Topic:- MOR S2

1) Which of the following alternatives is either a synonym or an antonym of the word LIBERAL?
[Question ID = 10924]
1. Unreliable [Option ID = 43690]
2. Intolerant [Option ID = 43691]
3. Strong [Option ID = 43692]
4. Independent [Option ID = 43693]

Correct Answer :-
- Intolerant [Option ID = 43691]

2) Which of the following alternatives is either a synonym or an antonym of the word EXHORT?
[Question ID = 10925]
1. Condemn [Option ID = 43694]
2. Urge [Option ID = 43695]
3. Prevent [Option ID = 43696]
4. Waste [Option ID = 43697]

Correct Answer :-
- Urge [Option ID = 43695]

3) The most suitable 'one word' for the phrase 'Present opposing arguments or evidence' is_____
[Question ID = 10926]
1. Criticise [Option ID = 43698]
2. Rebut [Option ID = 43699]
3. Rebuff [Option ID = 43700]
4. Reprimand [Option ID = 43701]

Correct Answer :-
- Rebut [Option ID = 43699]

4) The most suitable 'one word' for the phrase 'To break off proceedings of a meeting for a time' is_____
[Question ID = 10927]
1. Convene [Option ID = 43702]
2. Terminate [Option ID = 43703]
3. Adjourn [Option ID = 43704]
4. Procrastimate [Option ID = 43705]

Correct Answer :-
- Adjourn [Option ID = 43704]

5) The _____ with which he is able to wield the paint brush is really remarkable
[Question ID = 10928]
1. ease [Option ID = 43706]
2. sweep [Option ID = 43707]
3. skill [Option ID = 43708]
4. majesty [Option ID = 43709]

Correct Answer :-
- ease [Option ID = 43706]

6) The purpose of education must be to _____ attitudes as well as to impart knowledge and skills
[Question ID = 10929]
1. manage [Option ID = 43710]
2. rationalise [Option ID = 43711]
3. adjust [Option ID = 43712]
4. internalize [Option ID = 43713]

Correct Answer :-
- rationalise [Option ID = 43711]

7) Which of the following lettered pairs has the same relationship as the pair Error: Infallible?
[Question ID = 10930]
1. Cure : Irreversible [Option ID = 43714]
2. Flaw : Impeccable [Option ID = 43715]
3. Defect : Intolerable [Option ID = 43716]
4. Emotion : Invulnerable [Option ID = 43717]

Correct Answer :-
- Impossible to determine [Option ID = 43722]

8) Dream is related to Reality in the same way as Falsehood is related to _____.
[Question ID = 10931]
1. Correctness [Option ID = 43718]
2. Truth [Option ID = 43719]
3. Untruth [Option ID = 43720]
4. Fairness [Option ID = 43721]

Correct Answer :-
- Truth [Option ID = 43719]

9) How many such letters are there in the word BACKLASH each of which is as far away from the beginning of the word as it is from the beginning of the English alphabets?
[Question ID = 10932]
1. One [Option ID = 43722]
2. Two [Option ID = 43723]
3. Three [Option ID = 43724]
4. Six [Option ID = 43725]

Correct Answer :-
- Two [Option ID = 43723]

10) If 'oranges' are 'apples', 'bananas' are 'apricots', 'apples' are 'chillies', 'apricots' are 'oranges' and 'chillies' are 'bananas', then which of the following are green in colour?
[Question ID = 10933]
1. Apricots [Option ID = 43726]
2. Apples [Option ID = 43727]
3. Chillies [Option ID = 43728]
4. Bananas [Option ID = 43729]

Correct Answer :-
- Bananas [Option ID = 43729]

11) 'A $ B' means 'A is mother of B', 'A # B' means 'A is father of B', 'A @ B' means 'A is husband of B', 'A % B' means 'A is daughter of B'. Then 'P $ Q # M % T' indicates what relationship of 'P' with 'T'?
[Question ID = 10934]
1. Paternal grandmother [Option ID = 43730]
2. Maternal grandmother [Option ID = 43731]
3. Mother-in-law [Option ID = 43732]
4. Maternal grandfather [Option ID = 43733]

Correct Answer :-
- Mother-in-law [Option ID = 43732]

12) In a certain code language, MICROWAVE is written as LJBSNXZWD. How is POPULAR written in that code?
[Question ID = 10935]
1. QBIKVPAV [Option ID = 43734]
2. OPKVPAV [Option ID = 43735]
3. OPOVKBQ [Option ID = 43736]
4. KBQVOPA [Option ID = 43737]

Correct Answer :-
- OPOVKBQ [Option ID = 43736]

13) Statement: "Most of the classical dance theme are based on stories of Gods and avatars" Assumptions: I: Classical arts maintain their heritage by sticking to traditions. II: New themes are not interesting
[Question ID = 10936]
1. Only assumption I is implicit [Option ID = 43738]
2. Assumptions I and II are implicit [Option ID = 43739]
3. Only assumption II is implicit [Option ID = 43740]
4. none of these [Option ID = 43741]

Correct Answer :-
- Only assumption I is implicit [Option ID = 43738]

14) Statement: "In every community where we sell our brands, we must remember we do not business in markets, we do business in societies." - A marketer Assumptions: I. Shops and markets are of no use in selling a brand.
II. The understanding of social behaviour is a must for the marketer.
[Question ID = 10937]
1. Assumptions I and II are implicit [Option ID = 43742]
2. Only assumption II is implicit [Option ID = 43743]
3. Only assumption I is implicit [Option ID = 43744]

4. none of these [Option ID = 43745]

Answer :-
- Only assumption II is implicit [Option ID = 43743]

15) A cube is coloured red on all faces. It is cut into 64 smaller cubes of equal size. How many cubes have no face coloured?
[Question ID = 10938]
1. 8 [Option ID = 43746]
2. 10 [Option ID = 43747]
3. 18 [Option ID = 43748]
4. 24 [Option ID = 43749]

Correct Answer :-
- 8 [Option ID = 43746]

16) If in a certain code DEFENCE is written as 42, how would COMMON be written in that code?
[Question ID = 10939]
1. 39 [Option ID = 43750]
2. 57 [Option ID = 43751]
3. 83 [Option ID = 43752]
4. 73 [Option ID = 43753]

Correct Answer :-
- 73 [Option ID = 43753]

17) A, B, C, D, E and F are six members of a family. There are two married couples among them. C is the mother of A and F. E is the father of D. A is the grandson of B. The total number of female members in the family is three. Which of the following pairs is one of the married couples?
[Question ID = 10940]
1. E-F [Option ID = 43754]
2. B-D [Option ID = 43755]
3. E-B [Option ID = 43756]
4. A-F [Option ID = 43757]

Correct Answer :-
- E-B [Option ID = 43756]

18) A, B, C, D, E and F are six members of a family. There are two married couples among them. C is the mother of A and F. E is the father of D. A is the grandson of B. The total number of female members in the family is three. Who is the wife of E?
[Question ID = 10941]
1. B [Option ID = 43758]
2. C [Option ID = 43759]
3. D [Option ID = 43760]
4. F [Option ID = 43761]

Correct Answer :-
- B [Option ID = 43758]

19) A, B, C, D, E, F and G are playing cards sitting around a circular table. D is not neighbour of C or E. A is neighbour of B and C. G, who is second to the left of D is the neighbour of E and F. What is the position of C?
[Question ID = 10942]
1. To the immediate left of A [Option ID = 43762]
2. To the immediate right of E [Option ID = 43763]
3. Third to the right of F [Option ID = 43764]
4. none of these [Option ID = 43765]

Correct Answer :-
- none of these [Option ID = 43765]

20) The alternatives given below represent a pair of numbers. Which one is different from the other three alternatives?
[Question ID = 10943]
1. 41 : 72 [Option ID = 43766]
2. 12 : 30 [Option ID = 43767]
3. 51 : 42 [Option ID = 43768]
4. 11 : 20 [Option ID = 43769]

Correct Answer :-
- 41 : 72 [Option ID = 43766]

21) Operational Research uses models built by quantitative measurement of the variables of a given problem and also derives a solution from the model using _____of the diversified solution techniques
[Question ID = 10944]

1. [illegible] [Option ID = 43770]
2. [illegible] [Option ID = 43771]
3. [illegible]one [Option ID = 43772]
4. none of these [Option ID = 43773]

Correct Answer :-
- one or more [Option ID = 43771]

22) Operational Research is_____
[Question ID = 10945]
1. independent thinking approach [Option ID = 43774]
2. group thinking approach [Option ID = 43775]
3. inter-disciplinary team approach [Option ID = 43776]
4. none of these [Option ID = 43777]

Correct Answer :-
- inter-disciplinary team approach [Option ID = 43776]

23) An optimal solution of an assignment problem can be obtained only if
[Question ID = 10946]
1. Each row and column has only one zero element [Option ID = 43778]
2. Each row and column has at least one zero element [Option ID = 43779]
3. The cost data is arranged in a square matrix [Option ID = 43780]
4. none of these [Option ID = 43781]

Correct Answer :-
- none of these [Option ID = 43781]

24) In linear programming problem, degeneracy occurs in _____ stages
[Question ID = 10947]
1. two [Option ID = 43782]
2. one [Option ID = 43783]
3. three [Option ID = 43784]
4. four [Option ID = 43785]

Correct Answer :-
- two [Option ID = 43782]

25) If the dual linear programming problem has no feasible solution, then the primal problem is_____.
[Question ID = 10949]
1. unbounded [Option ID = 43790]
2. infeasible [Option ID = 43791]
3. either unbounded or infeasible [Option ID = 43792]
4. none of these [Option ID = 43793]

Correct Answer :-
- either unbounded or infeasible [Option ID = 43792]

26) A balanced transportation problem with 3 sources and 3 destinations can have at most _____ basic feasible solutions.
[Question ID = 10950]
1. 126 [Option ID = 43794]
2. 120 [Option ID = 43795]
3. 124 [Option ID = 43796]
4. 123 [Option ID = 43797]

Correct Answer :-
- 126 [Option ID = 43794]

27) If an iso-cost line yielding the optimal solution of a linear programming problem coincides with a constraint line, then
[Question ID = 10953]
1. the solution is unbounded [Option ID = 43806]
2. the solution is infeasible [Option ID = 43807]
3. the constraint which coincides is redundant [Option ID = 43808]
4. none of these [Option ID = 43809]

Correct Answer :-
- none of these [Option ID = 43809]

28) An assignment problem
[Question ID = 10954]
1. is a special case of the linear programming problem [Option ID = 43810]
2. is a special case of the transportation problem [Option ID = 43811]
3. can be solved by the Hungarian method of assignment [Option ID = 43812]
4. all of these [Option ID = 43813]

Correct Answer :-
- these [Option ID = ...]

29) An inventory is _____.
[Question ID = 10955]
1. a list of the items held in stock [Option ID = 43814]
2. a list of the items in demand [Option ID = 43815]
3. a list of the items held in shortage [Option ID = 43816]
4. none of these [Option ID = 43817]

Correct Answer :-
- a list of the items held in stock [Option ID = 43814]

30) Stock turnover increases when
[Question ID = 10956]
1. number of units sold in a period increases [Option ID = 43818]
2. number of units sold in a period decreases [Option ID = 43819]
3. average stock increases [Option ID = 43820]
4. none of these [Option ID = 43821]

Correct Answer :-
- number of units sold in a period increases [Option ID = 43818]

31) The lead time occurs because of
[Question ID = 10957]
1. time for order preparation [Option ID = 43822]
2. time to process the delivery [Option ID = 43823]
3. time at the supplier [Option ID = 43824]
4. all of these [Option ID = 43825]

Correct Answer :-
- all of these [Option ID = 43825]

32) If a non-redundant constraint is removed from a linear programming problem, then
[Question ID = 10958]
1. feasible region will become larger [Option ID = 43826]
2. feasible region will become smaller [Option ID = 43827]
3. solution will become infeasible [Option ID = 43828]
4. none of these [Option ID = 43829]

Correct Answer :-
- feasible region will become larger [Option ID = 43826]

33) The ordering cost is Rs.125 per order for a certain type of commodity whose holding cost per unit is Rs. 6 per year. If the annual demand is 6,000 units and the replacement is instantaneous and no shortages are allowed then the EOQ is_____.
[Question ID = 10959]
1. 500 units [Option ID = 43830]
2. 800 units [Option ID = 43831]
3. 550 units [Option ID = 43832]
4. 450 units [Option ID = 43833]

Correct Answer :-
- 500 units [Option ID = 43830]

34) A bakery shop is operated by one person, the owner. The arrival pattern of customers on week days appears to follow a Poisson distribution, with a mean arrival rate of 10 people per hour. Customers are served on a FIFO basis, and because of the reputation of the shop they are willing to wait for service once they arrive. The time it takes to serve a customer is estimated to be exponentially distributed, with an average service time of 2 min. The average size of the queue is_____.
[Question ID = 10960]
1. 1/3 customers [Option ID = 43834]
2. 1/2 customers [Option ID = 43835]
3. 2/3 customers [Option ID = 43836]
4. 1/6 customers [Option ID = 43837]

Correct Answer :-
- 1/6 customers [Option ID = 43837]

35) A company has recorded the following list of service rates (customers/hour) for one of its servers as 4, 4, 5, 6, 5, 4, 3, 4, 3, 5, 5, 6. Then mean service time for this server is___.
[Question ID = 10961]

1. 0.22 minutes [Option ID = 43838]
2. 13.3 minutes [Option ID = 43839]

3. [illegible] minutes [Option ID = 43840]
4. [illegible] minutes [Option ID = 43841]

Correct Answer :-

- 13.3 minutes [Option ID = 43839]

36) The most appropriate reason to employ queuing theory is_____.
[Question ID = 10962]

1. to reduce customer wait time in queue [Option ID = 43842]
2. to generate more arrivals to the system [Option ID = 43843]
3. to reduce worker idle time [Option ID = 43844]
4. none of these [Option ID = 43845]

Correct Answer :-

- to reduce customer wait time in queue [Option ID = 43842]

37) The profit contribution of a product in a linear programming problem _____, corresponding to various levels of production and sales.
[Question ID = 10964]

1. remains constant [Option ID = 43850]
2. increases [Option ID = 43851]
3. decreases [Option ID = 43852]
4. none of these [Option ID = 43853]

Correct Answer :-

- remains constant [Option ID = 43850]

38) The hazard rate is constant during _____.
[Question ID = 10966]

1. Burn-in-period [Option ID = 43858]
2. Wear-out period [Option ID = 43859]
3. Useful life period [Option ID = 43860]
4. none of these [Option ID = 43861]

Correct Answer :-

- Useful life period [Option ID = 43860]

39) Which of the following are causes of failure during the burn-in-period?
[Question ID = 10967]

1. Poor test specifications [Option ID = 43862]
2. Over-stressed parts [Option ID = 43863]
3. Incomplete final test [Option ID = 43864]
4. all of these [Option ID = 43865]

Correct Answer :-

- all of these [Option ID = 43865]

40) The set of weak students in a class is
[Question ID = 10987]

1. a null set [Option ID = 43942]
2. a singleton set [Option ID = 43943]
3. a finite set [Option ID = 43944]
4. not a well defined collection [Option ID = 43945]

Correct Answer :-

- not a well defined collection [Option ID = 43945]

41) The 2's complement of the number 15 is_____.
[Question ID = 10994]

1. 0000 [Option ID = 43970]
2. 0001 [Option ID = 43971]
3. 1000 [Option ID = 43972]
4. 1011 [Option ID = 43973]

Correct Answer :-

- 0001 [Option ID = 43971]

42) The sign magnitude for -3 is_____.
[Question ID = 10995]

1. 00000011 [Option ID = 43974]
2. 10000011 [Option ID = 43975]
3. 11111101 [Option ID = 43976]
4. 11111100 [Option ID = 43977]

Correct Answer :-

[Question ID = 10996]

1. Main Address Register [Option ID = 43978]
2. Memory Access Register [Option ID = 43979]
3. Main Accessible Register [Option ID = 43980]
4. Memory Address Register [Option ID = 43981]

Correct Answer :-

- Memory Address Register [Option ID = 43981]

44) The number of bits in Arithmetic and Logic Unit is_____.

[Question ID = 10997]

1. 4 [Option ID = 43982]
2. 16 [Option ID = 43983]
3. 8 [Option ID = 43984]
4. 2 [Option ID = 43985]

Correct Answer :-

- 16 [Option ID = 43983]

45) The difference between memory and storage is that memory is _____ and storage is _____.

[Question ID = 10998]

1. temporary, permanent [Option ID = 43986]
2. permanent, temporary [Option ID = 43987]
3. slow, fast [Option ID = 43988]
4. fast, slow [Option ID = 43989]

Correct Answer :-

- temporary, permanent [Option ID = 43986]

46) The most popular first generation computer was_____.

[Question ID = 10999]

1. IBM 1650 [Option ID = 43990]
2. IBM 360 [Option ID = 43991]
3. IBM 1130 [Option ID = 43992]
4. IBM 2700 [Option ID = 43993]

Correct Answer :-

- IBM 1650 [Option ID = 43990]

47) The Boolean algebra property that allows to group operands in an expression in any order without affecting the results of the operation is_____.

[Question ID = 11000]

1. associative [Option ID = 43994]
2. commutative [Option ID = 43995]
3. distributive [Option ID = 43996]
4. none of these [Option ID = 43997]

Correct Answer :-

- commutative [Option ID = 43995]

48) What does the abbreviation "http" stand for?

[Question ID = 11001]

1. High Task Termination Procedure [Option ID = 43998]
2. Hypertext Transfer Procedure [Option ID = 43999]
3. Hypertext Transfer Protocol [Option ID = 44000]
4. none of these [Option ID = 44001]

Correct Answer :-

- Hypertext Transfer Protocol [Option ID = 44000]

49) The logic gate that provides high output for same inputs is_____.

[Question ID = 11005]

1. NOT [Option ID = 44014]
2. AND [Option ID = 44015]
3. X-NOR [Option ID = 44016]
4. XOR [Option ID = 44017]

Correct Answer :-

- X-NOR [Option ID = 44016]

50) In a RAM, information can be stored _____.

[Option ID = 11006]
2. by the user, number of times [Option ID = 44019]
3. by the manufacturer, number of times [Option ID = 44020]
4. by the manufacturer, only once [Option ID = 44021]

Correct Answer :-
- by the user, number of times [Option ID = 44018]

51) The 2's complement of 1010 is_____.
[Question ID = 11007]
1. 0101 [Option ID = 44022]
2. 0111 [Option ID = 44023]
3. 0110 [Option ID = 44024]
4. 1100 [Option ID = 44025]

Correct Answer :-
- 0110 [Option ID = 44024]

52) If a researcher wishing to draw a sample from sequentially numbered invoices uses a random starting point, then draws every 50th invoice, he has thus drawn a _____ sample.
[Question ID = 11009]
1. simple random [Option ID = 44030]
2. sequential [Option ID = 44031]
3. stratified [Option ID = 44032]
4. systematic [Option ID = 44033]

Correct Answer :-
- systematic [Option ID = 44033]

53) A sample of 50 units from an infinite population with standard deviation 5 results into a total score of 500. The mean of the sampling distribution is_____.
[Question ID = 11010]
1. 45 [Option ID = 44034]
2. 50 [Option ID = 44035]
3. 10 [Option ID = 44036]
4. 1.8 [Option ID = 44037]

Correct Answer :-
- 10 [Option ID = 44036]

54) If the covariance between two random variables X and Y is zero, then
[Question ID = 11011]
1. X and Y are independent [Option ID = 44038]
2. E(X) = E(Y) = 0 [Option ID = 44039]
3. both X and Y are independent and E(X) = E(Y) = 0 [Option ID = 44040]
4. none of these [Option ID = 44041]

Correct Answer :-
- none of these [Option ID = 44041]

55) Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Then the probability of exactly five boys in ten births is_____.
[Question ID = 11012]
1. 0.05 [Option ID = 44042]
2. 0.246 [Option ID = 44043]
3. 0.785 [Option ID = 44044]
4. 0.5 [Option ID = 44045]

Correct Answer :-
- 0.246 [Option ID = 44043]

56) A test consists of 70 true or false questions. If the student guesses on each question, then the standard deviation of the number of correct answers is_____.
[Question ID = 11013]
1. 4.18 [Option ID = 44046]
2. 0 [Option ID = 44047]
3. 2 [Option ID = 44048]
4. 5.92 [Option ID = 44049]

Correct Answer :-
- 4.18 [Option ID = 44046]

57) A specific range of numbers within which a population mean should lie is_____.

3. the confidence interval [Option ID = 44052]
4. the confidence level [Option ID = 44053]

Correct Answer :-
- the confidence interval [Option ID = 44052]

58) The coefficient of skewness is always zero for _____ distribution.
[Question ID = 11017]
1. symmetrical [Option ID = 44062]
2. positively skewed [Option ID = 44063]
3. negatively skewed [Option ID = 44064]
4. none of these [Option ID = 44065]

Correct Answer :-
- symmetrical [Option ID = 44062]

59) When testing the difference between two proportions, the null hypothesis is usually that
[Question ID = 11018]
1. proportion 1 is greater than proportion 2 [Option ID = 44066]
2. the population proportions are unequal [Option ID = 44067]
3. the population proportions are equal [Option ID = 44068]
4. the pooled proportion equals the pooled variance [Option ID = 44069]

Correct Answer :-
- the population proportions are equal [Option ID = 44068]

60) Suppose the correlation coefficient between height (measured in feet) versus weight (measured in pounds) is 0.40. Then correlation coefficient of height measured in inches versus weight measured in ounces (12 inches = one feet; 16 ounces = one pound) is___.
[Question ID = 11019]
1. 0.40 [Option ID = 44070]
2. 0.30 [Option ID = 44071]
3. 0.33 [Option ID = 44072]
4. cannot be determined from the given information [Option ID = 44073]

Correct Answer :-
- 0.40 [Option ID = 44070]

61) Hypothesis tests are designed so that the _____ hypothesis will be rejected.
[Question ID = 11020]
1. null [Option ID = 44074]
2. alternative [Option ID = 44075]
3. incorrect [Option ID = 44076]
4. none of these [Option ID = 44077]

Correct Answer :-
- null [Option ID = 44074]

62) The correlation coefficient is the _____of two regression coefficients.
[Question ID = 11021]
1. arithmetic mean [Option ID = 44078]
2. harmonic mean [Option ID = 44079]
3. geometric mean [Option ID = 44080]
4. median [Option ID = 44081]

Correct Answer :-
- geometric mean [Option ID = 44080]

63) The chi-square test can be too sensitive if the sample is_____.
[Question ID = 11022]
1. very small [Option ID = 44082]
2. very large [Option ID = 44083]
3. homogeneous [Option ID = 44084]
4. predictable [Option ID = 44085]

Correct Answer :-
- very large [Option ID = 44083]

64) The set $S = \{(x_1, x_2): -1 < x_1 < 1, -2 < x_2 < 5\}$ has _____.

[Question ID = 11024]

[Option ID = 44091]

3. infinite vertices

[Option ID = 44092]

4. none of these

[Option ID = 44093]

Correct Answer :-

- no vertex

[Option ID = 44090]

65) An assignment problem has m jobs and n workers where $m < n$. Then the number of basic feasible solutions of the problem is_____.

[Question ID = 11025]

1. $\binom{n^2}{2n}$

[Option ID = 44094]

2. $\binom{mn}{m+n}$

[Option ID = 44095]

3. $\binom{m+n}{mn}$

[Option ID = 44096]

4. none of these [Option ID = 44097]

Correct Answer :-

- $\binom{n^2}{2n}$

[Option ID = 44094]

66) The linear programming problem $\max z = x_1 + x_2 \text{ s.t.} x_1 + x_2 \leq 8, 2x_1 + x_2 \leq 10, x_1 \geq 0,\ x_2 \geq 0$ has

[Question ID = 11026]

1. alternate optimal solution

[Option ID = 44098]

2. unique optimal solution

[Option ID = 44099]

3. unbounded solution

[Option ID = 44100]

4. none of these

[Option ID = 44101]

Correct Answer :-

- alternate optimal solution

[Option ID = 44098]

67) The number of arrivals to a store follows a Poisson distribution with mean λ =10/hour. Then the mean inter-arrival time is_____.

[Question ID = 11027]

1. 6 seconds

[Option ID = 44102]

2. 6 minutes

[Option ID = 44103]

3. 10 minutes

[Option ID = 44104]

4. 6 hours

[Option ID = 44105]

Correct Answer :-

68) Let the reliability of a system is defined by $R(t) = e^{-\lambda t}$ where λ =0.0004 failures per hour. Then the Mean time to Failure (MTTF) is

[Question ID = 11028]

1. $2500\ hours$
   [Option ID = 44106]
2. $2400\ hours$
   [Option ID = 44107]
3. $2300\ hours$
   [Option ID = 44108]
4. $4000\ hours$
   [Option ID = 44109]

Correct Answer :-

- $2500\ hours$
  [Option ID = 44106]

69) For a feasible primal (maximization)-dual (minimization) pair of linear programming problems, we have

[Question ID = 11029]

1. dual objective value = primal objective value
   [Option ID = 44110]
2. dual objective value $\leq$ primal objective value
   [Option ID = 44111]
3. primal objective value $\leq$ dual objective value
   [Option ID = 44112]
4. none of these
   [Option ID = 44113]

Correct Answer :-

- primal objective value $\leq$ dual objective value
  [Option ID = 44112]

70) Given that eigen values of a matrix S = $\begin{bmatrix} 2 & 3 \\ x & y \end{bmatrix}$ are 4 and 8, then

[Question ID = 11030]

1. $x = 4, y = 0$
   [Option ID = 44114]
2. $x = 5, y = 8$
   [Option ID = 44115]
3. $x = -4, y = 10$
   [Option ID = 44116]
4. none of these
   [Option ID = 44117]

Correct Answer :-

- $x = -4, y = 10$
  [Option ID = 44116]

71) Which of the following functions can be used as an integrating factor to turn the non-exact differential equation $(3y\ cosx - xy\ sinx) + 2x\ cosx \frac{dy}{dx} = 0$ into an exact equation?

[Question ID = 11031]

1. x^2

[Option ID = 44118]
2. x^2y

[Option ID = 44119]
3. y^2

[Option ID = 44120]
4. none of these

[Option ID = 44121]

Correct Answer :-
- x^2y

[Option ID = 44119]

72) If f is a linear function and $0 < a < b$, then $\int_a^b f^{'}(x)dx$ =

[Question ID = 11032]
1. 0

[Option ID = 44122]
2. 1

[Option ID = 44123]
3. $b-a$

[Option ID = 44124]
4. none of these [Option ID = 44125]

Correct Answer :-
- 0

[Option ID = 44122]

73) If p is a polynomial of degree $n, n > 0$, then the degree of the polynomial $Q(x) = \int_0^x p(t)dt$ is_____.

[Question ID = 11033]
1. n

[Option ID = 44126]
2. $n+1$

[Option ID = 44127]
3. $n-1$

[Option ID = 44128]
4. 0 [Option ID = 44129]

Correct Answer :-
- $n+1$

[Option ID = 44127]

74) $\int_0^{\infty} x^2e^{-x^3}\,dx =$

[Question ID = 11034]
1. $\frac{-1}{3}$

[Option ID = 44130]
2. 0 [Option ID = 44131]
3. 1 [Option ID = 44132]
4. $\frac{1}{3}$

[Option ID = 44133]

Correct Answer :-
- $\frac{1}{3}$

[Option ID = 44133]

75) The series $1^3 + 2^3 + 3^3 + \cdots + n^3 + \cdots$ is_____.

[Option ID = 44134]

2. convergent

[Option ID = 44135]

3. bounded

[Option ID = 44136]

4. both convergent and bounded

[Option ID = 44137]

Correct Answer :-

- divergent

[Option ID = 44134]

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76) Every monotonic increasing sequence which is _____, diverges to _____.

[Question ID = 11036]

1. not bounded above, $-\infty$

[Option ID = 44138]

2. not bounded above, $+\infty$

[Option ID = 44139]

3. not bounded below, $-\infty$

[Option ID = 44140]

4. not bounded below, $+\infty$

[Option ID = 44141]

Correct Answer :-

- not bounded above, $-\infty$

[Option ID = 44138]

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77) If $f(x) = e^x \sin x$, then the number of zeroes of f on the closed interval $[0, 2\pi]$ is___.

[Question ID = 11037]

1. 0 [Option ID = 44142]
2. 1 [Option ID = 44143]
3. 2 [Option ID = 44144]
4. 3 [Option ID = 44145]

Correct Answer :-

- 3 [Option ID = 44145]

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78) Let $f(x) = 3x + 1$ for all real x and let $\varepsilon > 0$. For which of the following choices of δ is $|f(x) - 7| < \varepsilon$ whenever $|x - 2| < \delta$?

[Question ID = 11038]

1. $\frac{\varepsilon}{4}$

[Option ID = 44146]

2. $\frac{\varepsilon}{2}$

[Option ID = 44147]

3. $\frac{\varepsilon}{\varepsilon+1}$

[Option ID = 44148]

4. none of these [Option ID = 44149]

Correct Answer :-

- $\frac{\varepsilon}{4}$

[Option ID = 44146]

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79) Let $< f_n >$ be a convergent sequence and $< g_n >$ be a divergent sequence then

[Option ID = 44150]

2. $\lim_{n\to\infty} \frac{f_n}{g_n} = 0$

[Option ID = 44151]

3. $< f_n + g_n >$ is convergent

[Option ID = 44152]

4. 2π

[Option ID = 44153]

Correct Answer :-

- 2π

[Option ID = 44153]

80) The function $f(x) = \begin{cases} -1, when -\pi \le x \le 0 \\ 1, when\ 0 \le x \le \pi \end{cases}$ is periodic of period

[Question ID = 11040]

1. $-\pi$

[Option ID = 44154]

2. π

[Option ID = 44155]

3. -2π

[Option ID = 44156]

4. 2π

[Option ID = 44157]

Correct Answer :-

- 2π

[Option ID = 44157]

81) The number of onto linear transformation from R^3 to R^4 is

[Question ID = 11041]

1. 0 [Option ID = 44158]
2. 1 [Option ID = 44159]
3. 2 [Option ID = 44160]
4. 3 [Option ID = 44161]

Correct Answer :-

- 0 [Option ID = 44158]

82) All eigen values of the matrix $\begin{bmatrix} 1 & 2 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ lie in the disc

[Question ID = 11042]

1. $|\lambda + 1| \le 1$

[Option ID = 44162]

2. $|\lambda - 1| \le 1$

[Option ID = 44163]

3. $|\lambda + 1| \le 0$

[Option ID = 44164]

4. $|\lambda - 1| \le 2$

[Option ID = 44165]

Correct Answer :-

- $|\lambda - 1| \le 2$

[Option ID = 44165]

A is an $n \times n$ matrix such that $x^T Ax > 0$ for every non-zero vector x in R^n, then

[Question ID = 11043]

1. all eigen values of A are negative

   [Option ID = 44166]
2. all eigen values of A are positive

   [Option ID = 44167]
3. exactly one eigen value of A is 0

   [Option ID = 44168]
4. none of these

   [Option ID = 44169]

Correct Answer :-

- all eigen values of A are positive

  [Option ID = 44167]

84) If A is a 7×5 matrix of rank 3 and B is 5×7 matrix of rank 5, then the rank of the matrix AB is_____.

[Question ID = 11044]

1. 3 [Option ID = 44170]
2. 5 [Option ID = 44171]
3. 7 [Option ID = 44172]
4. 2 [Option ID = 44173]

Correct Answer :-

- 3 [Option ID = 44170]

85) If the order of a set A is 3 and that of a set B is 3, then the number of relations from A to B is_____.

[Question ID = 11045]

1. 512 [Option ID = 44174]
2. 64 [Option ID = 44175]
3. 32 [Option ID = 44176]
4. 256 [Option ID = 44177]

Correct Answer :-

- 512 [Option ID = 44174]

86) The series $\sum_{n=1}^{\infty} \frac{(x+2)^n}{\sqrt{n}}$ converges for

[Question ID = 11046]

1. $-3 < x < -1$

   [Option ID = 44178]
2. $-3 \leq x < -1$

   [Option ID = 44179]
3. $-3 \leq x \leq -1$

   [Option ID = 44180]
4. none of these

   [Option ID = 44181]

Correct Answer :-

- $-3 \leq x < -1$

  [Option ID = 44179]

87) The values of x for which the infinite series $\sum_{n=1}^{\infty} \frac{(x-1)^n}{n}$ converge are

[Question ID = 11047]

1. $-1 \leq x < 1$

   [Option ID = 44182]

[Option ID = 44183]

3. $-1 \leq x < 2$

[Option ID = 44184]

4. $0 \leq x \leq 2$

[Option ID = 44185]

Correct Answer :-

- $0 \leq x < 2$

[Option ID = 44183]

88) The set of points of continuity of the function $f(x) = \begin{cases} 0, if\ x\ is\ rational \\ \sin|x|, if\ x\ is\ irrational \end{cases}$ is

[Question ID = 11048]

1. countable

[Option ID = 44186]

2. bounded

[Option ID = 44187]

3. empty

[Option ID = 44188]

4. none of these

[Option ID = 44189]

Correct Answer :-

- countable

[Option ID = 44186]

89) The average value of the function $f(x) = \frac{1}{x}$ on the closed interval [1,3] is_____.

[Question ID = 11049]

1. $1/2$

[Option ID = 44190]

2. $2/3$

[Option ID = 44191]

3. $\frac{\ln 3}{2}$

[Option ID = 44192]

4. 0

[Option ID = 44193]

Correct Answer :-

- $\frac{\ln 3}{2}$

[Option ID = 44192]

90) Two linearly independent solutions of the differential equation $\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = 0$ are

[Question ID = 11050]

1. $e^{-3x} and\ e^{2x}$

[Option ID = 44194]

2. $e^{-2x} and\ e^{3x}$

[Option ID = 44195]

3. $e^{-x} and\ e^{6x}$

[Option ID = 44196]

4. $e^{-6x} and\ e^{x}$

[Option ID = 44197]

Correct Answer :-

91) The differential equation $2ydx - (3y - 2x)dx = 0$ is_____.

[Question ID = 11051]

1. exact and homogeneous but not linear

   [Option ID = 44198]
2. homogeneous and linear but not exact

   [Option ID = 44199]
3. exact and linear but not homogeneous

   [Option ID = 44200]
4. exact, homogeneous and linear

   [Option ID = 44201]

Correct Answer :-

- exact, homogeneous and linear

  [Option ID = 44201]

92) The coefficient of x^6 in Taylor series expansion of $\sin(x^2)$ about $x = 0$ is____.

[Question ID = 11052]

1. -1/6 [Option ID = 44202]
2. 1/3 [Option ID = 44203]
3. 1/2 [Option ID = 44204]
4. 9/2 [Option ID = 44205]

Correct Answer :-

- -1/6 [Option ID = 44202]

93) If $\int_1^4 f(x)dx = 6$, then $\int_1^4 f(5-x)dx =$

[Question ID = 11053]

1. 6 [Option ID = 44206]
2. 0 [Option ID = 44207]
3. 3 [Option ID = 44208]
4. -1 [Option ID = 44209]

Correct Answer :-

- 6 [Option ID = 44206]

94) Binary equivalent of $(10.625)_{10}$ is_____

[Question ID = 11054]

1. (1010.101)

   [Option ID = 44210]
2. (1100.101)

   [Option ID = 44211]
3. (1011.001)

   [Option ID = 44212]
4. none of these

   [Option ID = 44213]

Correct Answer :-

- (1010.101)

  [Option ID = 44210]

95) If $X = 1$ in the logic equation $(X + Z[Y + XY]).(X + Z[X + Y]) = 1$, then

[Question ID = 11055]

1. $Y = Z$

   [Option ID = 44214]
2. $Z = 1$

[Option ID = 44216]

4. $Z = 0$

[Option ID = 44217]

Correct Answer :-

- $Z = 0$

[Option ID = 44217]

96) $(734)_8 = (\ )_{16}$

[Question ID = 11056]

1. C 1 D [Option ID = 44218]
2. D C 1 [Option ID = 44219]
3. 1 C D [Option ID = 44220]
4. 1 D C [Option ID = 44221]

Correct Answer :-

- 1 D C [Option ID = 44221]

97) Consider the following algorithm: x is initialized to 3; x is then replaced by its double, three times in sequence; x is then decremented by 3, four times in sequence. The final value of x is

[Question ID = 11057]

1. 26 [Option ID = 44222]
2. 12 [Option ID = 44223]
3. 21 [Option ID = 44224]
4. 18 [Option ID = 44225]

Correct Answer :-

- 12 [Option ID = 44223]

98) The probability that a student passes statistics course is $\frac{2}{3}$ and the probability that he passes both statistics and mathematics course is $\frac{14}{15}$. The probability that he passes atleast one course is $\frac{4}{53}$. The probability that he passes mathematics course is_____.

[Question ID = 11058]

1. $\frac{70}{135}$

[Option ID = 44226]

2. $\frac{14}{53}$

[Option ID = 44227]

3. $\frac{4}{153}$

[Option ID = 44228]

4. none of these [Option ID = 44229]

Correct Answer :-

- $\frac{70}{135}$

[Option ID = 44226]

99) If $f(x) = 30x^4(1-x), 0 \le x < 1$ is p.d.f. of a random variable X, then $E(X)$ is___.

[Question ID = 11059]

1. 3/7 [Option ID = 44230]
2. 2/7 [Option ID = 44231]
3. 7/5 [Option ID = 44232]
4. 5/7 [Option ID = 44233]

Correct Answer :-
Option ID = 44236

100) For a random sample of 9 women, the average resting pulse rate is $\bar{x} = 76$ beats per minute, sample standard deviation is s = 5. The standard error of the sample mean is___.

[Question ID = 11060]

1. 0.557

   [Option ID = 44234]

2. 0.745

   [Option ID = 44235]

3. 1.667

   [Option ID = 44236]

4. 2.778

   [Option ID = 44237]

Correct Answer :-

- 1.667

  [Option ID = 44236]