PAPER CODE : 3636

B.Sc. Semester III (Old Course)

JULY-SEP-2021

Mathematics

ES MAT 21 - Business Mathematics I

કુલ સમય :– ૩૦ મીનીટ કુલ પ્રશ્નો : ૩૫ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૨૫

નોંધ : વિદ્યાર્થીએ માત્ર ૨૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૨૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશ

01. A={2,3,5,7,11,13,17,19,…,2017} and B={30,60,90,…,2010}, then n(P($(A' \cup B')'$)) = __Where U={1,2,3,…,2020}

(A) 0 **(B)** 1 **(C)** 2 **(D)** None of these

02. If n(A)=n(B)=n($A \cup B$)=200 then n($A \cap B$) = _____

(A) 200 **(B)** 201 **(C)** 202 **(D)** 203

03. A= {1,6,9,8,13} and B={2,4,6,8,10} , then n($A \cap$B') =____; B'= Complement of B inUniversal Set {1,2,3,…,15}.

(A) 2 **(B)** 3 **(C)** 4 **(D)** 5

04.U={1,2,3,…,100}and A={2,5,8,23,64,89,91,92,93,100} and B={2,4,6,8,…,100}n[(A-B) ∩ B] =____

(A) 03 **(B)** 06 **(C)** 09 **(D)** None of these.

05. n(S')=_for any Subset S of U.

(A) n(S) **(B)** n(S) **(C)** n(U)-n(S) **(D)** n(S)-n(U)

06. P={1,2,3} and Q={2,3,4} then P Δ Q =_____,Where U={1,2,3,4}

(A) P **(B)** Q **(C)** Empty Set **(D)** None of these.

07. A={x∈ $R|\ \sin(x) = 0$} and B={y∈ $R|\ \cos(y) = 0$} then $A' \cup B'$=_,Where U=R

(A) A **(B)** B **(C)** Empty Set **(D)** R

08. If Statement p has value T then Value of ~p =_____

(A) T **(B)** F **(C)** ~p may not be a Statement **(D)** None of these.

09. The function ((p ∨ (r ∨ q)) ∧ ~(~q ∧ ~r) is equal to the function

(A) q ∨ r **(B)** ((p ∨ r) ∨ q)) ∧ (p ∨ r) **(C)** (p ∧ q) ∨ (p ∧ r) **(D)** (p ∨ q) ∧ ~(p ∨ r)

10.The compound statement "~q implies ~p" is exactly identical to _____

(A) ~p implies q **(B)** p implies ~q **(C)** ~p implies ~q **(D)** p implies q

11. If values of p, q and r are T,T and T respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are___,___ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

12. If values of p, q and r are T,T and F respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are___,___ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

13. If values of p, q and r are T,F and T respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are___,___ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

14. If values of p, q and r are T,F and F respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are___,___ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

15. Values of compound statements "p and ~p" and "p or ~p" are___, respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

16. How many Total Numbers of arrangements of 7 digit number from the digits are1,2,3,4,5,6,7 without repetitions of the digits ?

(A) 5040 **(B)** 67203 **(C)** 15120 **(D)** 823543

17. How many Total Numbers of arrangements of the word "**BUSINESS**" ?

(A) 40320 **(B)** 13440 **(C)** 6720 **(D)** None of these.

18. Total Numbers of positive solutions =_____of the equation $x + y + z = 4$ Where, x, y *and* z *are unknowns.*

(A) 3 **(B)** 4 **(C)** 11 **(D)** 0

19. $\binom{9}{8} + \cdots + \binom{9}{2} + \binom{9}{1} + \binom{9}{0} = __$

(A) 2222 **(B)** 4444 **(C)** 8888 **(D)** None of these.

20. If $nP_5 = 42\ nP_3, n > 4$, then n=_____

(A) 10 **(B)** 11

(C) 12 **(D)** 13

21. If $\frac{nP4}{(n-1)P4} = \frac{5}{3}$, n>4 , then n=

(A) 10 **(B)** 11

(C) 12 **(D)** 13

22. If $5\ 4P_r = 6\ (5P_{r-1})$, then r =_____

(A) 3 **(B)** 8 **(C)**Both Options (A) and (B) are true **(D)** None of these.

23. If $5P_r = 2\ (6P_{r-1})$, then r =_____

(A) 3 **(B)** 4 **(C)** 5 **(D)** 6

24. If $5P_r = (6P_{r-1})$, then r =__

(A) 3 **(B)** 4 **(C)** 5 **(D)** 6

25. How many 5 digit numbers are there with no digit repeated?

(A) 10000 **(B)** 59049 **(C)** 15120 **(D)** 27216

26. If $A \cup B = A \cap$,then

(A) A is an Empty Set **(B)** B is an Empty Set **(C)** A=B **(D)** None of these

27. How many 3 digit even numbers can be formed from the digits 1,2,3,4,5,6 if the digits canbe repeated ?

(A) 108 **(B)** 216 **(C)** 714 **(D)** 720

28. A Coin is tossed 5 times and the outcomes are recorded. How many possible outcomes arethere ?

(A) 32 **(B)** 60 **(C)** 120 **(D)** 10

29. How many 4-letter code can be formed using the first 10 letters of English Alphabets, ifno letter can be repeated ? 10

(A) 24 **(B)** 40 **(C)** 5040 **(D)** 151200

30. If values of p, q and r are T,T and T respectively then value of "$\sim r \wedge (p \rightarrow \sim q)$" and "$p \rightarrow \sim q$" are__,__respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

31. If values of p, q and r are T,T and F respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are__,__ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

32. If values of p, q and r are T,F and T respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are__,__ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

33. If values of p, q and r are T,F and F respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are__,__ respectively.

(A) T,T **(B)** T,F **(C)** F,T **(D)** F,F

34. If values of p, q and r are F,F and T respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are__,__ respectively.

(A) T,T **(B)** T,F

(C) F,T **(D)** F,F

35. If values of p, q and r are F,F and F respectively then value of "$(\sim q \wedge r) \rightarrow (\sim p \vee r)$" and "$\sim q \wedge r$" are__,__ respectively.

(A) T,T **(B)** T,F

(C) F,T **(D)** F,F