STATISTICAL SCIENCES ICAR SEPT 2022

Topic:- 07 STATISTICAL SCIENCES_PG

1) In forest management, annual felling areas are otherwise called as

[Question ID = 721][Question Description = 101_32_STS_AUG22_Q01]

1. Working circle [Option ID = 2881]
2. Working area [Option ID = 2882]
3. Beat [Option ID = 2883]
4. Coupe [Option ID = 2884]

2) In the Munsell colour chart hue 10 represents

[Question ID = 722][Question Description = 102_32_STS_AUG22_Q02]

1. Yellow [Option ID = 2885]
2. Blue [Option ID = 2886]
3. Black [Option ID = 2887]
4. Red [Option ID = 2888]

3) The structure within a cell that is concerned with energy is

[Question ID = 723][Question Description = 103_32_STS_AUG22_Q03]

1. The cytoplasm

   [Option ID = 2889]
2. The cell membrane

   [Option ID = 2890]
3. The nucleus

   [Option ID = 2891]
4. The mitochondrion

   [Option ID = 2892]

4) Which element is a part of cytochrome oxidase?[Question ID = 724][Question Description = 104_32_STS_AUG22_Q04]

1. Mo [Option ID = 2893]
2. Bo [Option ID = 2894]
3. Cu [Option ID = 2895]
4. Fe [Option ID = 2896]

5) What do you mean by a mixed economy?[Question ID = 725][Question Description = 105_32_STS_AUG22_Q05]

1. Modern and traditional industries [Option ID = 2897]
2. Public and private sectors [Option ID = 2898]
3. Foreign and domestic investments [Option ID = 2899]
4. Commercial and subsistence farming [Option ID = 2900]

6) In context with the insurance industry which among the following is a correct term for per capita premium?[Question ID = 726][Question Description = 106_32_STS_AUG22_Q06]

1. Insurance Penetration [Option ID = 2901]
2. Insurance Density [Option ID = 2902]
3. Insurance Intensity [Option ID = 2903]
4. Insurance Reach [Option ID = 2904]

7) Cystic fibrosis is[Question ID = 727][Question Description = 107_32_STS_AUG22_Q07]

1. Sex-linked recessive disorder [Option ID = 2905]
2. Autosomal dominant disorder [Option ID = 2906]
3. Autosomal recessive disorder [Option ID = 2907]
4. Sex-linked dominant disorder [Option ID = 2908]

8) What is the approximate size of the melon mitochondrial genome?

[Question ID = 728][Question Description = 108_32_STS_AUG22_Q08]

1. 600 kilobase [Option ID = 2909]

2. 1200 kilobase [Option ID = 2910]
3. 1800 kilobase [Option ID = 2911]
4. 2400 kilobase [Option ID = 2912]

9) The poorest seed storage capacity is in

[Question ID = 729][Question Description = 109_32_STS_AUG22_Q09]

1. Okra [Option ID = 2913]
2. Peas [Option ID = 2914]
3. Cucurbits [Option ID = 2915]
4. Onion [Option ID = 2916]

10) Honeydew on the leaves and ants crawling around a plant indicate

[Question ID = 730][Question Description = 110_32_STS_AUG22_Q10]

1. Aphids [Option ID = 2917]
2. Slugs [Option ID = 2918]
3. Fungus [Option ID = 2919]
4. Thrips [Option ID = 2920]

11) A. *zinnia* is an example of a flower having a _____ texture

[Question ID = 731][Question Description = 111_32_STS_AUG22_Q11]

1. Fine [Option ID = 2921]
2. Medium [Option ID = 2922]
3. Coarse [Option ID = 2923]
4. Shiny [Option ID = 2924]

12) Which chemical is employed to differentiate between live and dead nematodes ?

[Question ID = 732][Question Description = 112_32_STS_AUG22_Q12]

1. New Blue [Option ID = 2925]
2. New Red [Option ID = 2926]
3. Acetic Acid [Option ID = 2927]
4. Silver nitrate [Option ID = 2928]

13) ISCII stands for[Question ID = 733][Question Description = 113_32_STS_AUG22_Q13]

1. Indian Standard Code for Information Interchange [Option ID = 2929]
2. International Standard Code for Information Interchange [Option ID = 2930]
3. Italian Standard Code for Information Interchange [Option ID = 2931]
4. International Standard Characters for Information Interchange [Option ID = 2932]

14) A CDROM is [Question ID = 734][Question Description = 114_32_STS_AUG22_Q14]

1. an input device [Option ID = 2933]
2. an output device [Option ID = 2934]
3. a display device [Option ID = 2935]
4. a secondary storage device [Option ID = 2936]

15) DVDROM stands for[Question ID = 735][Question Description = 115_32_STS_AUG22_Q15]

1. Digital video disk read only memory [Option ID = 2937]
2. Digital versatile disk read only memory [Option ID = 2938]
3. Digital video device read only memory [Option ID = 2939]
4. Digital versatile device read only memory [Option ID = 2940]

16) The raw material used in making transistors is[Question ID = 736][Question Description = 116_32_STS_AUG22_Q16]

1. lithium [Option ID = 2941]
2. copper [Option ID = 2942]
3. iron [Option ID = 2943]
4. silicon [Option ID = 2944]

17) FORTRAN is a[Question ID = 737][Question Description = 117_32_STS_AUG22_Q17]

1. high level programming language [Option ID = 2945]
2. assembly language [Option ID = 2946]

3. low level programming language [Option ID = 2947]
4. machine language [Option ID = 2948]

18) Which of the following is not a hardware ?[Question ID = 738][Question Description = 118_32_STS_AUG22_Q18]

1. Mouse [Option ID = 2949]
2. Keyboard [Option ID = 2950]
3. Motherboard [Option ID = 2951]
4. Operating system [Option ID = 2952]

19) RAM is[Question ID = 739][Question Description = 119_32_STS_AUG22_Q19]

1. a volatile memory [Option ID = 2953]
2. a permanent memory [Option ID = 2954]
3. not a volatile memory [Option ID = 2955]
4. a combination of volatile and permanent memory [Option ID = 2956]

20) TCP/IP stands for[Question ID = 740][Question Description = 120_32_STS_AUG22_Q20]

1. Transfer Control Protocol / Interchange Protocol [Option ID = 2957]
2. Transmission Control Protocol / Internet Protocol [Option ID = 2958]
3. Transmission Control Protocol / Interchange Protocol [Option ID = 2959]
4. Transfer Control Protocol / Internet Protocol [Option ID = 2960]

21) The Human Genome approximately contains

[Question ID = 741][Question Description = 121_32_STS_AUG22_Q21]

1. 4 billion base pairs [Option ID = 2961]
2. 2 billion base pairs [Option ID = 2962]
3. 3 billion base pairs [Option ID = 2963]
4. 6 billion base pairs [Option ID = 2964]

22) Which of the following is not a sequence alignment tool?[Question ID = 742][Question Description = 122_32_STS_AUG22_Q22]

1. BLAST [Option ID = 2965]
2. CLUSTAL [Option ID = 2966]
3. FASTA [Option ID = 2967]
4. RASMOL [Option ID = 2968]

23) UniProt is mainly [Question ID = 743][Question Description = 123_32_STS_AUG22_Q23]

1. protein sequence database [Option ID = 2969]
2. sequence similarity search tool [Option ID = 2970]
3. homology tool [Option ID = 2971]
4. graphics application [Option ID = 2972]

24) Which of the following naturally occurring nucleotides are found in DNA?

[Question ID = 744][Question Description = 124_32_STS_AUG22_Q24]

1. Adenine, Cytosine, Guanine, Thymine [Option ID = 2973]
2. Adenine, Cytokine, Guanine, Thymine [Option ID = 2974]
3. Arginine, Cytosine, Guanine, Thymine [Option ID = 2975]
4. Adenine, Cytosine, Guanine, Triptophan [Option ID = 2976]

25) Which of the following is true?[Question ID = 745][Question Description = 125_32_STS_AUG22_Q25]

1. Accepting Null hypothesis when it is false is Type I error [Option ID = 2977]
2. Accepting Null hypothesis when it is true is Type I error [Option ID = 2978]
3. Rejecting Null hypothesis when it is true is Type I error [Option ID = 2979]
4. Rejecting Null hypothesis when it is false is Type I error [Option ID = 2980]

26) In a two-sided test with level of significance 10%, total area under region of rejection is[Question ID = 746][Question Description = 126_32_STS_AUG22_Q26]

1. 0.10 [Option ID = 2981]
2. 0.05 [Option ID = 2982]
3. 0.01 [Option ID = 2983]

4. 0.025 [Option ID = 2984]

27) Sample variances of two independent samples of size 21 and 31 observations are 4 and 6 respectively. Pooled sample variance of 52 observations is[Question ID = 747][Question Description = 127_32_STS_AUG22_Q27]

1. 10 [Option ID = 2985]
2. 5 [Option ID = 2986]
3. 25 [Option ID = 2987]
4. 5.2 [Option ID = 2988]

28) In a right tailed *t*-test, the critical region of the test statistic lies

[Question ID = 748][Question Description = 128_32_STS_AUG22_Q28]

1. on the left side

   [Option ID = 2989]
2. on the right side

   [Option ID = 2990]
3. on both sides

   [Option ID = 2991]
4. in the middle

   [Option ID = 2992]

29) In a regression line of Y on X, given $\bar{X} = 3, \bar{Y} = 10$ and a (intercept) = 4, then b (estimate of slope) is

[Question ID = 749][Question Description = 129_32_STS_AUG22_Q29]

1. 2 [Option ID = 2993]
2. -2 [Option ID = 2994]
3. 7/4 [Option ID = 2995]
4. 4/7 [Option ID = 2996]

30) When simple correlation coefficient between X and Y is 1 then[Question ID = 750][Question Description = 130_32_STS_AUG22_Q30]

1. there exists perfect negative correlation between X and Y [Option ID = 2997]
2. there exists no correlation between X and Y [Option ID = 2998]
3. there exists perfect positive correlation between X and Y [Option ID = 2999]
4. nothing can be said about correlation between X and Y [Option ID = 3000]

31) Correlation coefficient between seed weight (gm) and seed length (cm) has

[Question ID = 751][Question Description = 131_32_STS_AUG22_Q31]

1. Unit gm cm [Option ID = 3001]
2. Unit gm/cm [Option ID = 3002]
3. Unit cm/gm [Option ID = 3003]
4. no unit [Option ID = 3004]

32) If r is the simple correlation coefficient then r^2 is known as

[Question ID = 752][Question Description = 132_32_STS_AUG22_Q32]

1. multiple correlation coefficient [Option ID = 3005]
2. coefficient of determination [Option ID = 3006]
3. coefficient of variation [Option ID = 3007]
4. coefficient of alienation [Option ID = 3008]

33) A fitted regression line is Y = 10 + 2 X. Then

[Question ID = 753][Question Description = 133_32_STS_AUG22_Q33]

1. intercept is 10, slope is 2 [Option ID = 3009]
2. intercept is 2, slope is 10 [Option ID = 3010]
3. intercept is 10, slope is 2X [Option ID = 3011]
4. intercept is 2X, slope is 10 [Option ID = 3012]

34) A fitted regression line is Y = 5 + 3 X. Then

[Question ID = 754][Question Description = 134_32_STS_AUG22_Q34]

1. one unit change in X causes 8 units change in Y [Option ID = 3013]

2. one unit change in X causes 5 units change in Y [Option ID = 3014]
3. one unit change in X causes 3 units change in Y [Option ID = 3015]
4. one unit change in X causes 14 units change in Y [Option ID = 3016]

35) Which is the correct expression for Fishers Z transformation ?

[Question ID = 755][Question Description = 135_32_STS_AUG22_Q35]

1. $Z = {}^{1}/_{2} \log_e \frac{1+r}{1-r}$

   [Option ID = 3017]
2. $Z = {}^{1}/_{2} \log_{10} \frac{1+r}{1-r}$

   [Option ID = 3018]
3. $Z = {}^{1}/_{2} \log_e \frac{1-r}{1+r}$

   [Option ID = 3019]
4. $Z = {}^{1}/_{2} \log_{10} \frac{1-r}{1+r}$

   [Option ID = 3020]

36) In an experiment conducted using a Completely Randomized Design (CRD) with 50 observations, gross total of response variable Y is 100. In this case, correction factor is equal to

[Question ID = 756][Question Description = 136_32_STS_AUG22_Q36]

1. 2 [Option ID = 3021]
2. 50 [Option ID = 3022]
3. 150 [Option ID = 3023]
4. 200 [Option ID = 3024]

37) Which of the following statements is true?

[Question ID = 757][Question Description = 137_32_STS_AUG22_Q37]

1. Power of a test + probability of type II error of the test = 1

   [Option ID = 3025]
2. Power of a test + probability of type I error of the test = 1

   [Option ID = 3026]
3. probability of type I error of a test + probability of type II error of the test = 1

   [Option ID = 3027]
4. probability of type I error of a test + level of significance of the test = 1

   [Option ID = 3028]

38) In an experiment conducted using a Randomized Complete Block Design (RCBD) with 6 treatments in 4 blocks, error degrees of freedom equals

[Question ID = 758][Question Description = 138_32_STS_AUG22_Q38]

1. 24 [Option ID = 3029]
2. 15 [Option ID = 3030]
3. 23 [Option ID = 3031]
4. 18 [Option ID = 3032]

39) If in a Randomized Complete Block Design, there are 4 blocks and error mean square is 100 then

[Question ID = 759][Question Description = 139_32_STS_AUG22_Q39]

1. estimated standard error of each treatment mean is 25 [Option ID = 3033]
2. estimated standard error of each treatment mean is 2.5 [Option ID = 3034]
3. estimated standard error of each treatment mean is 50 [Option ID = 3035]
4. estimated standard error of each treatment mean is 5 [Option ID = 3036]

40) Which of the following design is a one-way elimination of heterogeneity design ?

[Question ID = 760][Question Description = 140_32_STS_AUG22_Q40]

1. CRD [Option ID = 3037]
2. RCBD [Option ID = 3038]

3. LSD [Option ID = 3039]
4. both RCBD and LSD [Option ID = 3040]

41) Number of experimental units required for 6 treatments with equal replication in a Randomized Complete Block Design to have 15 error degrees of freedom is

[Question ID = 761][Question Description = 141_32_STS_AUG22_Q41]

1. 22 [Option ID = 3041]
2. 24 [Option ID = 3042]
3. 20 [Option ID = 3043]
4. 18 [Option ID = 3044]

42) If in an experiment with Randomized Complete Block Design extra replication is added, then it will lead to

[Question ID = 762][Question Description = 142_32_STS_AUG22_Q42]

1. Increase in error degrees of freedom [Option ID = 3045]
2. decrease in error degrees of freedom [Option ID = 3046]
3. no change in error degrees of freedom [Option ID = 3047]
4. change in treatment degrees of freedom [Option ID = 3048]

43) To test $H_0: \sigma^2 = \sigma_0^2$, which of the following test is used ?

[Question ID = 763][Question Description = 143_32_STS_AUG22_Q43]

1. Z test [Option ID = 3049]
2. *t* test [Option ID = 3050]
3. chi square test [Option ID = 3051]
4. F test [Option ID = 3052]

44) SRSWOR stands for[Question ID = 764][Question Description = 144_32_STS_AUG22_Q44]

1. Simple random sampling with over replacement [Option ID = 3053]
2. Simple random sampling without replacement [Option ID = 3054]
3. Systematic random sampling with over replacement [Option ID = 3055]
4. Systematic random sampling without replacement [Option ID = 3056]

45) Correlation coefficient between two variables X and Y is 0.5. Then the correlation coefficient between 5X - 0.5 and 2Y - 0.5 is[Question ID = 765][Question Description = 145_32_STS_AUG22_Q45]

1. 0 [Option ID = 3057]
2. -1 [Option ID = 3058]
3. 1 [Option ID = 3059]
4. 0.5 [Option ID = 3060]

46) The full form of acronym LSD in the field of design and analysis of experiments is

[Question ID = 766][Question Description = 146_32_STS_AUG22_Q46]

1. least standardized difference [Option ID = 3061]
2. least significant deviation [Option ID = 3062]
3. least significant difference [Option ID = 3063]
4. linear significant deviation [Option ID = 3064]

47) Which of the following is true for a completely randomized design?[Question ID = 767][Question Description = 147_32_STS_AUG22_Q47]

1. Number of replications of treatments is always same [Option ID = 3065]
2. Number of replications of treatments is always same and is equal to 3 [Option ID = 3066]
3. Number of replications of treatments need not be same [Option ID = 3067]
4. Number of replications of treatments is always less than number of treatments [Option ID = 3068]

48) In an experiment with randomized complete block design, there are 10 treatments and error degrees of freedom is 18. Then the number of blocks in the design is[Question ID = 768][Question Description = 148_32_STS_AUG22_Q48]

1. 8 [Option ID = 3069]
2. 2 [Option ID = 3070]
3. 4 [Option ID = 3071]
4. 3 [Option ID = 3072]

49) The empirical rule states that ..... of data observed following a Normal distribution lies within three standard deviations of the mean.

[Question ID = 769][Question Description = 149_32_STS_AUG22_Q49]

1. 68% [Option ID = 3073]
2. 99.7% [Option ID = 3074]
3. 99% [Option ID = 3075]
4. 0.3% [Option ID = 3076]

50) If a number "□" appears the maximum number (X) of times in a dataset, then X is called the

[Question ID = 770][Question Description = 150_32_STS_AUG22_Q50]

1. Mean [Option ID = 3077]
2. Median [Option ID = 3078]
3. Frequency [Option ID = 3079]
4. Mode [Option ID = 3080]

51) Which type of graph can we use to compare frequency distributions of several groups simultaneously?

[Question ID = 771][Question Description = 151_32_STS_AUG22_Q51]

1. A histogram [Option ID = 3081]
2. A bar chart [Option ID = 3082]
3. A population pyramid [Option ID = 3083]
4. A boxplot [Option ID = 3084]

52) The mean of 25 observations is 40. The mean of the first 13 observations is 38 and that of the last 13 observations is 43. What is the value of the 13^{th} observation?

[Question ID = 772][Question Description = 152_32_STS_AUG22_Q52]

1. 51 [Option ID = 3085]
2. 40 [Option ID = 3086]
3. 43 [Option ID = 3087]
4. 53 [Option ID = 3088]

53) The mean of 9 observations is 25. One more observation is included and the new mean becomes 27. The 10^{th} observation is

[Question ID = 773][Question Description = 153_32_STS_AUG22_Q53]

1. 54 [Option ID = 3089]
2. 44 [Option ID = 3090]
3. 45 [Option ID = 3091]
4. 46 [Option ID = 3092]

54) The variance of a constant 'x' is

[Question ID = 774][Question Description = 154_32_STS_AUG22_Q54]

1. 1 [Option ID = 3093]
2. x [Option ID = 3094]
3. x^2 [Option ID = 3095]
4. 0 [Option ID = 3096]

55) The Harmonic Mean of the series 1, 2, 4 is

[Question ID = 775][Question Description = 155_32_STS_AUG22_Q55]

1. 5 [Option ID = 3097]
2. 7 [Option ID = 3098]
3. 7/5 [Option ID = 3099]
4. 12/7 [Option ID = 3100]

56) Which is the appropriate measure of central tendency to find the average speed of a journey ?

[Question ID = 776][Question Description = 156_32_STS_AUG22_Q56]

1. Mean [Option ID = 3101]
2. Geometric Mean [Option ID = 3102]
3. Harmonic Mean [Option ID = 3103]
4. Weighted Mean [Option ID = 3104]

57) The probability that a student passes the Physics test is 2/3 and the probability that he passes both the Physics test and English test is 14/45. The probability that he passes at least one test is 4/5. What is the probability that he passes the English test?

[Question ID = 777][Question Description = 157_32_STS_AUG22_Q57]

1. 9/4

   [Option ID = 3105]
2. 5/6

   [Option ID = 3106]
3. 5/9

   [Option ID = 3107]
4. 4/9

   [Option ID = 3108]

58) Which of the following is not a measure of central tendency ?

[Question ID = 778][Question Description = 158_32_STS_AUG22_Q58]

1. Median [Option ID = 3109]
2. Mode [Option ID = 3110]
3. Range [Option ID = 3111]
4. Harmonic Mean [Option ID = 3112]

59) If 'x' is the mean of Poisson Distribution, then P(0) is given by

[Question ID = 779][Question Description = 159_32_STS_AUG22_Q59]

1. exp(-x) [Option ID = 3113]
2. exp(x) [Option ID = 3114]
3. exp (x^2) [Option ID = 3115]
4. x [Option ID = 3116]

60) The mean and variance of a Binomial distribution are 4 and 4/3 respectively. The parameters of the distribution are

[Question ID = 780][Question Description = 160_32_STS_AUG22_Q60]

1. n=3 p=2/3 [Option ID = 3117]
2. n=6 q=2/3 [Option ID = 3118]
3. n=6 p=2/3 [Option ID = 3119]
4. n=3 p=1/3 [Option ID = 3120]

61) The value of variance for Binomial distribution is maximum if

[Question ID = 781][Question Description = 161_32_STS_AUG22_Q61]

1. p=0.75 or q=0.75 [Option ID = 3121]
2. p>q [Option ID = 3122]
3. p=q [Option ID = 3123]
4. p=2q [Option ID = 3124]

62) Poisson distribution is applied for

[Question ID = 782][Question Description = 162_32_STS_AUG22_Q62]

1. Continuous data [Option ID = 3125]
2. Nominal data [Option ID = 3126]
3. Ordinal data [Option ID = 3127]
4. Discrete data [Option ID = 3128]

63) If you have a negatively skewed distribution, then

[Question ID = 783][Question Description = 163_32_STS_AUG22_Q63]

1. The mean, median and mode are equal. [Option ID = 3129]
2. The right-hand tail is extended. [Option ID = 3130]
3. The left-hand tail is extended. [Option ID = 3131]
4. The distribution is uniform. [Option ID = 3132]

64) A and B play a game in which their chances of winning are in the ratio of 3:2. Find A's chance of winning at least four games out of five.[Question ID = 784][Question Description = 164_32_STS_AUG22_Q64]

1. 0.6825 [Option ID = 3133]
2. 0.3 [Option ID = 3134]
3. 0.3369 [Option ID = 3135]
4. 0.231 [Option ID = 3136]

65) An unbiased coin is tossed 1000 times. Head turns up the first 999 times. What is the probability that head turns up at

the 1000th toss again?

[Question ID = 785][Question Description = 165_32_STS_AUG22_Q65]

1. 1 [Option ID = 3137]
2. 0 [Option ID = 3138]
3. 0.5 [Option ID = 3139]
4. 1/1000 [Option ID = 3140]

66) In a Binomial distribution consisting of 5 independent trials, probabilities of 1 and 2 successes are 0.4096 and 0.2048 respectively. Find "*p*", the probability of success.[Question ID = 786][Question Description = 166_32_STS_AUG22_Q66]

1. 4/5 [Option ID = 3141]
2. 1/5 [Option ID = 3142]
3. 3/5 [Option ID = 3143]
4. 2/5 [Option ID = 3144]

67) A man is known to speak the truth 2 out of 3 times. He throws a die and reports that the number obtained is a four. Find the probability that the number obtained is actually a four.[Question ID = 787][Question Description = 167_32_STS_AUG22_Q67]

1. 5/12 [Option ID = 3145]
2. 7/18 [Option ID = 3146]
3. 2/7 [Option ID = 3147]
4. 2/5 [Option ID = 3148]

68) The geometric mean of 144 and 1 is

[Question ID = 788][Question Description = 168_32_STS_AUG22_Q68]

1. 12 [Option ID = 3149]
2. 72.5 [Option ID = 3150]
3. 15 [Option ID = 3151]
4. 12.1 [Option ID = 3152]

69) Which one of the following is not affected by extreme values?

[Question ID = 789][Question Description = 169_32_STS_AUG22_Q69]

1. Variance [Option ID = 3153]
2. Range [Option ID = 3154]
3. Mean [Option ID = 3155]
4. Median [Option ID = 3156]

70) The mean of ten numbers is 68. If one of the numbers is 50, what is the mean of the other nine?[Question ID = 790] [Question Description = 170_32_STS_AUG22_Q70]

1. 69 [Option ID = 3157]
2. 68 [Option ID = 3158]
3. 70 [Option ID = 3159]
4. 71 [Option ID = 3160]

71) If we are to find the probability that 5 defective fuses will be found in a box of 200 fuses and experience shows that 2 per cent of such fuses are defective. Which distribution will be employed?

[Question ID = 791][Question Description = 171_32_STS_AUG22_Q71]

1. Chi-square

   [Option ID = 3161]
2. Normal

   [Option ID = 3162]
3. t

   [Option ID = 3163]
4. Poisson

   [Option ID = 3164]

72) The harmonic mean for data 2, 5, 7, and 9 is

[Question ID = 792][Question Description = 172_32_STS_AUG22_Q72]

1. 4.19 [Option ID = 3165]
2. 4.91 [Option ID = 3166]
3. 0.953 [Option ID = 3167]
4. 1.049 [Option ID = 3168]

73) If $z = r \operatorname{cis}\theta$ is a complex number, where $\operatorname{cis}\theta = \cos\theta + i\sin\theta$, then for any $n \in Q$ (Q is the set of rational numbers), $(\operatorname{cis}\theta)^{-n}$ is equal to

[Question ID = 793][Question Description = 173_32_STS_AUG22_Q73]

1. $\cos n\theta + \sin n\theta$

   [Option ID = 3169]
2. $\cos n\theta - i\sin n\theta$

   [Option ID = 3170]
3. $\cos n\theta - \sin n\theta$

   [Option ID = 3171]
4. $\cos n\theta + i\sin n\theta$

   [Option ID = 3172]

74) If $\langle a_n \rangle = \langle 2n \rangle$ and $\langle b_n \rangle = \langle 1 + \frac{1}{n} \rangle$ be two sequences, then

[Question ID = 794][Question Description = 174_32_STS_AUG22_Q74]

1. both $\langle a_n \rangle$ and $\langle b_n \rangle$ are convergent.

   [Option ID = 3173]
2. both $\langle a_n \rangle$ and $\langle b_n \rangle$ are divergent.

   [Option ID = 3174]
3. $\langle a_n \rangle$ is convergent but $\langle b_n \rangle$ is divergent.

   [Option ID = 3175]
4. $\langle a_n \rangle$ is divergent but $\langle b_n \rangle$ is convergent.

   [Option ID = 3176]

75) If the eigenvalues of a matrix A are $\lambda_1, \lambda_2, \ldots, \lambda_n$ with corresponding eigenvectors $x_1, x_2, \ldots, x_n$, then ${\lambda_1}^m, {\lambda_2}^m, \ldots, {\lambda_n}^m$ are eigenvalues of A^m with corresponding eigenvectors

[Question ID = 795][Question Description = 175_32_STS_AUG22_Q75]

1. ${x_1}^m, {x_2}^m, \ldots, {x_n}^m$

   [Option ID = 3177]
2. ${x_1}^n, {x_2}^n, \ldots, {x_n}^n$

   [Option ID = 3178]
3. $x_1, x_2, \ldots, x_n$

   [Option ID = 3179]
4. ${x_1}^{mn}, {x_2}^{mn}, \ldots, {x_n}^{mn}$

   [Option ID = 3180]

76) The equation of the bisectors of the angles between the straight lines given by $2x^2 - 3xy + y^2 = 0$ is

[Question ID = 796][Question Description = 176_32_STS_AUG22_Q76]

1. $2x^2 - 3xy - 2y^2 = 0$

   [Option ID = 3181]
2. $2x^2 + 3xy - 2y^2 = 0$

   [Option ID = 3182]
3. $3x^2 + 2xy - 3y^2 = 0$

   [Option ID = 3183]
4. $3x^2 - 2xy + 3y^2 = 0$

   [Option ID = 3184]

77) Let W_1 and W_2 be two subsets of vector space R^2 (the space of all vectors of the form $\begin{bmatrix} x \\ y \end{bmatrix}$, x and y are real numbers), with the usual operations of vector addition and scalar multiplication, where W_1 is the set of all vectors of the form $\begin{bmatrix} x \\ y \end{bmatrix}$, where $x \geq 0$, and W_2 is the set of all vectors of the form $\begin{bmatrix} x \\ y \end{bmatrix}$, where $x \geq 0$, $y \geq 0$. Then

[Question ID = 797][Question Description = 177_32_STS_AUG22_Q77]

1. neither W_1 nor W_2 is a subspace of R^2.

   [Option ID = 3185]
2. both W_1 and W_2 are subspaces of R^2.

   [Option ID = 3186]
3. W_1 is a subspace of R^2 but W_2 is not a subspace of R^2.

   [Option ID = 3187]
4. W_1 is not a subspace of R^2 but W_2 is a subspace of R^2.

   [Option ID = 3188]

78) Consider two pairs of vectors,
P_1: $(2,-3,1)$ and $(1,2,4)$,

P_2: $(4,2,-1)$ and $(2,1,-1)$. Then

[Question ID = 798][Question Description = 178_32_STS_AUG22_Q78]

1. P_1 is not orthogonal but P_2 is orthogonal.

   [Option ID = 3189]
2. P_1 is orthogonal but P_2 is not orthogonal.

   [Option ID = 3190]
3. both P_1 and P_2 are orthogonal.

   [Option ID = 3191]
4. neither P_1 nor P_2 is orthogonal.

   [Option ID = 3192]

79) Let A and B be two non-empty sets. Then $(A \cup B)^c$ is equal to

[Question ID = 799][Question Description = 179_32_STS_AUG22_Q79]

1. $A \cap B$

   [Option ID = 3193]
2. $A^c \cap B^c$

   [Option ID = 3194]
3. $A \cup B$

   [Option ID = 3195]
4. $A^c \cup B^c$

   [Option ID = 3196]

80) For non-zero distinct complex numbers z_1 and z_2,

[Question ID = 800][Question Description = 180_32_STS_AUG22_Q80]

1. $|z_1+z_2|^2+|z_1-z_2|^2=2(|z_1|^2-|z_2|^2)$

   [Option ID = 3197]
2. $|z_1+z_2|^2+|z_1-z_2|^2=|z_1|^2-|z_2|^2$

   [Option ID = 3198]
3. $|z_1+z_2|^2+|z_1-z_2|^2=2(|z_1|^2+|z_2|^2)$

[Option ID = 3199]

4. $|z_1+z_2|^2+|z_1-z_2|^2=|z_1|^2+|z_2|^2$

[Option ID = 3200]

81) The harmonic series of order p, $\sum_{n=1}^{\infty}\frac{1}{n^p}=\frac{1}{1^p}+\frac{1}{2^p}+\frac{1}{3^p}+\cdots\infty$

[Question ID = 801][Question Description = 181_32_STS_AUG22_Q81]

1. converges for $p=1$

[Option ID = 3201]

2. converges for $p<1$

[Option ID = 3202]

3. converges for $p>1$

[Option ID = 3203]

4. converges for all values of p

[Option ID = 3204]

82) If $A=\begin{bmatrix}a & 0 & 0\\ b & a & 0\\ c & d & \lambda\end{bmatrix}$, then the eigenvalues of A are

[Question ID = 802][Question Description = 182_32_STS_AUG22_Q82]

1. b,c,d

[Option ID = 3205]

2. $b-a,c-a,d-a$

[Option ID = 3206]

3. $-b,-a,-\lambda$

[Option ID = 3207]

4. a,a,λ

[Option ID = 3208]

83) The equation of the circle passing through the points $(2,1)$, $(-1,2)$ and $(0,3)$ is

[Question ID = 803][Question Description = 183_32_STS_AUG22_Q83]

1. $x^2-y^2-x-3y=0$

[Option ID = 3209]

2. $x^2+y^2+x+3y=0$

[Option ID = 3210]

3. $x^2-y^2-x+3y=0$

[Option ID = 3211]

4. $x^2+y^2-x-3y=0$

[Option ID = 3212]

84) If ω is a complex 4^{th} root of unity, then $1+\omega+\omega^2+\omega^3$ is equal to

[Question ID = 804][Question Description = 184_32_STS_AUG22_Q84]

1. i [Option ID = 3213]
2. -1 [Option ID = 3214]
3. 1 [Option ID = 3215]
4. 0 [Option ID = 3216]

85) Let $A=\begin{bmatrix}0 & 1\\ 0 & 3\\ 5 & 6\end{bmatrix}$, $B=\begin{bmatrix}-1 & 0\\ 3 & 5\\ 2 & 6\end{bmatrix}$, $C=\begin{bmatrix}-4 & 0\\ 3 & 2\end{bmatrix}$, and $D=\begin{bmatrix}5 & 0\\ -2 & 1\end{bmatrix}$, then $AC-BD$ is

[Question ID = 805][Question Description = 185_32_STS_AUG22_Q85]

1. not defined [Option ID = 3217]
2. $\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$

   [Option ID = 3218]
3. $\begin{bmatrix}8 & 4 & 0\\2 & 1 & 6\end{bmatrix}$

   [Option ID = 3219]
4. $\begin{bmatrix}8 & 2\\4 & 1\\0 & 6\end{bmatrix}$

   [Option ID = 3220]

86) The equation of the chord of the parabola $x^2 = 2y$ with $(2, 3)$ as the midpoint of the chord is

[Question ID = 806][Question Description = 186_32_STS_AUG22_Q86]

1. $2x - y + 1 = 0$

   [Option ID = 3221]
2. $2x + y - 1 = 0$

   [Option ID = 3222]
3. $2x - y - 1 = 0$

   [Option ID = 3223]
4. $2x + y + 1 = 0$

   [Option ID = 3224]

87) $\sum_{n=1}^{\infty} u_n = \sum_{n=1}^{\infty} \frac{n!}{n^n}$ and $\sum_{n=1}^{\infty} v_n = \sum_{n=1}^{\infty} \frac{n^2}{3^n}$ are two infinite series, then

[Question ID = 807][Question Description = 187_32_STS_AUG22_Q87]

1. both $\sum_{n=1}^{\infty} u_n$ and $\sum_{n=1}^{\infty} v_n$ are divergent.

   [Option ID = 3225]
2. $\sum_{n=1}^{\infty} u_n$ is convergent but $\sum_{n=1}^{\infty} v_n$ is divergent.

   [Option ID = 3226]
3. $\sum_{n=1}^{\infty} u_n$ is divergent but $\sum_{n=1}^{\infty} v_n$ is convergent.

   [Option ID = 3227]
4. both $\sum_{n=1}^{\infty} u_n$ and $\sum_{n=1}^{\infty} v_n$ are convergent.

   [Option ID = 3228]

88) The equation of the chord of the ellipse $2x^2 + 3y^2 = 5$ bisected at $(1, 1)$ is

[Question ID = 808][Question Description = 188_32_STS_AUG22_Q88]

1. $\frac{2}{5}x + \frac{1}{5}y = 1$

   [Option ID = 3229]
2. $\frac{2}{5}x + \frac{3}{5}y = 1$

   [Option ID = 3230]
3. $\frac{3}{5}x + \frac{2}{5}y = 1$

   [Option ID = 3231]
4. $\frac{1}{5}x + \frac{2}{5}y = 1$

   [Option ID = 3232]

89) If A is a non-singular matrix of order $n \times n$ and A^t is its transpose, then

[Question ID = 809][Question Description = 189_32_STS_AUG22_Q89]

1. $|A^t| = \frac{1}{|A|}$

[Option ID = 3233]
2. $|A^{-1}| = |A|$

[Option ID = 3234]
3. $|AA^{-1}| = 0$

[Option ID = 3235]
4. $|A^{-1}A^tA| = |A|$

[Option ID = 3236]

90) In a positive term series $\sum_{n=1}^{\infty} u_n$, if $\lim_{n\to\infty} n\left[\frac{u_n}{u_{n+1}} - 1\right] = k$, then the series

[Question ID = 810][Question Description = 190_32_STS_AUG22_Q90]
1. converges for $k < 1$

[Option ID = 3237]
2. converges for $k > 1$

[Option ID = 3238]
3. converges for all values of k

[Option ID = 3239]
4. does not converge for any value of k

[Option ID = 3240]

91) The length of the chord intercepted on the line $y = x + 1$ by the hyperbola $2x^2 - y^2 = 2$ is

[Question ID = 811][Question Description = 191_32_STS_AUG22_Q91]
1. $4\sqrt{2}$ units

[Option ID = 3241]
2. $4\sqrt{3}$ units

[Option ID = 3242]
3. $2\sqrt{3}$ units

[Option ID = 3243]
4. $2\sqrt{2}$ units

[Option ID = 3244]

92) If $A = \begin{bmatrix} 3 & 0 & 0 & 0 & 0 \\ 2 & -1 & 0 & 0 & 0 \\ 1 & 7 & 0 & 0 & 0 \\ -10 & 3 & 2 & 4 & 0 \\ 3 & 0 & 0 & 1 & 5 \end{bmatrix}$ is a square matrix of order 5×5 , then A^{-1} is equal to

[Question ID = 812][Question Description = 192_32_STS_AUG22_Q92]
1. $2A$

[Option ID = 3245]
2. A

[Option ID = 3246]
3. does not exist [Option ID = 3247]
4. $\frac{1}{2}A$

[Option ID = 3248]

93) The series $\sum_{n=2}^{\infty} \frac{(-1)^n}{n\,(\log n)^2}$ is

[Question ID = 813][Question Description = 193_32_STS_AUG22_Q93]

1. both convergent and absolutely convergent.

   [Option ID = 3249]
2. neither convergent nor absolutely convergent.

   [Option ID = 3250]
3. convergent but not absolutely convergent.

   [Option ID = 3251]
4. absolutely convergent but not convergent.

   [Option ID = 3252]

94) For what values of λ, the following system of equations has nontrivial solution,

$$(1-\lambda)x_1 + 6x_2 = 0$$
$$5x_1 + (2-\lambda)x_2 = 0$$

[Question ID = 814][Question Description = 194_32_STS_AUG22_Q94]

1. 5, - 6 [Option ID = 3253]
2. 5, 6 [Option ID = 3254]
3. - 7, 4 [Option ID = 3255]
4. 7, - 4 [Option ID = 3256]

95) If $S_1 = \left\{\begin{bmatrix}1\\2\\1\end{bmatrix}, \begin{bmatrix}0\\1\\1\end{bmatrix}, \begin{bmatrix}2\\0\\1\end{bmatrix}\right\}$ and $S_2 = \left\{\begin{bmatrix}1\\2\\3\end{bmatrix}, \begin{bmatrix}0\\1\\2\end{bmatrix}, \begin{bmatrix}3\\0\\-1\end{bmatrix}\right\}$ are two subsets of R^3, then

[Question ID = 815][Question Description = 195_32_STS_AUG22_Q95]

1. S_1 is linearly independent but S_2 is linearly dependent.

   [Option ID = 3257]
2. S_1 is linearly dependent but S_2 is linearly independent.

   [Option ID = 3258]
3. S_1 is linearly independent and S_2 is also linearly independent.

   [Option ID = 3259]
4. S_1 is linearly dependent and S_2 is also linearly dependent.

   [Option ID = 3260]

96) If $A = \begin{bmatrix}1 & 2 & 3 & 4\\-1 & -1 & -4 & -2\\3 & 4 & 11 & 8\end{bmatrix}$, then rank of A is

[Question ID = 816][Question Description = 196_32_STS_AUG22_Q96]

1. 3 [Option ID = 3261]
2. 2 [Option ID = 3262]
3. 1 [Option ID = 3263]
4. 4 [Option ID = 3264]

97) The value of $\lim_{x\to 0^+} x^{\sin x}$ is given by

[Question ID = 817][Question Description = 197_32_STS_AUG22_Q97]

1. 1

   [Option ID = 3265]
2. 0

   [Option ID = 3266]
3. e

   [Option ID = 3267]
4. $\ln \sin x$

[Option ID = 3268]

98) The value of constants A, B, C and D which guarantee that the graph of the function $f(x) = Ax^3 + Bx^2 + Cx + D$ will have a relative maximum at $(-1, 1)$ and a relative minimum at $(1, -1)$ is given by

[Question ID = 818][Question Description = 198_32_STS_AUG22_Q98]

1. $A = -\frac{1}{2}, B = 0, C = \frac{3}{2}, D = 0$

[Option ID = 3269]

2. $A = \frac{1}{2}, B = 0, C = -\frac{3}{2}, D = 0$

[Option ID = 3270]

3. $A = 0, B = \frac{1}{2}, C = 0, D = -\frac{3}{2}$

[Option ID = 3271]

4. $A = 0,\ B = -\frac{1}{2}, C = 0, D = \frac{3}{2}$

[Option ID = 3272]

99) If $z = x^2 \sin(3x + y^3)$, then the value of $\frac{\partial z}{\partial y}$ at the point $(1, 1)$ is given by

[Question ID = 819][Question Description = 199_32_STS_AUG22_Q99]

1. $4 \sin 3$

[Option ID = 3273]

2. $3 \sin 4$

[Option ID = 3274]

3. $4 \cos 3$

[Option ID = 3275]

4. $3 \cos 4$

[Option ID = 3276]

100) The ellipse $x = a \cos t$, $y = b \sin t$, $a > b > 0$, has its largest curvature on its

[Question ID = 820][Question Description = 200_32_STS_AUG22_Q100]

1. major axis [Option ID = 3277]
2. minor axis [Option ID = 3278]
3. foci [Option ID = 3279]
4. center [Option ID = 3280]

101) The value of c between 0 and 2 so that the function $f(x) = 1 - x^2$ satisfies the hypotheses of Mean Value Theorem on the interval $[0, 2]$ is

[Question ID = 821][Question Description = 201_32_STS_AUG22_Q101]

1. $c = 1$

[Option ID = 3281]

2. $c = -1$

[Option ID = 3282]

3. $c = \frac{1}{2}$

[Option ID = 3283]

4. $c = -\frac{1}{2}$

[Option ID = 3284]

102) If $u = x^2\tan^{-1}\frac{y}{x} - y^2\tan^{-1}\frac{x}{y}$, then the value of $\frac{\partial^2 u}{\partial x \partial y}$ is given by

[Question ID = 822][Question Description = 202_32_STS_AUG22_Q102]

1. $\frac{x^2-y^2}{x^2+y^2}$

   [Option ID = 3285]
2. $\frac{x-y}{x+y}$

   [Option ID = 3286]
3. $\frac{x^2+y^2}{x^2-y^2}$

   [Option ID = 3287]
4. $\frac{x+y}{x-y}$

   [Option ID = 3288]

103) The value of $\int \sqrt{\sin x}\ \cos^5 x\, dx$ is given by

[Question ID = 823][Question Description = 203_32_STS_AUG22_Q103]

1. $\frac{2}{3}\sin^{3/2}x + \frac{4}{7}\sin^{7/2}x - \frac{2}{11}\sin^{11/2}x + C$

   [Option ID = 3289]
2. $-\frac{2}{3}\sin^{3/2}x - \frac{4}{7}\sin^{7/2}x + \frac{2}{11}\sin^{11/2}x + C$

   [Option ID = 3290]
3. $\frac{2}{3}\sin^{3/2}x - \frac{4}{7}\sin^{7/2}x + \frac{2}{11}\sin^{11/2}x + C$

   [Option ID = 3291]
4. $-\frac{2}{3}\sin^{3/2}x - \frac{4}{7}\sin^{7/2}x - \frac{2}{11}\sin^{11/2}x + C$

   [Option ID = 3292]

104) The value of $\int_{-1}^{1} 3x^2\sqrt{x^3+1}\, dx$ is given by

[Question ID = 824][Question Description = 204_32_STS_AUG22_Q104]

1. $\frac{4\sqrt{2}}{3}$

   [Option ID = 3293]
2. $\frac{3\sqrt{2}}{4}$

   [Option ID = 3294]
3. $\frac{3\sqrt{3}}{4}$

   [Option ID = 3295]
4. $\frac{4\sqrt{3}}{3}$

   [Option ID = 3296]

105) The value of $\iint_R x\cos xy\, dy\, dx$ over the rectangle $R = \left\{(x,y): 0 \le x \le \frac{\pi}{2},\ 0 \le y \le 1\right\}$ is given by

[Question ID = 825][Question Description = 205_32_STS_AUG22_Q105]

1. 0 [Option ID = 3297]
2. $\frac{\pi}{2}$

   [Option ID = 3298]
3. 1 [Option ID = 3299]
4. $\frac{1}{2}$

[Option ID = 3300]

106) If $\Gamma(n) = \int_0^\infty e^{-x}x^{n-1}dx$, $(n > 0)$ then the value of $\Gamma\left(\frac{1}{2}\right)$ is given by

[Question ID = 826][Question Description = 206_32_STS_AUG22_Q106]

1. $\frac{\pi}{3}$

[Option ID = 3301]

2. $\sqrt{\frac{\pi}{2}}$

[Option ID = 3302]

3. $\sqrt[3]{\pi}$

[Option ID = 3303]

4. $\sqrt{\pi}$

[Option ID = 3304]

107) The solution of the initial value problem $\frac{dy}{dx} = 4x^3y - y; y(1) = -3$ is given by

[Question ID = 827][Question Description = 207_32_STS_AUG22_Q107]

1. $y = -3e^{(x^4-x)}$

[Option ID = 3305]

2. $y = 3e^{(x^4-x)}$

[Option ID = 3306]

3. $y = 4e^{(x^3-x)}$

[Option ID = 3307]

4. $y = -4e^{(x^3-x)}$

[Option ID = 3308]

108) The one parameter family of solutions of the differential equation $(3x^2 + 4xy)dx + (2x^2 + 2y)dy = 0$ is given by

[Question ID = 828][Question Description = 208_32_STS_AUG22_Q108]

1. $x^3 + x^2y + 2y^2 = C$

[Option ID = 3309]

2. $x^3 + 2x^2y + y^2 = C$

[Option ID = 3310]

3. $2x^3 + x^2y + y^2 = C$

[Option ID = 3311]

4. $x^3 - x^2y - 2y^2 = C$

[Option ID = 3312]

109) The general solution of $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$ is given by

[Question ID = 829][Question Description = 209_32_STS_AUG22_Q109]

1. $y(x) = C_1 + C_2e^{-2x}$

[Option ID = 3313]

2. $y(x) = C_1 + C_2e^{-x}$

[Option ID = 3314]

3. $y(x) = C_1 + C_2e^{2x}$

[Option ID = 3315]

4. $y(x) = C_1 + C_2 e^x$

[Option ID = 3316]

110) If the interval of differencing being unity and Δ be the forward difference operator then the value of $\Delta^n(e^x)$ is given by

[Question ID = 830][Question Description = 210_32_STS_AUG22_Q110]

1. $(e-1)e^{nx}$

[Option ID = 3317]

2. $(e-1)^n e^x$

[Option ID = 3318]

3. $(e+1)^n e^x$

[Option ID = 3319]

4. $(e+1)e^{nx}$

[Option ID = 3320]

111) The convergence of Newton's Raphson Method used to solve simple non-linear equation is[Question ID = 831] [Question Description = 211_32_STS_AUG22_Q111]

1. linear [Option ID = 3321]
2. cubic [Option ID = 3322]
3. quadratic [Option ID = 3323]
4. biquadratic [Option ID = 3324]

112) For numerical integration, the method used is[Question ID = 832][Question Description = 212_32_STS_AUG22_Q112]

1. Newton-Raphson Rule [Option ID = 3325]
2. Shift Operator Rule [Option ID = 3326]
3. Simpson's $1/3^{rd}$ Rule

[Option ID = 3327]

4. Averaging Operator Rule [Option ID = 3328]

113) The horizontal asymptote to the graph of the function $f(x) = \frac{3x+5}{7-x}$ is given by

[Question ID = 833][Question Description = 213_32_STS_AUG22_Q113]

1. $y = 3$

[Option ID = 3329]

2. $y = -3$

[Option ID = 3330]

3. $y = 5$

[Option ID = 3331]

4. $y = 7$

[Option ID = 3332]

114) The solution to the initial value problem $x\frac{dy}{dx} = y + \sqrt{x^2 - y^2}; y(x_0) = 0$, where $x_0 > 0$ is given by

[Question ID = 834][Question Description = 214_32_STS_AUG22_Q114]

1. $y(x) = x \sin\left(\frac{x}{x_0}\right)$

[Option ID = 3333]

2. $y(x) = x \cos\left(\ln\frac{x}{x_0}\right)$

[Option ID = 3334]

3. $y(x) = x\cos\left(\frac{x}{x_0}\right)$

[Option ID = 3335]

4. $y(x) = x\sin\left(\ln\frac{x}{x_0}\right)$

[Option ID = 3336]

115) If A is any real number and r is a positive rational number such that x^r is defined for $x < 0$, then the value of $\lim_{x\to-\infty}\frac{A}{x^r}$ is given by

[Question ID = 835][Question Description = 215_32_STS_AUG22_Q115]

1. 0 [Option ID = 3337]
2. 1 [Option ID = 3338]
3. -1 [Option ID = 3339]
4. e^{-1}

[Option ID = 3340]

116) Let $z = x^2 + y^2$, $x = \frac{1}{t}$ and $y = t^2$, then the value of $\frac{dz}{dt}$ is given by

[Question ID = 836][Question Description = 216_32_STS_AUG22_Q116]

1. $2t^{-3} + 4t^3$

[Option ID = 3341]

2. $-2t^{-3} - 4t^3$

[Option ID = 3342]

3. $-2t^{-3} + 4t^3$

[Option ID = 3343]

4. $2t^{-3} - 4t^3$

[Option ID = 3344]

117) Let $f(t)$ be continuous on the interval $[a,b]$ and define the function G as $G(x) = \int_a^x f(t)dt$ for $a \le x \le b$, then

[Question ID = 837][Question Description = 217_32_STS_AUG22_Q117]

1. $G'(x) = f(x)$ on $[a,b]$

[Option ID = 3345]

2. $G'(x) = f'(x)$ on $[a,b]$

[Option ID = 3346]

3. $G'(x) = f'(a) - f'(b)$ on $[a,b]$

[Option ID = 3347]

4. $G'(x) = f'(b) - f'(a)$ on $[a,b]$

[Option ID = 3348]

118) The relative minimum for the function $g(t) = t - 2\sin t$ for $0 \le t \le 2\pi$ occurs when t is

[Question ID = 838][Question Description = 218_32_STS_AUG22_Q118]

1. $-\frac{\pi}{3}$

[Option ID = 3349]

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

[Option ID = 3350]

3. $\frac{5\pi}{3}$

[Option ID = 3351]

4. $-\frac{5\pi}{3}$

[Option ID = 3352]

119) If u be a homogenous function of degree n in x and y, then $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}=nu$ is the statement of

[Question ID = 839][Question Description = 219_32_STS_AUG22_Q119]

1. Fundamental theorem of algebra [Option ID = 3353]
2. Fundamental theorem of calculus [Option ID = 3354]
3. Leibnitz theorem [Option ID = 3355]
4. Euler's theorem [Option ID = 3356]

120) Clairaut's equation is given by

[Question ID = 840][Question Description = 220_32_STS_AUG22_Q120]

1. $y=x\frac{dy}{dx}+f\left(\frac{dy}{dx}\right)$

[Option ID = 3357]

2. $y=x\,f\left(\frac{dy}{dx}\right)+\frac{dy}{dx}$

[Option ID = 3358]

3. $y=x\frac{d^2y}{dx^2}+f\left(\frac{dy}{dx}\right)$

[Option ID = 3359]

4. $y=x\,f\left(\frac{dy}{dx}\right)+\frac{d^2y}{dx^2}$

[Option ID = 3360]