

70 Computer Application ICAR SEPT 2022

Topic:- GEN KNOW COMMON PHD

1) Colour of the tag used on certified seed bags is[Question ID = 16958][Question Description = 101_221_GKD_SEP22_Q01]

1. Blue [Option ID = 37829]
2. Purple [Option ID = 37830]
3. White [Option ID = 37831]
4. Golden Yellow [Option ID = 37832]

2) Following are the statements regarding the Usar soil -

- A. It is reclaimed by adding lime.
- B. This soil has pH more than seven.
- C. Paddy crop can be grown in this soil.

Choose the *correct* answer from the options given below:

[Question ID = 16959][Question Description = 102_221_GKD_SEP22_Q02]

1. A and B only [Option ID = 37833]
2. B and C only [Option ID = 37834]
3. C only [Option ID = 37835]
4. A only [Option ID = 37836]

3) When total utility of a commodity increases, marginal utility will be

[Question ID = 16960][Question Description = 103_221_GKD_SEP22_Q03]

1. Negative but increasing
[Option ID = 37837]
2. Positive but decreasing
[Option ID = 37838]
3. Constant
[Option ID = 37839]
4. Either positive or negative
[Option ID = 37840]

4) Where is the headquarter of International Fund for Agriculture Development located?

[Question ID = 16961][Question Description = 104_221_GKD_SEP22_Q04]

1. Vienna, Austria
[Option ID = 37841]
2. Rome, Italy
[Option ID = 37842]
3. New York, USA
[Option ID = 37843]
4. Berlin, Germany
[Option ID = 37844]

5) Mid-Oceanic Ridges are one of the important divisions of the ocean floor. In this respect, point out the incorrect statement regarding the 'Mid-Oceanic Ridges'. [Question ID = 16962][Question Description = 105_221_GKD_SEP22_Q05]

1. It is the largest mountain chain on the surface of the earth [Option ID = 37845]
2. It is a series of interconnected chain within the ocean. [Option ID = 37846]
3. It is characterised by a central rift system [Option ID = 37847]
4. The rift system at the crest is the zone of very low volcanic activity. [Option ID = 37848]

6) Consider the following facts about the union territory of India and point out the one which is incorrect in relation to union territory.[Question ID = 16963][Question Description = 106_221_GKD_SEP22_Q06]

1. These are the areas under the direct control of central government. [Option ID = 37849]
2. Also known as the 'centrally administered territories. [Option ID = 37850]

3. These territories constitute a conspicuous departure from the unitary feature of India. [Option ID = 37851]
4. There is no uniformity in their administrative systems. [Option ID = 37852]

7) Variety of flora and fauna are found in the different types of forest in India. In this regard, species of trees like teak, *sal shisham*, *sandalwood*, etc. are found in which of the following type of forests in India?[Question ID = 16964][Question Description = 107_221_GKD_SEP22_Q07]

1. Tropical evergreen forests [Option ID = 37853]
2. Tropical thorn forests [Option ID = 37854]
3. Tropical deciduous forests [Option ID = 37855]
4. Montane forests [Option ID = 37856]

8) The Marginal Preference Theory of consumption behaviour was proposed by

[Question ID = 16965][Question Description = 108_221_GKD_SEP22_Q08]

1. Armstrong
[Option ID = 37857]
2. J.K.Hicks
[Option ID = 37858]
3. Neumann
[Option ID = 37859]
4. Edmund Cannon
[Option ID = 37860]

9) Point out the incorrect statements regarding the service sector in India.[Question ID = 16966][Question Description = 109_221_GKD_SEP22_Q09]

1. It is the highest contributor to GDP [Option ID = 37861]
2. It requires skilled labour [Option ID = 37862]
3. It is the fastest growing sector [Option ID = 37863]
4. It is restricted to very few sectors. [Option ID = 37864]

10) Consider the statements regarding the agriculture sector in India and point out the incorrect statement.[Question ID = 16967][Question Description = 110_221_GKD_SEP22_Q10]

1. Agriculture sector is the largest employer of workforce [Option ID = 37865]
2. It has contributed to the Gross Value Added (GVA) [Option ID = 37866]
3. Growth in allied sectors is the major drivers of overall growth in the sector. [Option ID = 37867]
4. Minimum Support Price (MSP) policy is used as to promote crop uniformity. [Option ID = 37868]

11) In case of related goods, the cross elasticity of demand is[Question ID = 16968][Question Description = 111_221_GKD_SEP22_Q11]

1. Low [Option ID = 37869]
2. High [Option ID = 37870]
3. Zero [Option ID = 37871]
4. Unity [Option ID = 37872]

12) With reference to organic farming in India, consider the following statements :

- A. The National Programme for Organic Production' (NPOP) is operated under the guidelines and directions of the Union Ministry of Rural Development.
- B. The Agricultural and Processed Food Products Export Development Authority' (APEDA) functions as the Secretariat for the implementation of NPOP.
- C. Sikkim has become India's first fully organic state.

Choose the *correct* answer from the options given below:

[Question ID = 16969][Question Description = 112_221_GKD_SEP22_Q12]

1. A and B only
[Option ID = 37873]
2. B and C only
[Option ID = 37874]
3. C only
[Option ID = 37875]
4. A, B and C

[Option ID = 37876]

13) With reference to the circumstances in Indian agriculture, the concept of "Conservation Agriculture" assumes significance. Which of the following falls under the Conservation Agriculture ?

- A. Avoiding the monoculture practices.
- B. Adopting minimum tillage.
- C. Avoiding the cultivation of plantation crops.
- D. Using crop residues to cover soil surface.
- E. Adopting spatial and temporal crop sequencing/ crop rotations.

Choose the *correct* answer from the options given below:

[Question ID = 16970][Question Description = 113_221_GKD_SEP22_Q13]

- 1. A, C and D only [Option ID = 37877]
- 2. B, C, D and E only [Option ID = 37878]
- 3. B, D and E only [Option ID = 37879]
- 4. A, B, C and E only [Option ID = 37880]

14) Consumers are likely to get a variety of goods in which kind of market competition[Question ID = 16971][Question Description = 114_221_GKD_SEP22_Q14]

- 1. Monopoly [Option ID = 37881]
- 2. Duopoly [Option ID = 37882]
- 3. Oligopoly [Option ID = 37883]
- 4. Monopolistic [Option ID = 37884]

15) What is the correct chronological order of the following laws enacted for the conservation and protection of environment ?

- A. Environment (Protection) Act.
- B. Water (Prevention & Control of Pollution) Act.
- C. Air (Prevention & Control of pollution) Act.
- D. National Green Tribunal Act.

Choose the *correct* answer from the options given below:

[Question ID = 16972][Question Description = 115_221_GKD_SEP22_Q15]

- 1. B, C, A, D [Option ID = 37885]
- 2. A, B, C, D [Option ID = 37886]
- 3. C, B, A, D [Option ID = 37887]
- 4. D, C, B, A [Option ID = 37888]

16) The scientific study of soil is[Question ID = 16973][Question Description = 116_221_GKD_SEP22_Q16]

- 1. Earth Study [Option ID = 37889]
- 2. Soil Science [Option ID = 37890]
- 3. Pedology [Option ID = 37891]
- 4. Soil Chemistry [Option ID = 37892]

17) *Triticum aestivum*, the common bread wheat is -

[Question ID = 16974][Question Description = 117_221_GKD_SEP22_Q17]

- 1. Tetraploid
[Option ID = 37893]
- 2. Hexaploid
[Option ID = 37894]
- 3. Haploid
[Option ID = 37895]
- 4. Diploid
[Option ID = 37896]

18) Sectoral inflation refers to[Question ID = 16975][Question Description = 118_221_GKD_SEP22_Q18]

- 1. Running inflation [Option ID = 37897]

2. Comprehensive inflation [Option ID = 37898]
3. Sporadic inflation [Option ID = 37899]
4. Creeping inflation [Option ID = 37900]

19) Keynes Liquidity trap refers to[Question ID = 16976][Question Description = 119_221_GKD_SEP22_Q19]

1. Speculative demand for money [Option ID = 37901]
2. Transactions motive of money is inelastic [Option ID = 37902]
3. Precautionary motive of money is inelastic [Option ID = 37903]
4. Transactions motive of money is constant [Option ID = 37904]

20) A business is solvent if[Question ID = 16977][Question Description = 120_221_GKD_SEP22_Q20]

1. Total receipts exceed total expenditures [Option ID = 37905]
2. Total debt exceeds total equity [Option ID = 37906]
3. Total sales exceed total cash expense [Option ID = 37907]
4. Total assets exceed total liabilities [Option ID = 37908]

Topic:- Agricultural Statistics_PHD

- 1) The mean of a set of 30 observations is 75. If each of the observation is multiplied by a non-zero number λ and then each of them is decreased by 25, their mean remains the same. The λ is equal to

[Question ID = 16708][Question Description = 101_41_COMP_SEP22_Q01]

1. 10/3 [Option ID = 36829]
2. 4/3 [Option ID = 36830]
3. 1/3 [Option ID = 36831]
4. 2/3 [Option ID = 36832]

2) Let X and Y be two random variables. Which one of the following conditions is sufficient for the relation $\text{Var}(X-Y) = \text{Var}(X) + \text{Var}(Y)$ to hold ?[Question ID = 16709][Question Description = 102_41_COMP_SEP22_Q02]

1. X, Y are statistically independent [Option ID = 36833]
2. X, Y are identically distributed [Option ID = 36834]
3. $X = Y$ [Option ID = 36835]
4. For any X and Y [Option ID = 36836]

3) The coefficient of correlation between X and Y is 0.6. Their covariance is 4.8. If the variance of X is 9, then the standard deviation of Y is[Question ID = 16710][Question Description = 103_41_COMP_SEP22_Q03]

1. 7.21 [Option ID = 36837]
2. 5.23 [Option ID = 36838]
3. 3.22 [Option ID = 36839]
4. 2.67 [Option ID = 36840]

4) A random sample of 60 farmers provides 40 fertilizer users. If the standard error of the proportion of fertilizer users in this sample is 0.12, then the 95% confidence limits of the fertilizer users of the population of farmers are

[Question ID = 16711][Question Description = 104_41_COMP_SEP22_Q04]

1. 66%, 89% [Option ID = 36841]
2. 66%, 79% [Option ID = 36842]
3. 50%, 82% [Option ID = 36843]
4. 55%, 79% [Option ID = 36844]

5) Let $(X_1, X_2, X_3, \dots, X_n)$ be a random sample from $N(\mu, \sigma^2)$ distribution, where both μ and σ^2 are unknown. The shortest expected confidence interval length for μ is obtained using

[Question ID = 16712][Question Description = 105_41_COMP_SEP22_Q05]

1. Standard normal distribution [Option ID = 36845]
2. t - distribution [Option ID = 36846]
3. F - distribution [Option ID = 36847]
4. Chi-square distribution [Option ID = 36848]

- 6) If T is an MLE of θ and $\psi(\theta)$ is one-to-one function of θ , then $\psi(T)$ is the MLE of $\psi(\theta)$. This property is known as

[Question ID = 16713][Question Description = 106_41_COMP_SEP22_Q06]

1. Invariance property of MLE [Option ID = 36849]
2. Asymptotic property of MLE [Option ID = 36850]
3. Consistency property of MLE [Option ID = 36851]
4. Regularity property of MLE [Option ID = 36852]

- 7) In a Chi-square test, the contingency table has 4 rows and 4 columns. What is the degrees of freedom?

[Question ID = 16714][Question Description = 107_41_COMP_SEP22_Q07]

1. 3 [Option ID = 36853]
2. 4 [Option ID = 36854]
3. 8 [Option ID = 36855]
4. 9 [Option ID = 36856]

- 8) Chi-square test can be applied to test the

- A. Goodness of fit
- B. Equality of two population variances
- C. Independence of attributes

Choose the *correct* answer from the options given below:

[Question ID = 16715][Question Description = 108_41_COMP_SEP22_Q08]

1. A and B only [Option ID = 36857]
2. B and C only [Option ID = 36858]
3. A and C only [Option ID = 36859]
4. A, B and C only [Option ID = 36860]

- 9) The Bayes' estimator of a parameter under absolute error loss function is [Question ID = 16716][Question Description = 109_41_COMP_SEP22_Q09]

1. Posterior mean [Option ID = 36861]
2. Posterior median [Option ID = 36862]
3. Posterior mode [Option ID = 36863]
4. Posterior variance [Option ID = 36864]

- 10) In a 2-way ANOVA with 6 rows, 5 columns and 3 observations per cell, what are the degrees of freedom for the sum of squares for interaction and error respectively? [Question ID = 16717][Question Description = 110_41_COMP_SEP22_Q10]

1. 20 and 60 [Option ID = 36865]
2. 30 and 50 [Option ID = 36866]
3. 20 and 40 [Option ID = 36867]
4. 15 and 65 [Option ID = 36868]

- 11) In case of Fairfield Smith's variance law in the model $V_x = V_1/x^b$, the coefficient b generally takes the value between (Here the notations have their usual meanings)

[Question ID = 16718][Question Description = 111_41_COMP_SEP22_Q11]

1. $-\infty$ to ∞
[Option ID = 36869]
2. 0 to ∞
[Option ID = 36870]
3. 0 to 1
[Option ID = 36871]
4. -1 to 1
[Option ID = 36872]

- 12) In a strip plot design, the effect of interest is [Question ID = 16719][Question Description = 112_41_COMP_SEP22_Q12]

1. Factor applied to strip 1 [Option ID = 36873]
2. Factor applied to strip 2 [Option ID = 36874]
3. Interaction of factors applied to different strips [Option ID = 36875]

4. All the above [Option ID = 36876]

13) Cluster sampling is better than simple random sampling if the intra-class correlation coefficient is

[Question ID = 16720][Question Description = 113_41_COMP_SEP22_Q13]

1. Positive and less than one [Option ID = 36877]
2. Negative [Option ID = 36878]
3. One [Option ID = 36879]
4. Zero [Option ID = 36880]

14) In stratified sampling with $N_1 = 2N_2$, $S_1 = 2S_2$, the values of n_1 and n_2 obtained under Neyman allocation satisfy (Here the notations have their usual meanings)

[Question ID = 16721][Question Description = 114_41_COMP_SEP22_Q14]

1. $n_1 : n_2 :: 1 : 4$ [Option ID = 36881]
2. $n_1 : n_2 :: 2 : 1$ [Option ID = 36882]
3. $n_1 : n_2 :: 4 : 1$ [Option ID = 36883]
4. $n_1 : n_2 :: 1 : 2$ [Option ID = 36884]

15) Let a population of size $N = 5$ have its mean $\bar{X}_N = 12$ and $S^2 = 100$. A sample of size $n = 2$ is drawn without replacement. If the sample mean is $\bar{X}_n$, then $E(\bar{X}_n^2)$ is

[Question ID = 16722][Question Description = 115_41_COMP_SEP22_Q15]

1. 174 [Option ID = 36885]
2. 144 [Option ID = 36886]
3. 50 [Option ID = 36887]
4. 30 [Option ID = 36888]

16) What would be the heritability estimate if regression of offspring on mother is 0.27, assuming that resemblance due to environment or dominance was negligible ?[Question ID = 16723][Question Description = 116_41_COMP_SEP22_Q16]

1. 0.21 [Option ID = 36889]
2. 0.27 [Option ID = 36890]
3. 0.54 [Option ID = 36891]
4. 0.81 [Option ID = 36892]

17) A maize population was found to be segregating for yellow and white endosperm. Yellow is governed by a dominant allele and white by its recessive allele. A random sample of 1000 kernels revealed that 910 were yellow. Find the frequency estimates of dominant and recessive alleles respectively for this population.[Question ID = 16724][Question Description = 117_41_COMP_SEP22_Q17]

1. 0.9, 0.1 [Option ID = 36893]
2. 0.7, 0.3 [Option ID = 36894]
3. 0.8, 0.2 [Option ID = 36895]
4. 0.1, 0.9 [Option ID = 36896]

18) A population of adult mice has a mean body weight of 30 grams. The average weight of mice selected for breeding purposes is 34 grams. The progeny produced by random mating among the selected parents average 30.5 grams. The genetic gain (in grams) is[Question ID = 16725][Question Description = 118_41_COMP_SEP22_Q18]

1. 0.5 [Option ID = 36897]
2. 2.0 [Option ID = 36898]
3. 3.5 [Option ID = 36899]
4. 4.0 [Option ID = 36900]

19) In relational Algebra, two relation instances are said to be union-compatible if the following conditions hold:
Condition I: They have the same number of the fields

Condition II: Corresponding fields, taken in order from left to right, does not have the same *domains*.

Choose the *correct* answer from the options given below:

[Question ID = 16726][Question Description = 119_41_COMP_SEP22_Q19]

1. Condition I is correct. [Option ID = 36901]
2. Condition II is correct. [Option ID = 36902]
3. Both Conditions I and II are correct. [Option ID = 36903]
4. Both Conditions I and II are incorrect. [Option ID = 36904]

20) UPGMA method is used for-[Question ID = 16727][Question Description = 120_41_COMP_SEP22_Q20]

1. Carbohydrate Structure Prediction [Option ID = 36905]
2. Protein Structure Prediction [Option ID = 36906]
3. Phylogenetic Analysis [Option ID = 36907]
4. Primer Designing

[Option ID = 36908]

21) Which of the following is protein sequence database?[Question ID = 16728][Question Description = 121_41_COMP_SEP22_Q21]

1. Sequin [Option ID = 36909]
2. GEO [Option ID = 36910]
3. SWISSPROT [Option ID = 36911]
4. EMBL [Option ID = 36912]

22) DNA is made up of following molecules except

[Question ID = 16729][Question Description = 122_41_COMP_SEP22_Q22]

1. Phosphate

[Option ID = 36913]

2. Pentose Sugar

[Option ID = 36914]

3. Hexose Sugar

[Option ID = 36915]

4. Nitrogenous Bases

[Option ID = 36916]

23) At what position of DNA, amino group is attached?[Question ID = 16730][Question Description = 123_41_COMP_SEP22_Q23]

1. 1' [Option ID = 36917]
2. 2' [Option ID = 36918]
3. 3' [Option ID = 36919]
4. 5'

[Option ID = 36920]

24) Which of the following has 3D structure?[Question ID = 16731][Question Description = 124_41_COMP_SEP22_Q24]

1. mRNA [Option ID = 36921]
2. tRNA [Option ID = 36922]
3. miRNA [Option ID = 36923]
4. siRNA

[Option ID = 36924]

25) Smith Waterman algorithm is designed to find

[Question ID = 16732][Question Description = 125_41_COMP_SEP22_Q25]

1. Global alignment [Option ID = 36925]
2. Local alignment [Option ID = 36926]
3. 2D Structure Prediction [Option ID = 36927]
4. 3D Structure Prediction [Option ID = 36928]

26) Position Specific Scoring Matrices are used to find the[Question ID = 16733][Question Description = 126_41_COMP_SEP22_Q26]

1. Closely related species [Option ID = 36929]
2. Distantly related species [Option ID = 36930]
3. Members of same species [Option ID = 36931]
4. Entirely different species [Option ID = 36932]

27) Which of the following is not a nucleotide sequence database?

[Question ID = 16734][Question Description = 127_41_COMP_SEP22_Q27]

1. EMBL [Option ID = 36933]

2. DDBJ [Option ID = 36934]
3. PDB [Option ID = 36935]
4. GenBank [Option ID = 36936]

28) Consider the following statements regarding Needleman-Wunsch algorithm for global sequence alignment:

- A. For two sequences of length m and n , a scoring matrix of dimensions m and n is created.
- B. The algorithm is based on dynamic programming technique.
- C. The optimal alignment is determined by a trace-back procedure.

Choose the *correct* answer from the options given below.

[Question ID = 16735][Question Description = 128_41_COMP_SEP22_Q28]

1. Only A and B are true [Option ID = 36937]
2. Only B and C are true [Option ID = 36938]
3. Only A and C are true [Option ID = 36939]
4. All A, B and C are true [Option ID = 36940]

29) The number of bifurcating rooted trees for n operational taxonomic units ($n \geq 2$) is given by[Question ID = 16736]

[Question Description = 129_41_COMP_SEP22_Q29]

1. $\frac{(2n-5)!}{2^{n-5}(n-2)!}$
[Option ID = 36941]
2. $\frac{(2n-5)!}{2^{n-3}(n-3)!}$
[Option ID = 36942]
3. $\frac{(2n-3)!}{2^{n-3}(n-2)!}$
[Option ID = 36943]
4. $\frac{(2n-3)!}{2^{n-2}(n-2)!}$
[Option ID = 36944]

30) Match List I with List II

List I	List II
A. Geno3D	I. Program for phylogenetic analysis
B. Chime	II. Protein structure validation program
C. PAUP	III. Molecular viewer
D. PROVE	IV. Protein modelling web server

Choose the correct answer from the options given below:

[Question ID = 16737][Question Description = 130_41_COMP_SEP22_Q30]

1. A - I, B - IV, C - II, D - III [Option ID = 36945]
2. A - IV, B - II, C - I, D - III [Option ID = 36946]
3. A - IV, B - III, C - I, D - II [Option ID = 36947]
4. A - IV, B - I, C - II, D - III [Option ID = 36948]

31) The single-letter amino acid code for tyrosine is[Question ID = 16738][Question Description = 131_41_COMP_SEP22_Q31]

1. T [Option ID = 36949]
2. Y [Option ID = 36950]
3. R [Option ID = 36951]
4. U [Option ID = 36952]

32) Consider the following statements regarding homology modeling of protein structure:

Statement I: Homology modeling requires alignment of a target to a template.

Statement II: The accuracy of homology modeling is independent of the percent identity between the target and the template.

In light of the above statements, choose the *most appropriate* answer from the options given below.

[Question ID = 16739][Question Description = 132_41_COMP_SEP22_Q32]

1. Both Statement I and Statement II are correct [Option ID = 36953]
2. Both Statement I and Statement II are incorrect [Option ID = 36954]
3. Statement I is correct but Statement II is incorrect [Option ID = 36955]
4. Statement I is incorrect but Statement II is correct [Option ID = 36956]

33) A module in Perl is [Question ID = 16740][Question Description = 133_41_COMP_SEP22_Q33]

1. A collection of values of same type [Option ID = 36957]
2. A collection of related subroutines and variables [Option ID = 36958]
3. An array of functions [Option ID = 36959]
4. Hash array [Option ID = 36960]

34) Consider the following statements regarding normalization algorithms:

Statement I: Median normalization scales the samples so that they have the same median.

Statement II: Quantile normalization forces the distribution of the samples to be the same.

In light of the above statements, choose the *most appropriate* answer from the options given below.

[Question ID = 16741][Question Description = 134_41_COMP_SEP22_Q34]

1. Both Statement I and Statement II are correct [Option ID = 36961]
2. Both Statement I and Statement II are incorrect [Option ID = 36962]
3. Statement I is correct but Statement II is incorrect [Option ID = 36963]
4. Statement I is incorrect but Statement II is correct [Option ID = 36964]

35) Which of the following statements is incorrect about workstations? [Question ID = 16742][Question Description = 135_41_COMP_SEP22_Q35]

1. Workstations have higher computation power than personal computers. [Option ID = 36965]
2. They have high resolution graphics terminals and improved input/output capabilities. [Option ID = 36966]
3. Workstations are used in engineering applications and in interactive graphics applications. [Option ID = 36967]
4. In workstations, many nodes are connected via network. [Option ID = 36968]

36) Read the following statements regarding Memory Unit of Computer System.

- A. The memory unit is used to store programs and data.
- B. Usually there are two types of memory devices: primary storage device and secondary storage memory device.
- C. The primary memory, commonly called main memory is a fast memory used for the storage of programs and active data.
- D. The main memory unit consists of a large number of semiconductor storage cells, each capable of storage cells, each capable of storing one bit of information.
- E. These cells are read or written by the central processing unit in a group of fixed size called word.

Choose the *correct* option from the following options

[Question ID = 16743][Question Description = 136_41_COMP_SEP22_Q36]

1. A, B, C and D only [Option ID = 36969]
2. B, C, D and E only [Option ID = 36970]
3. All statements are correct [Option ID = 36971]
4. All statements are incorrect [Option ID = 36972]

37) Which of the following statements is not correct about URL?

[Question ID = 16744][Question Description = 137_41_COMP_SEP22_Q37]

1. The transfer protocol, a method that a computer uses to access this file.
[Option ID = 36973]
2. The address part of the URL is called domain name. It is preceded by two slashes i.e. the text after http:// or https:// [Option ID = 36974]
3. URL is simply an address of a document on the Web or, more accurately, on the Internet. [Option ID = 36975]
4. A URL can look complex and long, it is made up of four basic parts - protocols, hostname, folder name, file name and password - each of which has a specific function.
[Option ID = 36976]

38) Given below are two statements

Statement I: JDBC interface allows Java applets, Servlets and applications to access data in popular database management

systems.

Statement II: ODBC is a microsoft's implementation of Call Level Interface (CLI) which allows the programmer to develop, compile and deploy an application without targeting a specific DBMS.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16745][Question Description = 138_41_COMP_SEP22_Q38]

1. Both Statement I and Statement II are correct [Option ID = 36977]
2. Both Statement I and Statement II are incorrect [Option ID = 36978]
3. Statement I is correct but Statement II is incorrect [Option ID = 36979]
4. Statement I is incorrect but Statement II is correct [Option ID = 36980]

39) What is configuration management in Software Development Life Cycle (SDLC)?

[Question ID = 16746][Question Description = 139_41_COMP_SEP22_Q39]

1. It is a process of tracking and controlling the bugs in software in terms of the running of the product.
[Option ID = 36981]
2. It is a process of tracking and controlling the functionality of the software in terms of its working.
[Option ID = 36982]
3. It is a process of tracking and controlling the changes in software in terms of the requirements, design, functions and development of the product.
[Option ID = 36983]
4. It is a process of tracking and controlling the users of the software in terms of the unusual access.
[Option ID = 36984]

40) Given below are two statements about Binary Relationship and Cardinality

Statement I: A relationship where two entities are participating is called a binary relationship.

Statement II: Cardinality is the number of instance of an entity from a relation that can be associated with the relation.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16747][Question Description = 140_41_COMP_SEP22_Q40]

1. Both Statement I and Statement II are correct [Option ID = 36985]
2. Both Statement I and Statement II are incorrect [Option ID = 36986]
3. Statement I is correct but Statement II is incorrect [Option ID = 36987]
4. Statement I is incorrect but Statement II is correct [Option ID = 36988]

41) Read the following statements about database schema carefully

- A. A database schema is the skeleton structure that represents the logical view of the entire database.
- B. It defines how the data is organized and how the relations among them are associated.
- C. It does not formulate any constraint that is to be applied on the data.
- D. A database schema defines its entities and the relationships among them.
- E. It contains a descriptive detail of the database, which can be depicted by means of schema diagrams. It's the database designers who design the schema to help programmers understand the database and make it useful.

Choose the *incorrect* statement from the options given below

[Question ID = 16748][Question Description = 141_41_COMP_SEP22_Q41]

1. Statement C is incorrect [Option ID = 36989]
2. Statement D is incorrect [Option ID = 36990]
3. Statement A is incorrect. [Option ID = 36991]
4. Statement B is incorrect. [Option ID = 36992]

42) The number of participating entities in a relationship defines which of the relationship?

[Question ID = 16749][Question Description = 142_41_COMP_SEP22_Q42]

1. Entity set [Option ID = 36993]
2. Domain [Option ID = 36994]
3. Degree [Option ID = 36995]
4. Scope [Option ID = 36996]

43) Processes that stay in the background to handle some activity such as web pages, printing, and so on are called

[Question ID = 16750][Question Description = 143_41_COMP_SEP22_Q43]

1. Daemons
[Option ID = 36997]
2. Kernel
[Option ID = 36998]
3. Interrupt vector
[Option ID = 36999]
4. Errno
[Option ID = 37000]

44) The binary search method needs comparisons not more than

[Question ID = 16751][Question Description = 144_41_COMP_SEP22_Q44]

1. $(\log 2n)+1$ [Option ID = 37001]
2. $\log 2n$ [Option ID = 37002]
3. $(\log n)+1$ [Option ID = 37003]
4. $\log n$ [Option ID = 37004]

45) Which of the following statement is not true for "Lists":[Question ID = 16752][Question Description = 145_41_COMP_SEP22_Q45]

1. Lists are flexible structures [Option ID = 37005]
2. Lists can be concatenated together and can be split into sub-lists [Option ID = 37006]
3. Elements cannot be accessed, inserted, or deleted at any position within a list [Option ID = 37007]
4. Lists are applied in information retrieval, programming language translation and simulation [Option ID = 37008]

46) How many cables and ports are required for a star topology?

[Question ID = 16753][Question Description = 146_41_COMP_SEP22_Q46]

1. 10 ports and 5 cables [Option ID = 37009]
2. 20 ports and 5 cables [Option ID = 37010]
3. 30 ports and 5 cables [Option ID = 37011]
4. 50 ports and 5 cables [Option ID = 37012]

47) In X.25 network layer protocol, the data packets normally contain:[Question ID = 16754][Question Description = 147_41_COMP_SEP22_Q47]

1. One octet of header plus data [Option ID = 37013]
2. Two octets of header plus data [Option ID = 37014]
3. Three octets of header plus data [Option ID = 37015]
4. Four octets of header plus data [Option ID = 37016]

48) Compile-time Polymorphism in Java is achieved by:

[Question ID = 16755][Question Description = 148_41_COMP_SEP22_Q48]

1. Dynamic Method Dispatch [Option ID = 37017]
2. Method Overloading [Option ID = 37018]
3. Function Overloading [Option ID = 37019]
4. Operator Overriding [Option ID = 37020]

49) Repeated execution of simple computation may cause compounding of [Question ID = 16756][Question Description = 149_41_COMP_SEP22_Q49]

1. round-off errors [Option ID = 37021]
2. syntax errors [Option ID = 37022]
3. run-time errors [Option ID = 37023]
4. logic errors [Option ID = 37024]

50) Which of the following statements is false about String?

[Question ID = 16757][Question Description = 150_41_COMP_SEP22_Q50]

1. String is immutable [Option ID = 37025]
2. String can be created using new operator [Option ID = 37026]
3. String is a primary data type [Option ID = 37027]
4. String is an infinite sequence of symbols [Option ID = 37028]

1) Which of the following is not combinational circuit?[Question ID = 16808][Question Description = 101_62_CAT_SEP22_Q01]

1. Encoder [Option ID = 37229]
2. Decoder [Option ID = 37230]
3. Multiplexer [Option ID = 37231]
4. Registers [Option ID = 37232]

2) An adder is a circuit that can be integrated with many other circuits for a wide range of applications. It is a kind of calculator used to add two numbers that are

[Question ID = 16809][Question Description = 102_62_CAT_SEP22_Q02]

1. Decimal numbers [Option ID = 37233]
2. Hexadecimal numbers [Option ID = 37234]
3. Binary numbers [Option ID = 37235]
4. Octal numbers [Option ID = 37236]

3) Given below are two statements

Statement I: There are two kinds of adders - half adder and full adder.

Statement II: The half adder has three inputs and two outputs.

In light of the above statements, choose the *correct* answer from the options given below

[Question ID = 16810][Question Description = 103_62_CAT_SEP22_Q03]

1. Both Statement I and Statement II are correct [Option ID = 37237]
2. Both Statement I and Statement II are incorrect [Option ID = 37238]
3. Statement I is correct but Statement II is incorrect [Option ID = 37239]
4. Statement I is incorrect but Statement II is correct [Option ID = 37240]

4) Consider the following statements about multiprocessors

A. Multiprocessor hardware and software decides the structure and interconnection between the components of multiprocessor.

B. Hardware part of multiprocessor comprises of different interconnection network like crossbar switches, multistage switching networks etc.

C. Whereas software part consists of different types of operating systems in multiprocessor.

Choose the *correct* statement(s) from the options given below:

[Question ID = 16811][Question Description = 104_62_CAT_SEP22_Q04]

1. A and B only [Option ID = 37241]
2. A and C only [Option ID = 37242]
3. B and C only [Option ID = 37243]
4. All statements are correct [Option ID = 37244]

5) The difference between combinational and sequential circuits are given below:

Statement I: Combinational circuit's speed is fast and design is easier.

Statement II: Combinational circuits do not have memory element whereas sequential circuits have it.

In light of the above statements, choose the *correct* answer from the options given below

[Question ID = 16812][Question Description = 105_62_CAT_SEP22_Q05]

1. Both Statement I and Statement II are true [Option ID = 37245]
2. Both Statement I and Statement II are false [Option ID = 37246]
3. Statement I is true but Statement II is false [Option ID = 37247]
4. Statement I is false but Statement II is true [Option ID = 37248]

6) Consider the following statements regarding URLs:

Statement I: An absolute URL contains the protocol indicator, hostname, folder name, and file name. Absolute URLs are similar to addresses used by the Indian Postal Service, which include a name, street address, apartment number (if applicable), city, state, and pin code. If some of the information is missing – say, the street number or house number – the carrier can not deliver the mail to the right person.

Statement II: A relative URL usually contains only the folder name and file name or even just the file name. You can use these partial URLs when you are pointing to a file that is logged within the same folder or on the same server as the originating file. In these cases, a browser does not need the server name or protocol indicator because it assumes that the files are located in a folder or on a server that is relative to the originating document.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16813][Question Description = 106_62_CAT_SEP22_Q06]

1. Both Statement I and Statement II are correct [Option ID = 37249]
2. Both Statement I and Statement II are incorrect [Option ID = 37250]
3. Statement I is correct but Statement II is incorrect [Option ID = 37251]
4. Statement I is incorrect but Statement II is correct [Option ID = 37252]

7) In Javascripting, while doing debugging in it, there are three general types of errors as mentioned below:

A. Load-time errors are caught by JavaScript as the browser loads a script. JavaScript displays a warning box telling about the problem and, most of the time, shows the actual text and line number in which the error occurred.

B. Run-time errors occur when the script is actually running. JavaScript displays an alert box telling about nature of the error, along with line number in which the error occurred.

C. Logic errors are very similar to Run-time errors.

Choose the *incorrect* error description from the options given below

[Question ID = 16814][Question Description = 107_62_CAT_SEP22_Q07]

1. All the error descriptions are incorrect [Option ID = 37253]
2. Error description A is incorrect [Option ID = 37254]
3. Error description B is incorrect [Option ID = 37255]
4. Error description C is incorrect [Option ID = 37256]

8) What is the difference between Javascript and Java?

A. Javascript is interpreted while Java is compiled.

B. Javascript is object-Based while Java is object-oriented.

C. Javascript cannot work stand alone. It is embedded in HTML while Java is standalone and a complete development environment.

D. Javascript was developed by Netscape while Java was developed by Sun Microsystems.

E. Javascript is strongly typed while Java is loosely typed.

Choose the *correct* answer from the options given below

[Question ID = 16815][Question Description = 108_62_CAT_SEP22_Q08]

1. A, B, C, D and E [Option ID = 37257]
2. A, B, C and D [Option ID = 37258]
3. A, B and C [Option ID = 37259]
4. A and B [Option ID = 37260]

9) Which of following statement is not correct in case of HTML or Javascript?

[Question ID = 16816][Question Description = 109_62_CAT_SEP22_Q09]

1. JavaScript code is an extension of HTML. It appears as text right alongside HTML code. [Option ID = 37261]
2. How much space you leave between words or lines doesn't matter to HTML.

[Option ID = 37262]

3. White spaces and line breaks mean nothing to HTML.

[Option ID = 37263]

4. HTML is case sensitive but JavaScript is not case sensitive. [Option ID = 37264]

10) Read the following statements about using hexadecimal color codes in HTML and CSS.

A. Color in both HTML and CSS is referred to by a six-character code preceded by sign (#).

B. This code is called hexadecimal code, and is the system used to identify and apply color to elements.

C. Almost any color can be reproduced using a unique hexadecimal code. For example dark-red: #CC0000.

D. The first, middle, and last pair of digits in the hexadecimal code correspond to values in the RGB spectrum. For example, R:255 G:255 B:255, is represented in HTML as #FFFFFF (255|255|255).

E. A program like Photoshop will allow you to choose a specific RGB color in the Color Editor and give you the equivalent hexadecimal color for use in your code.

Choose the *correct* statement(s) from the options given below

[Question ID = 16817][Question Description = 110_62_CAT_SEP22_Q10]

1. A, B, C and D are correct. [Option ID = 37265]
2. A, B and C are correct. [Option ID = 37266]
3. All the above statements are correct. [Option ID = 37267]
4. All the above statements are incorrect. [Option ID = 37268]

11) In the feasibility study of Software Development Life Cycle, the software development team works to carry on the project. After requirement gathering, the team comes up with a rough plan of software process.

At this step, which of the following activity is not done by the team?

[Question ID = 16818][Question Description = 111_62_CAT_SEP22_Q11]

1. Analyze if a software can be designed to fulfill all requirements of the user.
[Option ID = 37269]
2. Find out if there is any possibility of software being no more useful. [Option ID = 37270]
3. Analyze if the project is financially, practically, and technologically feasible for the organization to take up.
[Option ID = 37271]
4. Develop new algorithm in case no algorithm is already available for the software project.
[Option ID = 37272]

12) Given below are two statements giving information about waterfall model of software development paradigm

Statement I: This model assumes that everything is carried out and it has taken place perfectly as planned in the previous stage and there is no need to think about the past issues that may arise in the next phase.

Statement II: This model does not work smoothly if there are some issues left at the previous step. The sequential nature of model does not allow us to go back and undo or redo our actions. This model is best suited when developers already have designed and developed similar software in the past and are aware of all its domains.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16819][Question Description = 112_62_CAT_SEP22_Q12]

1. Both Statement I and Statement II are correct [Option ID = 37273]
2. Both Statement I and Statement II are incorrect [Option ID = 37274]
3. Statement I is correct but Statement II is incorrect [Option ID = 37275]
4. Statement I is incorrect but Statement II is correct [Option ID = 37276]

13) Which of the following statements is not correct in case of Iterative model under software development lifecycle (SDLC)?

[Question ID = 16820][Question Description = 113_62_CAT_SEP22_Q13]

1. This model leads the software development process in iterations. [Option ID = 37277]
2. It projects the process of development in cyclic manner repeating every step after every cycle of SDLC process. [Option ID = 37278]
3. After each iteration, the management team can do work on risk management and prepare for the next iteration. [Option ID = 37279]
4. It is very difficult to manage the development process because a cycle includes small portion of whole software process.
[Option ID = 37280]

14) In case of project risk management process, there are following activities involved:

- A. Identification - Make note of all possible risks, which may occur in the project.
- B. Categorize - Categorize known risks into high, medium and low risk intensity as per their possible impact on the project.
- C. Manage - Analyze the probability of occurrence of risks at various phases. Make plan to avoid or face risks. Attempt to minimize their side-effects.
- D. Monitor - Closely monitor the potential risks and their early symptoms. Also monitor the effective steps taken to mitigate or avoid them.

Which activity listed above is *incorrect*?

[Question ID = 16821][Question Description = 114_62_CAT_SEP22_Q14]

1. None of the above is incorrect activity. [Option ID = 37281]
2. A is incorrect activity. [Option ID = 37282]
3. B is incorrect activity. [Option ID = 37283]

4. C is incorrect activity. [Option ID = 37284]

15) In case of project communication management, given below are two statements

Statement I: Effective communication plays vital role in the success of a project. Communication can be oral or written.

Statement II: It bridges gaps between client and the organization, among the team members as well as other stake holders in the project such as hardware suppliers.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16822][Question Description = 115_62_CAT_SEP22_Q15]

1. Both Statement I and Statement II are correct [Option ID = 37285]
2. Both Statement I and Statement II are incorrect [Option ID = 37286]
3. Statement I is correct but Statement II is incorrect [Option ID = 37287]
4. Statement I is incorrect but Statement II is correct [Option ID = 37288]

16) The assembly language is processed by which program that produces relocatable machine code as its output?

[Question ID = 16823][Question Description = 116_62_CAT_SEP22_Q16]

1. Compiler [Option ID = 37289]
2. Interpreter [Option ID = 37290]
3. Assembler [Option ID = 37291]
4. Lexical analyzer [Option ID = 37292]

17) Which of the following statement(s) about compiler phases is incorrect?

- A. The first phase of a compiler is called lexical analysis or scanning.
- B. The lexical analyzer reads the stream of characters making up the source program and groups the characters into meaningful sequences called lexemes.
- C. For each lexeme, the lexical analyzer produces as output a token and passes on to the subsequent phase, syntax analysis.
- D. There are no ready-to-use tool available for finding tokens from an input program.

Choose the *incorrect* statement(s) from the options given below

[Question ID = 16824][Question Description = 117_62_CAT_SEP22_Q17]

1. A is incorrect. [Option ID = 37293]
2. B is incorrect. [Option ID = 37294]
3. C is incorrect. [Option ID = 37295]
4. D is incorrect. [Option ID = 37296]

18) In lexical analysis phase of compiler construction please see two statements mentioned below

Statement I: A pattern is a description of the form that the lexemes of a token may take. In the case of a keyword as a token, the pattern is just the sequence of characters that form the keyword.

Statement II: For identifiers and some other tokens, the pattern is a more complex structure that is matched by many strings.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16825][Question Description = 118_62_CAT_SEP22_Q18]

1. Both Statement I and Statement II are correct [Option ID = 37297]
2. Both Statement I and Statement II are incorrect [Option ID = 37298]
3. Statement I is correct but Statement II is incorrect [Option ID = 37299]
4. Statement I is incorrect but Statement II is correct [Option ID = 37300]

19) In lexical analysis phase, for identifying the variable names (id), the lexical analyzer program should find

[Question ID = 16826][Question Description = 119_62_CAT_SEP22_Q19]

1. a digit followed by letters or digits [Option ID = 37301]
2. a letter followed by letters or digits [Option ID = 37302]
3. a letter or digit followed by letters or digits [Option ID = 37303]
4. an operator followed by letters or digits [Option ID = 37304]

20) What would be the corresponding regular expression for set $\{0^{2n} \mid n \geq 1\}$?

[Question ID = 16827][Question Description = 120_62_CAT_SEP22_Q20]

1. $(00)^*$ [Option ID = 37305]
2. $(00)^2$ [Option ID = 37306]

3. $(00)^{\wedge}$ [Option ID = 37307]
4. $(00)^{+}$ [Option ID = 37308]

21) Identify correct statements in case of data integrity and security.

- A. If data is always accessed through the DBMS, the DBMS can enforce integrity constraints on the data.
- B. In case of inserting salary information for an employee in the database, the DBMS can check that the department budget is not exceeded.
- C. The DBMS can enforce access controls that govern what data is visible to different classes of users.

Choose the *correct* statement(s) from the options given below

[Question ID = 16828][Question Description = 121_62_CAT_SEP22_Q21]

1. All statements are correct. [Option ID = 37309]
2. A and B are correct. [Option ID = 37310]
3. A and C are correct. [Option ID = 37311]
4. B and C are correct. [Option ID = 37312]

22) Read the following statements about conceptual schema

- A. The conceptual schema is sometimes also called the logical schema.
- B. The conceptual schema is sometimes also called the database schema.
- C. The conceptual schema describes the stored data in terms of the data model of the DBMS.
- D. The conceptual schema does not describe all relations that are stored in the database.

Choose the *incorrect* statements from the options given below

[Question ID = 16829][Question Description = 122_62_CAT_SEP22_Q22]

1. A and B are incorrect. [Option ID = 37313]
2. B and D are incorrect. [Option ID = 37314]
3. A and C are incorrect. [Option ID = 37315]
4. C and D are incorrect. [Option ID = 37316]

23) Read the following statements about Relational Algebra in DBMS.

- A. Relational calculus is an alternative to relational algebra.
- B. In contrast to the algebra, which is procedural, the calculus is nonprocedural, or declarative, in that it allows us to describe the set of answers without being explicit about how they should be computed.
- C. Relational calculus has had a big influence on the design of commercial query languages such as _____ and _____.

Choose the group of words *most appropriate* to fill in the blanks given in statement C from the options given below.

[Question ID = 16830][Question Description = 123_62_CAT_SEP22_Q23]

1. SQL and QBE [Option ID = 37317]
2. MSSQL and PostgreSQL [Option ID = 37318]
3. DDL and DML [Option ID = 37319]
4. NoSQL and T-SQL [Option ID = 37320]

24) Read carefully the below statements related to Referential Integrity Constraints

Statement I: Referential integrity constraint states that if a relation refers to a key attribute of a different or same relation, then that key element's existence is unknown.

Statement II: Referential integrity constraints work on the concept of Foreign Keys. A foreign key is a key attribute of a relation that can be referred in other relation.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16831][Question Description = 124_62_CAT_SEP22_Q24]

1. Both Statement I and Statement II are correct [Option ID = 37321]
2. Both Statement I and Statement II are incorrect [Option ID = 37322]
3. Statement I is correct but Statement II is incorrect [Option ID = 37323]
4. Statement I is incorrect but Statement II is correct [Option ID = 37324]

25) Read carefully the below statements about relational algebra in DBMS

- A. Relational algebra is a procedural query language, which takes instances of relations as input and yields instances of relations as output.
- B. It uses operators to perform queries.
- C. An operator can be either unary or binary.
- D. Relational algebra is performed recursively on a relation but intermediate results are not considered as relations.

Choose the *incorrect* statement from the options given below

[Question ID = 16832][Question Description = 125_62_CAT_SEP22_Q25]

1. A is incorrect. [Option ID = 37325]
2. B is incorrect. [Option ID = 37326]
3. C is incorrect. [Option ID = 37327]
4. D is incorrect. [Option ID = 37328]

26) “Debugging is twice as hard as writing the code in the first place. Therefore, if you write the code as cleverly as possible, you are, by definition, not smart enough to debug it”. This law is known as:[Question ID = 16833][Question Description = 126_62_CAT_SEP22_Q26]

1. Kernighan’s Law [Option ID = 37329]
2. Moore’s Law [Option ID = 37330]
3. Stefann’s Law [Option ID = 37331]
4. Codd’s Law [Option ID = 37332]

27) An operating system does the resource management using the following methods:

- A. Time division multiplexing
- B. Space division multiplexing
- C. Resource Division Multiplexing

Choose the correct methods from the options given below

[Question ID = 16834][Question Description = 127_62_CAT_SEP22_Q27]

1. A only
[Option ID = 37333]
2. B only
[Option ID = 37334]
3. B and C only
[Option ID = 37335]
4. A and B only
[Option ID = 37336]

28) These clusters are designed to solve high-performance computing tasks and consist of commodity hardware—such as personal computers—connected via a simple local-area network. No single specific software package is required to construct a cluster. Rather, the nodes use a set of open-source software libraries to communicate with one another. In fact, some of these clusters built from discarded personal computers are using hundreds of nodes to solve computationally expensive scientific computing problems. These clusters are known as:

[Question ID = 16835][Question Description = 128_62_CAT_SEP22_Q28]

1. Beowulf clusters [Option ID = 37337]
2. Asymmteric Clusters [Option ID = 37338]
3. Parallel Clusters [Option ID = 37339]
4. Load Balancing Clusters [Option ID = 37340]

29) The Manager which manages the communication between clients (the environment subsystem) and servers (components of the executive) is

[Question ID = 16836][Question Description = 129_62_CAT_SEP22_Q29]

1. Plug and Play
[Option ID = 37341]
2. Inter Process Communication
[Option ID = 37342]
3. Window
[Option ID = 37343]

4. Power

[Option ID = 37344]

30) Simultaneous access of 'n' processors and 'n' memories is possible in the case of :

[Question ID = 16837][Question Description = 130_62_CAT_SEP22_Q30]

1. Bus oriented systems [Option ID = 37345]
2. Crossbar interconnection systems [Option ID = 37346]
3. Hypercubes [Option ID = 37347]
4. Multistage switch-based systems [Option ID = 37348]

31) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R

Assertion A: Quick Sort is an unstable algorithm.

Reason R: Quick sort is said to be unstable algorithm because we usually do swap operation as per pivot element. We don't preserve the relative order of elements in case of quick sort. The algorithm is unstable because the more sorted the original list is, the longer it takes to run.

In light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 16838][Question Description = 131_62_CAT_SEP22_Q31]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 37349]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 37350]
3. A is correct but R is not correct [Option ID = 37351]
4. A is not correct but R is correct [Option ID = 37352]

32) The following algorithm is used to create a new array of the same type and size, fill it with elements from the original array in reverse order, and finally copy the contents of the new array into the original one.

```
// Utility function to reverse elements of an array
```

```
public static void reverse(int[] A)
```

```
{
```

```
    int[] B = new int[A.length];
```

```
    for (int i = 0; i < a.length; i++)
```

```
        B[A.length - 1 - i] = A[i];
```

```
}
```

```
for (int i = 0; i < a.length; i++)
```

```
    A[i] = B[i];
```

```
}
```

```
}
```

What is the name of this algorithm?

[Question ID = 16839][Question Description = 132_62_CAT_SEP22_Q32]

1. In-place [Option ID = 37353]
2. Not-in-place or Out-of-place [Option ID = 37354]
3. Unstable [Option ID = 37355]
4. Stable [Option ID = 37356]

33) Please see the data structures given below

- A. Stack
- B. Queue
- C. List
- D. Hashmap

Choose the *correct* combination of data structures used for implementing Least Recently Used (LRU) cache from the options

given below:

[Question ID = 16840][Question Description = 133_62_CAT_SEP22_Q33]

1. A, B and D only [Option ID = 37357]
2. A and B only [Option ID = 37358]
3. B, C and D only [Option ID = 37359]
4. A and D only [Option ID = 37360]

34) Dijkstra's Algorithm cannot be applied on which of the following?[Question ID = 16841][Question Description = 134_62_CAT_SEP22_Q34]

1. Unweighted and undirected graphs [Option ID = 37361]
2. Directed and weighted graphs [Option ID = 37362]
3. Weighted graphs [Option ID = 37363]
4. Graphs with negative weight function [Option ID = 37364]

35) Match List I with List II

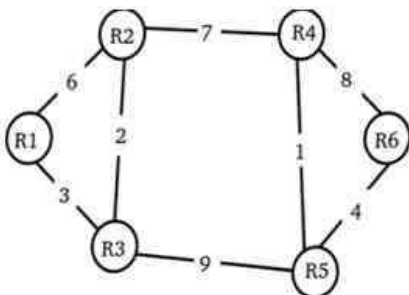
List I	List II
A. Array Data Structures	I. Hierarchical Data Model
B. Graphs	II. Memory Management
C. Trees	III. Network
D. Stack	IV. RDBMS

Choose the correct answer from the options given below:

[Question ID = 16842][Question Description = 135_62_CAT_SEP22_Q35]

1. A - I, B - III, C - IV, D - II [Option ID = 37365]
2. A - II, B - IV, C - III, D - I [Option ID = 37366]
3. A - III, B - I, C - II, D - IV [Option ID = 37367]
4. A - IV, B - III, C - I, D - II [Option ID = 37368]

36) Consider a network with 6 routers R1 to R6 connected with links having weights as shown in the following diagram:



All the routers use the distance vector based routing algorithm to update their routing tables. Each router starts with its routing table initialized to contain an entry for each neighbour with the weight of the respective connecting link. After all the routing tables stabilize, how many links in the network will never be used for carrying any data?

[Question ID = 16843][Question Description = 136_62_CAT_SEP22_Q36]

1. 4 [Option ID = 37369]
2. 3 [Option ID = 37370]
3. 2 [Option ID = 37371]
4. 1 [Option ID = 37372]

37) Match List I with List II

List I	List II
A. http	I. Send email messages
B. pop	II. Transfer multimedia information
C. ftp	III. Send email attachment
D. smtp	IV. Transfer files in servers and clients computers
E. MIME	V. Receive email messages

Choose the correct answer from the options given below:

[Question ID = 16844][Question Description = 137_62_CAT_SEP22_Q37]

1. A -II, B -V , C-IV, D-I, E-III [Option ID = 37373]
2. A - III, B -IV , C - V, D -II, E-I [Option ID = 37374]
3. A -V, B -II , C-I, D-III, E-IV [Option ID = 37375]
4. A -I, B -II , C-III, D-IV, E-V [Option ID = 37376]

38) If a class B network on the internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?[Question ID = 16845][Question Description = 138_62_CAT_SEP22_Q38]

1. 2046 [Option ID = 37377]
2. 2047 [Option ID = 37378]
3. 1022 [Option ID = 37379]
4. 1023 [Option ID = 37380]

39) The TCP/IP model can be considered as a condensed version of the OSI model and is sometimes referred to as:

[Question ID = 16846][Question Description = 139_62_CAT_SEP22_Q39]

1. A Link [Option ID = 37381]
2. MAC Layer [Option ID = 37382]
3. A Protocol Stack [Option ID = 37383]
4. Address Resolution Protocol [Option ID = 37384]

40) Which of the following is a transport layer protocol used in internet?

[Question ID = 16847][Question Description = 140_62_CAT_SEP22_Q40]

1. TCP
[Option ID = 37385]
2. UDP
[Option ID = 37386]
3. Both TCP and UDP
[Option ID = 37387]
4. Neither TCP nor UDP
[Option ID = 37388]

41) What will be the output of the following pseudo-code when parameters are passed by reference and dynamic scoping is assumed?

```
a=3;
```

```
void n(x) {x = x * a; print(x);}
```

```
void m(y) {a = 1; a = y - a; n(a); print(a);}
```

```
void main() {m(a);}
```

[Question ID = 16848][Question Description = 141_62_CAT_SEP22_Q41]

1. 6, 2 [Option ID = 37389]
2. 6, 6 [Option ID = 37390]
3. 4, 2 [Option ID = 37391]
4. 4, 4 [Option ID = 37392]

42) Which languages necessarily need heap allocation in the runtime environment?

[Question ID = 16849][Question Description = 142_62_CAT_SEP22_Q42]

1. Those that support recursion [Option ID = 37393]
2. Those that use dynamic scoping [Option ID = 37394]
3. Those that allow dynamic data structures [Option ID = 37395]
4. Those that use global variables [Option ID = 37396]

43) Match List I with List II

List I	List II
A. Functional	I. Command-based, procedural
B. Logic	II. Imperative, abstract data type
C. Object-oriented	III. Side-effect free, declarative, expression evaluation
D. Imperative	IV. Declarative, clausal representation, theorem proving

Choose the correct answer from the options given below:

[Question ID = 16850][Question Description = 143_62_CAT_SEP22_Q43]

1. A-II, B-III, C-IV, D-I

[Option ID = 37397]

2. A-IV, B-III, C-II, D-I

[Option ID = 37398]

3. A-III, B-IV, C-I, D-II

[Option ID = 37399]

4. A-III, B-IV, C-II, D-I

[Option ID = 37400]

44) What is correct syntax for main method of a java class?

[Question ID = 16851][Question Description = 144_62_CAT_SEP22_Q44]

1. public static int main(String[] args) [Option ID = 37401]

2. public int main(String[] args) [Option ID = 37402]

3. public static void main(String[] args) [Option ID = 37403]

4. public static float main(String[] args) [Option ID = 37404]

45) What will happen if static modifier is removed from the signature of the main method?

[Question ID = 16852][Question Description = 145_62_CAT_SEP22_Q45]

1. Compilation Error [Option ID = 37405]

2. RunTimeError: NoSuchMethodError [Option ID = 37406]

3. Program will compile and run without any output [Option ID = 37407]

4. Program will compile and run to show the required output [Option ID = 37408]

46) If in a frequency distribution, the mean and median are 21 and 22 respectively, then its mode is approximately [Question ID = 16853][Question Description = 146_62_CAT_SEP22_Q46]

1. 22.0 [Option ID = 37409]

2. 20.5 [Option ID = 37410]

3. 25.5 [Option ID = 37411]

4. 24.0 [Option ID = 37412]

47) If in 6 trials, X is a binomial variate which follows the relation $9P(X = 4) = P(X = 2)$, then what is the probability of success ? [Question ID = 16854][Question Description = 147_62_CAT_SEP22_Q47]

1. $\frac{1}{8}$ [Option ID = 37413]

2. $\frac{1}{4}$ [Option ID = 37414]

3. $\frac{3}{8}$ [Option ID = 37415]

4. $\frac{3}{4}$ [Option ID = 37416]

48) If population variance of an infinite population is σ^2 and a sample of 25 items is selected from this population, then what is the standard error of sample mean ?

[Question ID = 16855][Question Description = 148_62_CAT_SEP22_Q48]

1. $\frac{\sigma^2}{25}$

[Option ID = 37417]

2. $\frac{\sigma}{5}$

[Option ID = 37418]

3. $\frac{\sigma}{25}$

[Option ID = 37419]

4. σ

[Option ID = 37420]

49) If a faulty measurement is recorded on a certain sample unit due to evasive response furnished by the unit, then it is a case of [Question ID = 16856][Question Description = 149_62_CAT_SEP22_Q49]

1. non-sampling error [Option ID = 37421]

2. sampling error [Option ID = 37422]

3. neither sampling nor non-sampling error [Option ID = 37423]

4. both sampling and non-sampling errors [Option ID = 37424]

50) The error degrees of freedom in the ANOVA using an $m \times m$ Latin Square Design is[Question ID = 16857][Question Description = 150_62_CAT_SEP22_Q50]

1. $m \times m$ [Option ID = 37425]
2. $m \times (m-1)$ [Option ID = 37426]
3. $(m-1) \times (m-1)$ [Option ID = 37427]
4. $(m-1) \times (m-2)$ [Option ID = 37428]