerical cadre for last five-and-a-half years. She has got 'D' and 'E' ratings respectively on 'flexibility' and 'dependability' and 'C' rating for 'quality of work' and 'speed of work' for last four years. She has obtained 55% and 48% at SSC and graduation respectively.
* data are inadequate
* not to be selected
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13. Anthony Cruz is a sportsman and is Vice-Captain of cricket team of PRS Industries Ltd. He is working with the company for last seven years in theclerical cadre. The rating being given to him for the last 3 years is 'C' and 'D' grade for quality of work and speed of work respectively. Similarly, he has 'D' grade for dependability and flexibility in PAR. He is an Arts graduate with 54% of marks
* data are inadequate
* not to be selected
* Answer is: selected for the interview
* case is referred to the Assistant Manager
* case is referred to the Deputy Manager

Directions (Q. 14-18): In each question below is given a statement followed by three assumptions numbered I, II and III. An assumption is something supposed or taken for granted. You have to consider the statement and the assumptions and decide which of the assumptions is implicit in the statement. Then decide which of the answers (1), (2), (3) (4) and (5) is the correct answer.

14. Statement: "A rare opportunity to be a professional while you are at home..— An advertisement for computer-literate housewives by a computer company
Assumptions: I. Some housewives simultaneously desire to become professional.
IL Computer industry is growing at a fast pace.
III. It is possible to be a professional as well as a housewife.
   * Only I and II
   * Only II and III
   * Answer is: Only I and III
   * Only II
   * None of these

15. Statement: India's economic growth has come at a terrible price of increased industrial and vehicular pollution.
Assumptions: I. Pollution is a part of industrial society.
II. Indian economic growth is based on only industrial growth.
Ill. A country desires economic growth with manageable side-effects.
   * only I
   * Only II
   * Answer is: Only I and III
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   * None of these

16. Statement: Efforts to develop technologies more appropriate to the needs of the poorest sections of society need to be further intensified. Assumptions: I: Nothing is impossible if proper efforts are made. II. Technology needs are different for different sections of society. III It is possible to develop appropriate technologies for various economic sections of the society.
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   * Only III
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   * Only I
   * Only II
   * Only III
   * Answer is: Only II and III
   * None of these

18. Its Difficult to get and Chairman is highlighting this fact only to expand business Statement: Co-operative social relationships contribute to develop individual potentialities. Assumptions: I Every society desires to prosper. II. Individuals desire to develop their potential. III It is possible to create and maintain co-operative environment in a society.

* Answer is: Only II and III
* Only II and I
* Only I and III
* Only II
* None of these

19. In a school class there are 65 children boys outnumber the girls by 21. How many girls are in the class .
    * 21
    * Answer is: 22
    * 26
    * 28
    * None of these

20. John had appointment in Delhi .He Reached there on Sunday. He found that he was three days earlier than the meeting day. If he had reached on the following Friday how many days late would he has been.

    * one day
    * Answer is: two days
    * three days
    * four days
    * None of these

SAIL Placement Paper, Technical 2010

What is the main different between distribution transformer and power transformer?

Where manning formula used

what is the differance between item category and material type ?

When a square wave is applied to primary of a transformer then what will be output

wave form of secondary ?

what are the warehouse reserch? and pocess of warehouse research?

What is the rating of HT SUBSTATION and LT SUBSTATION?

which of the following rivers does not form any delta T ITS MOUTH? Cauvery,

Mahanadi, Godawari, Tapti

How much is the minimum marks for CIVIL judge interview in MPPSC. where i can

get rules in this regard documented?

what are the uses of graphite electrode in various field.

what is the use of "fg" command ?

what are %TYPE and %ROWTYPE? what is the difference?

1.where does a body have least weight?
a) at the equator
b) at the poles
c) at earth's center
d) none of these

2. what is the millman's theorem?

3. what happens if a dc motor is fed an ac signal?

4. calculate electron mobility.

5. power MOSFET is voltage controlled or current controlled?

6. if u want a 640 k RAM, what specification should u specify in the drive?

7. max efficiency of a class a amplifier?

8.what r resistors in IC made of?

9. 6 girls and 6 bos sitting randomly in a line. what probability of girls being together?

10.what is the prob. of two friends having birthdays in same month?

11. (D^2 + 4)y= kx what if PI?

12. lim x-infinity sinx/x

13. express x/(x+1) as taylor's series

14.principle of jet engine

15. why hydraulic systems used ina aircrafts instead of electrical?

16. steel + ? = corrosion-resistant material?

17. what happens to speed of em wave as frequency increases?

18. which char. of em wave does not change when it travels from one mdium to another?

19. circuit given. find attenuation in db.

20. circuit given. how much feedback?

21. (s-1)/(s+1) is high pass filter/ low pass filter?

22. fastest logic family among rtl, dtl, ttl?

23. in common emitter config. change in iC on changing vBE?

24. what happens if gate voltage of an ON scr is decreased?

25. fermi level change with temperature in n type semiconductor?

26. mosfet has threshold voltage 1v when n+ polysilicon is used in gate. what is threshold voltage when polysilicon used is of n+ type?

27. simple ckts using zener diode.

28. what is the p+ substrate in an isolated pn junction ic connected to?

29. opamp circuit given. open loop gain=100. closed loop gain=?

30. which type of parameters(h/y/z) suitable in particular application?

31. given parallel LC ckt. find angle between currents in branches at resonance.

32. what is Q of series RLC ckt? (voltage gain/ admttance etc.)

33. resonant freq of parallel RLC ckt. ?

34. thin metal foil inserted between capacitor plates. foil connected to one plate. change in capacitance?

35. ques on reflection of em wave at air= dielectric interface. dlc const=9

36. what is brewster's angle?

37. why microwave freq not used for ionospheric propagation?

38. uhf range?

39. freq range used in satellite comunication?

40. which ionospheric bands used for commercial purposes?

41. question on transmission line impedance matching?

42. flip- flop d, t 43. convert 32 k pulses to 1 hz pulses using decade counters etc

TEST PAPER 1
Total Questions: 75 Time allotted 90 minutes

1. The set of all integers x such that $|x - 3| < 2$ is equal to
(a) {1, 2, 3, 4, 5} (b) {1, 2, 3, 4}
(c) {2, 3, 4} (d) {-4, -3, -2}

2. The Range of the function $f(x) = x \, 2$
2 x
−
−
is
(a) R (b) R − {1}
(c) (-1) (d) R − {-1}

3. The value of $(i)_i$ is
(a) ω (b) $\omega 2$
(c) $e_{-\pi/2}$ (d) $2\sqrt{2}$

4. ( )
( )
4
5
cos isin
icos sin
$\theta + \theta$
$\theta + \theta$
is equal to
(a) $\cos - i\sin \theta$ (b) $\cos 9\theta - i\sin 9\theta$
(c) $\sin \theta - i\cos \theta$ (d) $\sin 9\theta - i\cos 9\theta$

5. The roots of the quadratic equation $ax_2 + bx + c = 0$ will be reciprocal to each other if
(a) $a = 1/c$ (b) $a = c$
(c) $b = ac$ (d) $a = b$

6. If α, β are the roots of $ax_2 - 2bx + c = 0$ then $\alpha 3 \beta 3 + \alpha 2 \beta 3 + \alpha 3 \beta 2$ is
(a) $_2$ ( )
3
c c 2b
a
+ (b)
3
3
bc
a

(c)

$\frac{2}{3}$ c a

(d) None of these

7. The sixth term of a HP is 1/61 and the 10th term is 1/105. The first term of the H.P. is

(a) 1/39 (b) 1/28

(c) 1/17 (d) 1/6

8. Let S_n denote the sum of first n terms of an A.P.. If $S_{2n} = 3S_n$, then the ratio S_{3n} / S_n is equal to

(a) 4 (b) 6

(c) 8 (d) 10

9. Solution of $|3 - x| = x - 3$ is

(a) x < 3 (b) x > 3

(c) x > 3 (d) x < 3

10. If the product of n positive numbers in 1, then their sum is

(a) a positive integer (b) divisible by n

(c) equal to n 1

n

+ (d) never less than n

11. A lady gives a dinner party to six quests. The number of ways in which they may be selected from among ten friends, if two of the friends will not attend the party together is

(a) 112 (b) 140

(c) 164 (d) None of these

12. For $1 \le r \le n$, the value of $_{n-1}C_r + _{n-2}C_r$

$nC_r + _{n-1}C_r + _{n-2}C_r + \_ \_ \_ + _rC_r$ is

(a) $_{r+1}nC_{r+}$ (b) $_{n-1}$

r+ C

(c) $_{n-1}$

r-1+ C

+ (d) None of them.

13. $2.4_{2n+1} + 3_{3n+1}$ is divisible by

(a) 2 (b) 9

(c) 11 (d) 27

14. If P_n denotes the product of the binomial coefficients in the expansions of $(1 + x)_n$, the $_{n-1}$

n

P

P

+ equals

(a) n !

n!

+ (b)

n_n

n!

(c) $( )_{n-1}n 1$

n!

+ + (d) $( )$

$( )$

n 1

!

n 1

n 1

+ +

+

15. If x is very large and n is a negative integer or a proper fraction, then an approximate value of

$_{n-1}x$

x

+

$\left| \, \right)$

is

(a) $1 \frac{x}{n}$

+ (b) $1 \frac{n}{x}$

+

(c) $1 \frac{1}{x}$

+ (d) $n \frac{1}{x} \frac{1}{1}$

$\left(\left| \, \right| + \left| \, \right| \right)$

16. If $4 \log_9 3 + 9 \log_2 4 = 10 \log_x 83$, $(x \in R)$

(a) 4 (b) 9

(c) 10 (d) None of these

17. The sum of the series $_{2\,2\,2}$

$_{4\,8\,16} \log - \log + \log \_\_\_\_ to \infty \, is$

(a) e_2 (b) $\log_e 2 + 1$

(c) $\log_e 3 - 2$ (d) $1 - \log_e 2$

18. tan 5x tan 3x tan2x is equal to

(a) $\frac{\tan 5x - \tan 3x - \tan 2x}{\cos 5x \, \cos 3x \, \cos 2x}$ (b) $\frac{\sin 5x \, \sin 3x \, \sin 2x}{\_\_}$

$\frac{\_\_}{\_\_}$

(c) 0 (d) None of these

19. If $a = \tan 6_0 \tan 42_0$ and $B = \cot 66_0 \cot 78_0$

(a) $A = 2B$ (b) $A \frac{1}{3} B$

=

(c) $A = B$ (d) $3A = 2B$.

20. The value of $\cos 2 \, \cos 4 \, \cos 6$

$_{7\,7\,7}$

$\pi \quad \pi \quad \pi$

$+ + $ is

(a) 1 (b) -1

(c) 1/2 (d) -1/2

21. If $\tan 1 \, and \sin 1,$

$_{7\,10}$

$\alpha = \beta = $ where $0,$

2

π

$\langle \alpha \quad \beta \langle$, then 2β is equal to

(a)

4

π

$- \alpha$ (b) 3

4

π

$- \alpha$

(c)

8

π

$- \alpha$ (d) 3

8 2

$\pi \quad \pi$

22. If $\sin\theta + \cos\theta = \sqrt{2}\sin\theta$, then
(a) $\sqrt{2}\cos\theta$ (b) $-\sqrt{2}\sin\theta$
(c) $-\sqrt{2}\cos\theta$ (d) None of these

23. Value of
$$\frac{\sin 20}{\cos 40} + \frac{\cos 20}{\sin 40}$$
is
(a) 1 (b) 2
(c) ½ (d) None of these

24. Value of $32\cos^6 20^0 - 48\cos^4 20^0 + 18\cos^2 20^0 - 1$ is
(a) $\dfrac{1}{2}$
(b) $-\dfrac{1}{2}$
(c) $\dfrac{3}{2}$ (d) None of these

25. If $\sin\theta + \operatorname{cosec}\theta = 2$, then value of $\sin^3\theta + \operatorname{cosec}^3\theta$ is
(a) 2 (b) 4
(c) 6 (d) 8

26. If $\operatorname{cosec}\theta + \cot\theta = 5\sqrt{2}$, then the value of $\tan\theta$ is
(a) $\dfrac{15}{16}$ (b) $\dfrac{21}{20}$
(c) $\dfrac{15}{21}$ (d) $\dfrac{20}{21}$

27. General value of x satisfying the equation $\sqrt{3}\sin x + \cos x = \sqrt{3}$ is given by
(a) $n\pi \pm \dfrac{\pi}{6} + \dfrac{\pi}{4}$ (b) $(\ )_n 1 + \dfrac{\pi}{3}$
(c) $n\pi \pm \dfrac{\pi}{3} + \dfrac{\pi}{3}$ (d) $(\ )_n 1 - \dfrac{\pi}{6}$

28. If length of the sides AB, BC and CA of a triangle are 8cm, 15 cm and 17 cm respectively, then length of the angle bisector of $\angle ABC$ is
(a) $\dfrac{120\sqrt{2}}{23}$ cm
(b) $\dfrac{60\sqrt{2}}{23}$ cm
(c) $\dfrac{30\sqrt{2}}{23}$ cm
(d) None of these

29. A man from the top of a 100 metre high tower sees a car moving towards the tower at an angle of depression of 30^0. After sometimes, the angle of depression becomes 60^0. The distance (in metres)

traveled by the car during this time is

(a) $100\sqrt{3}$ (b) $\dfrac{200\sqrt{3}}{3}$

(c) $\dfrac{100\sqrt{3}}{3}$

(d) $200\sqrt{3}$

30. The shadow of a tower of height $\left(1+\sqrt{3}\right)$ metre standing on the ground is found to be 2 metre longer when the sun's elevation is 30^0, then when the sun's elevation was

(a) 30^0 (b) 45^0

(c) 60^0 (d) 75^0

31. $\cos^{-1}\left(\cos\dfrac{5\pi}{4}\right)$

is equal to

(a) $-\dfrac{\pi}{4}$ (b) $\dfrac{4}{\pi}$

(c) $\dfrac{3\pi}{4}$

(d) $\dfrac{5\pi}{4}$

32. If $\cos^{-1}\dfrac{x}{2}+\cos^{-1}\dfrac{y}{3}=\dfrac{\pi}{6}$, then value of

$\dfrac{x^2}{4}-\dfrac{xy}{2\cdot3}+\dfrac{y^2}{9}$ is

(a) $\dfrac{3}{4}$ (b) $\dfrac{1}{2}$

(c) $\dfrac{1}{4}$ (d) None of these

33. The distance between the lines $4x + 3y = 11$ and $8x + 6y = 15$ is

(a) 7/2 (b) 7/3

(c) 7/5 (d) 7/10

34. The straight lines $x + y - 4 = 0$, $3x + y - 4 = 0$, $x + 3y - 4 = 0$ form a traigle which is

(a) isosceles (b) right angled

(c) equilateral (d) None of these

35. Incentre of the triangle whose vertices are (6, 0) (0, 6) and (7, 7) is

(a) $\left(\dfrac{9}{2},\dfrac{9}{2}\right)$

(b) $\left(\dfrac{7}{2},\dfrac{7}{2}\right)$

(c) $\left(\dfrac{11}{2},\dfrac{11}{2}\right)$

(d) None of these

36. The area bounded by the curves $y = |x| - 1$ and $y = -|x| + 1$ is

(a) 1 (b) 2

(c) 2 2 (d) 4

37. The coordinates of foot of the perpendicular drawn from the point (2, 4) on the line $x + y = 1$ are

(a) $\left(\dfrac{1}{2}, \dfrac{3}{2} \right)$

(b) $\left(\dfrac{1}{2}, -\dfrac{3}{2} \right)$

(c) $\left(-\dfrac{3}{2}, \dfrac{1}{2} \right)$

(d) $\left(-\dfrac{1}{2}, -\dfrac{3}{2} \right)$

38. Three lines $3x + 4y + 6 = 0$, $2x + 3y + 2\sqrt{2} = 0$ and $4x + 7y + 8 = 0$ are

(a) Parallel (b) Sides of a triangles

(c) Concurrent (d) None of these

39. Angle between the pair of straight lines $x^2 - xy - 6y^2 - 2x + 11y - 3 = 0$ is

(a) 45_0, 135_0

(b) $\tan_{-1} 2$, $\pi = \tan_{-1} 2$

(c) $\tan_{-1} 3$, $\pi = \tan_{-1} 3$

(d) None of these

40. If a circle passes through the point (a, b) and cuts the circle $x^2 + y^2 = 4$ orthogonally, then locus of its centre is

(a) $2ax + 2by + \left(a^2 + b^2 + 4 \right) = 0$

(b) $2ax + 2by - \left(a^2 + b^2 + 4 \right) = 0$

(c) $2ax - 2by + \left(a^2 + b^2 + 4 \right) = 0$

(d) $2ax - 2by - \left(a^2 + b^2 + 4 \right) = 0$

41. Centre of circle whose normals are $x^2 - 2xy - 3x + 6y = 0$ is

(a) $\left(3, \dfrac{3}{2} \right)$

(b) $\left(3, \dfrac{3}{2} \right)$

(c) $\left(3, \dfrac{3}{2} \right)$

(d) 3, 3

$$\left(\frac{1}{3} - \right)$$

42. Centre of a circle is (2, 3). If the line x + y = 1 touches, its equation is
(a) $x^2 + y^2 - 4x - 6y + 4 = 0$
(b) $x^2 + y^2 - 4x - 6y + 5 = 0$
(c) $x^2 + y^2 - 4x - 6y - 5 = 0$
(d) None of these

43. The centre of a circle passing through the points (0, 0), (1, 0) and touching the circle $x^2 + y^2 = 9$ is
(a) $\frac{3}{2}, \frac{1}{2}$

(b) $\frac{1}{2}, \frac{3}{2}$

(c) $\frac{1}{2}, \frac{1}{2}$

(d) $\frac{1}{2}, 2$

$$\left(\frac{1}{2} - \right)$$

44. The line y = mx + 1 is a tangent to the parabola $y^2 = 4x$ if
(a) m = 1 (b) m = 2
(c) m = 3 (d) m = 4

45. The angle between the tangents drawn from the origin to the parabola $y^2 = 4a(x - a)$ is
(a) 90^0 (b) 30^0
(c) $\tan^{-1}\frac{1}{2}$

(d) 45^0

46. The area of the triangle formed by the tangent and the normal to the parabola $y^2 = 4ax$, both drawn at the same end of the latus rectum and the axis of the parabola is
(a) $2\sqrt{2}a^2$ (b) $2a^2$
(c) $4a^2$ (d) None of these

47. The eccentricity of the eclipse $16x^2 + 7y^2 = 112$ is
(a) 4/3 (b) 7/16
(c) $3/\sqrt{17}$ (d) 3/4

48. A common tangent to the circle $x^2 + y^2 = 16$ and an ellipse
$$\frac{x^2}{49} + \frac{y^2}{4} = 1$$ is
(a) $y = x + 4\sqrt{5}$ (b) $y = x + \sqrt{53}$
(c) $y = 2x + \frac{4}{\sqrt{11}} = \frac{4}{\sqrt{11}}$
(d) None of these

49. If the hyperbolas $x^2 - y^2 = a^2$ and $xy = c^2$ are of equal size, then
(a) $c^2 = 2a^2$ (b) c = 2a

(c) $2c_2 = a_2$ (d) none of these

50. If a circle cuts rectangles hyperbola $xy = 1$ in the point (x_i, y_i), $i = 1, 2, 3, 4$ then

(a) $x_1 x_2 x_3 x_4 = 0$ (b) $y_1 y_2 y_3 y_4 = 1$

(c) $y_1 y_2 y_3 y_4 = 0$ (d) $x_1 x_2 x_3 x_4 = -1$

51. If
$$\begin{vmatrix} a & b & 0 \\ 0 & a & b \\ b & 0 & a \end{vmatrix} = 0 \text{ then}$$

(a) a is a cube root of 1 (b) b is a cube root of 1

(c) a/b is a cube root of 1 (d) a/b is a cube roots of -1

52. If
$$\begin{vmatrix} 1 & 1 & 1 \\ 1 & a & 1 \\ 1 & 1 & b \end{vmatrix} + \begin{vmatrix} a & b & c \\ 1 & 1 & 1 \\ 1 & 1 & c \end{vmatrix} + \cdots = , \text{ then}$$

is equal to

(a) 0 (b) abc

(c) –abc (d) None of these

53. The determinant
$$\begin{vmatrix} \cos(\alpha+\beta) & \sin(\alpha+\beta) & \cos_2 B \\ \sin\alpha & \cos\alpha & \sin\beta \\ \cos\alpha & \sin\alpha & \cos\beta \end{vmatrix}$$

is independent of

(a) α (b) β

(c) α and β (D) Neither α nor β

54. If
$$A = \begin{bmatrix} 3 & 4 \\ 1 & 1 \\ - & \end{bmatrix} = \begin{bmatrix} - \end{bmatrix}$$
, the value of A_n

(a)
$$3n \quad 4n \begin{bmatrix} n & n \\ - \\ \end{bmatrix}$$

(b)
$$2n \quad 5n \begin{bmatrix} n & n \\ + & - \\ - \end{bmatrix}$$

(c)
$$\begin{matrix} ( ) \\ ( ) \\ {}^{n\,n}_{n} \\ 3\ 4 \\ 1\ 1 \\ \begin{bmatrix} - \end{bmatrix} \end{matrix}$$

$$\left\lfloor\lfloor - \rfloor\right\rfloor$$

(d) None of these

55. The domain of the function $f(x) = \dfrac{1}{x^2 - 3x + 2}$ is

(a) $(-\infty, 1) \cup (2, \infty)$ (b) $(-\infty, 1] \cup [2, \infty)$

(c) $[-\infty, 1) \cup (2, \infty]$ (d) (1, 2)

56. Range of function $\dfrac{\sin^4 x + 1}{x^2 + 1}\left\lfloor\pi\right\rfloor$ is

(a) 0 (b) {0}

(c) [-1, 1] (d) (0, 1)

57.

$$\lim_{x \to \pi} \dfrac{1}{2}\dfrac{\cot x}{\cot x - \cot^3 x}$$ is

(a) $\dfrac{11}{4}$ (b) $\dfrac{3}{4}$

(c) $\dfrac{1}{2}$ (d) None of these

58.

$$\lim_{x \to 0} \sec\left(\sin\dfrac{x}{x}\right) =$$

(a) 1 (b) 0

(c) 2

π (d) Does not exist

59. The function $y = 3|x - 2| - |x - 1|$ is continuous

(a) x < 0 (b) x > 1

(c) no point (d) None of these

60. The function $f(x) = \begin{cases} 0, & x \text{ is irrational} \\ 1, & x \text{ is rational} \end{cases}$ is

(a) continuous at x = 1 (b) discontinuous only at 0

(c) discontinuous only at 0, 1

(d) discontinuous everywhere

61. Let f : R $\to$ R be a function defined by f(x) = max. {x, x₃}. The set of all points where f(x) is not differentiable is

(a) {-1, 1} (b) {-1, 0}

(c) {0, 1} (d) {-1, 0, 1}

62. If the function

$$f(x) = \begin{cases} \dfrac{\cos x}{x}, & x \neq 0 \\ K, & x = 0 \end{cases}$$

is continuous of x = 0 then value of k is

(a) 1 (b) -1

(c) 0 (d) e

63.
$$\int \frac{1 - x^5}{1 + x} dx =$$

(a) $1 - x + x^2 - x^3 + x^4 + c$ (b)

$$x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} + \frac{x}{x}$$

(c) $( )_5 1 + x + C$ (d) None of these

64. $\int x\, dx$

(a)

$$\frac{x^3}{3}$$

(b)

$$\frac{x^2 x}{3}$$

(c)

$$\frac{x^2 x}{2}$$

(d) None of these

65.

$$\int_{1}^{1} \frac{x^2 - }{x^2 +} dx =$$

(a) 1 (b) 2

(c) 0 (d) -1

66. $\int_{0}^{\frac{\pi}{2}} \log \tan x\, dx =$

(a) 4

π (b) 2

π

(c) 0 (d) 1

67. If a < 0 < b, then

$$\int_{a}^{b} \frac{x}{ } dx$$

x $\int$

(a) a − b (b) b − a
(c) a + b (d) −a − b

68.

$$\int_0^2 x^2 \, x \, dx$$

(a) 5/3 (b) 7/3
(c) 8/3 (d) 4/3

69. $\int_0^2$

x sin x dx
1 cos x

$+ \int_0^\pi$

(a) $\frac{\pi^2}{8}$

(b) $\frac{\pi^2}{4}$

(c) $\frac{3\pi}{8}$

(d) $\frac{4\pi}{8}$

70. The area bounded by curve $y = 4x - x^2$ and x − axis is

(a) 30 sq. units.
7
(b) 31 sq. units.
7
(c) 32 sq. units.
3
(d) 34 sq. units.
3

71. The area bounded by the curves y = |x| - 1 and y = -|x| + 1 is
(a) 1 (b) 2
(c) 2 2 (d) 4

72. The area bounded by the curves $y = x^4 - 2x^3 + x^2 - 3$, the x-axis and the two ordinates corresponding to the points of minimum of this Function is
(a) 91/15 (b) 91/30
(c) 19/30 (d) None of these

73. Degree of the differential equation

$$\left(\frac{d^2 y}{dx^2} \right)^{2/3} \cdot \left[\left(\frac{d^2 y}{dx^2} \right)^{5} \cdot \frac{dx}{d^2 y} \right]^{2/3} + \left[\frac{d^3 y}{dx^3} \right]^{x} = \frac{1}{3}$$

, then
(a) m = 3, n = 3 (b) m = 3, n = 2
(c) m = 3, n = 5 (d) m = 3, n = 1

74. A solution of the differential equation

$$\left(\frac{dy}{dx} \right)^2 x \cdot \frac{dy}{dx} y \, 0$$

$$\left|\left(\frac{\vphantom{/}}{/}\right)\right| - + =$$

is

(a) $y = 2$ (b) $y = 2x$

(c) $4y = x_2 + c$ (d) $y = 2x_2 - 4$

75. The area (in square units) of the parallelogram whose diagonals are $a = \hat{i} + \hat{j} - 2k\hat{}$ and $b = \hat{i} - 3\hat{j} + 4k\hat{}$

r r

(a) 14 (b) 2 14

(c) 2 6 (d) 38

ANSWER KEYS

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

MENTAL ABILITY

Q.1) The angles of a quadrilateral are in the ratio of 1 : 4 : 2 : 3. The angles are respectively :
(A) 18^0; 72^0; 36^0; 54^0 (B) 72^0; 228^0; 144^0; 216^0
(C) 36^0; 114^0; 72^0; 108^0 (D) None of the above

Q.2) A circle of 1 m radius is drawn inside a square as shown in the above figure. What is the area of the shaded portion in m^2?

1 m

(A) $(4-\pi)$ (B) 1
$$\frac{2}{\left(\left(\frac{}{}\right)-\pi\right)}$$

(C) 1
$$\frac{4}{4}\left(\left(\frac{}{}\right)-\pi\right)$$

(D) 1
$$\frac{4}{\left(\left(\frac{}{}\right)-\pi\right)}$$

Q.3) If $2x + 3y = 10$ and $y < 4$, then
(A) $x > -1$ (B) $x < -1$
(C) $x > 0$ (D) $x < 0$

Q.4) Ram started his journey at 9.00 a.m. at 8 km/hour. Hamid started from the same spot in the same direction at 9.30 a.m. at 10 km/hour. Hamid overtakes Ram at :
(A) 11.00 a.m. (B) 12.30 p.m.

(C) 12.00 noon (D) 11.30 a.m.

Q.5) A can do a piece of work in 12 days and B can do it in 10 days and A, B and C together in 5 days. C alone can do it in:

(A) 17 days (B) 27 days

(C) 60 days (D) 30 days

Q.6) The given diagram shows the population of a town. If the total population of the town is 7,20,000 then the number of animals in the town is :

Men 70
Boys 70
Girls 130
Animals 30
Women 60

(A) 30,000 (B) 40,000

(C) 50,000 (D) 60,000

Q.7) What least number must be subtracted from each of the numbers 17, 17, 34, 42 so that the ratio of first two is the same as the ratio of the next two?

(A) 0 (zero) (B) 1

(C) 2 (D) 7

Q.8) A circular road runs around a circular garden. If the sum of the circumferences of the inner and outer circles is 88 metres and the radius of the inner circle is one-third of the outer circle, then the width of the road is :

(A) 4 metres (B) 5 metres

(C) 6 metres (D) 7 metres

Q.9) A city has a population of 3,00,000 out of which 1,80,000 are males. 50% of the population is literate. If 70% of the males are literate, the number of literate females is :

(A) 20,000 (B) 24,000

(C) 30,000 (D) 34,000

Q.10) The cost price of an article is Rs. 100. To gain 50% after allowing a 50% discount, the market price of the article is :

(A) Rs. 200 (B) Rs. 400

(C) Rs. 350 (D) Rs. 300

Q.11) In three annual examinations, of which the aggregate marks of each was 500, a student secured average marks 45% and 55% in the first and the second yearly examinations respectively. To secure 60% average total marks, it is necessary for him in third yearly examination to secure marks :

(A) 300 (B) 350

(C) 400 (D) 450

Q.12) If RUNNER is coded by SUMMER, the code for WINTER will be :

(A) XIMSER (B) VINTER

(C) SINVER (D) VIOUER

Q.13) P is 300 kms eastward of O and Q is 400 kms north of O. R is exactly in the middle of Q and P. The distance between Q and R is :

(A) 300 kms (B) 350 kms

(C) 250 kms (D) $250\sqrt{2}$ kms

Q.14) A man borrows Rs. 1200.00 from a bank for a period of 3 months. He finds that he has to repay Rs. 1236.00. The bank rate of interest is:

(A) 3% (B) 6%

(C) 12% (D) 24%

Q.15) In climbing a round pole of 80 metres height, a monkey climbs 5 metres in a minute and slips 2 metres in the alternate minute. To get to the top of the pole, the monkey would take :

(A) 51 minutes (B) 54 minutes

(C) 58 minutes (D) 61 minutes

Q.16) A man travels by a car for 3 days. He traveled 10 hours each day. He drove on the first day at 45 km/hr, second day at 40 km/hr and third day at 20 km/hr. His average speed was :

(A) 30 km/hr (B) 35 km/hr

(C) 38 km/hr (D) 40 km/hr

Q.17) Forty three persons went to a canteen which sold cold drink 'Maaza' and 'Pepsi'. If 18 persons took Maaza only, 8 took Pepsi only and 5 took nothing, find how many took both the drinks :

(A) 35 (B) 21
(C) 12 (D) 26

Q.18) A man works for 2 days and then rests for one day, then works for 2 days and rests for one day and so on. For everyday he works, he earns Rs. 100. How much will he earn from Monday to Saturday?
(A) Rs. 200 (B) Rs. 300
(C) Rs. 400 (D) Rs. 500

Q.19) A rectangular plot of lawn of length and width respectively x and y metres is surrounded by a pathway of 2 metres width. The total area of pathway is :
(A) $2x + 2y + 4$ (B) $2x + 2y + 8$
(C) $4x + 4y + 8$ (D) $4x + 4y + 16$

Q.20) How many triangles are there in the given figure?
A B
D C
E
F
G
(A) 10 (B) 16
(C) 12 (D) 8

Q.21) Unscramble the letters of words and find odd one out.
(1) TLAES (2) KOBO
(3) PPREA (4) NCEPLI

Q.22) A square park is surrounded by a path of uniform width 2 metres all round it. The area of the path is 288 sq. metres. The perimeter of the park is
(1) 142 m (2) 128 m
(3) 136 m (4) 118 m

Q.23) What is the sum of $5x_3 - 3x_2 - 1$ and $3x_2 + 1$?
(1) $5x_3$ (2) $6x_2$
(3) $5x$ (4) $3x_2$

Q.24) India has won the "World Cup Hockey" title:
(1) Twice (2) Once
(3) Thrice (4) Never

Q.25) The price of T.V. set inclusive of sales tax of 9% is Rs. 13.407. Find its marked price.
(1) Rs. 12,300 (2) Rs. 11,500
(3) Rs. 12,500 (4) Rs. 12,400

ANSWERS
1. (C)
2. (D)
3. (C)
4. (D)
5. (C)
6. (D)
7. (C)
8. (D)
9. (B)
10. (D)
11. (C)
12. (A)
13. (C)
14. (C)
15. (A)
16. (B)
17. (C)
18. (C)
19. (D)
20. (C)
21. (1)
22. (3)

23. (1)
24. (2)
25. (1)