F.Y.J.C. ANNUAL EXAMINATION MAY-2021.

FYJC ONLINE EVALUATION-MATHS & STATS

MARKS: 50 TIME: 2 HOURS

NOTE: 1. ALL THE FIELDS ARE COMPULSORY
2. TYPE YOUR FULL NAME, ROLL NUMBER, DIVISION, MOBILE NUMBER AND EMAIL ID
3. CANDIDATE WILL BE DISQUALIFIED IF THE PERSONAL DETAILS GIVEN BY THEM IS INCORRECT
4. SCORES WILL BE PROVIDED IN THE FINAL MARKSHEET
5. EACH QUESTION CARRIES 2 MARKS
6. ALL 25 QUESTIONS NEED TO BE ATTEMPTED
7. USE ROUGH PAPER FOR CALCULATION
8. CLICK ON THE CORRECT OPTION
9. PLEASE USE LAPTOP/COMPUTER FOR COMPLETE VIEW OF THE FORM AND ITS FORMATTING

* Required

1. FULL NAME OF THE STUDENT *

2. ROLL NUMBER *

3. DIVISION *

4. MOBILE NUMBER OF THE STUDENT *

5. EMAIL ID OF THE STUDENT *

6. Q.1 How many two letter words can be formed from the word SPACE when repitition of letters is not allowed *
(2 Points)

- 20 ✓
- 21
- −4
- 25

7. Q.2 In a test that has 5 TRUE/FALSE Questions, no student has got all correct answers and no sequence of answers is repeated. What is the maximum number of students? *
(2 Points)

- 32
- 31 ✓
- 25
- -40

8. Q.3 Evaluate: *
(2 Points)

$\frac{8!}{6!-4!}$

- ○ 36
- ○ $\frac{1681}{29}$
- ○ $\frac{1680}{29}$ ✓
- ○ −5

9. Q.4 SOLVE THE FLLOWING: *
(2 Points)

Find n if $\frac{1}{n!} = \frac{1}{4!} - \frac{4}{5!}$

- ○ 5 ✓
- ○ −5
- ○ 0
- ○ 4

10. Q.5 Determine the number of arrangements of all letters of the word MOBILE *
(2 Points)

- ○ 720 ✓
- ○ 120
- ○ 24
- ○ −5

11. Q.6 The number of arrangements of all letters of the word ALGORITHM such that the vowels are together is *
(2 Points)

- ○ $(7!)\ (3!)$ ✓
- ○ $9!$
- ○ $(6!)\ (2)$
- ○ $(6!)\ (3!)$

12. Q.7 In how many ways can 8 friends sit around a table *
(2 Points)

- ○ $8!$
- ○ $7!$ ✓
- ○ $9!$
- ○ -5

13. Q.8 Find the number of permutation of all letters of the word REPRESENT *
(2 Points)

- ○ $\frac{9!}{(2!)(3!)}$ ✓
- ○ $\frac{9!}{3!}$
- ○ $\frac{9!}{(2!)(4!)}$
- ○ $9!$

14. Q.9 SOLVE: *
(2 Points)

Find the value of $15c_{15}$

- ◯ 1 ✓
- ◯ 0
- ◯ 15!
- ◯ 14!

15. Q.10 Find the number of ways of selecting a team of 3 boys and 2 girls from 6 boys and 4 girls *
(2 Points)

- ◯ 120 ✓
- ◯ 50
- ◯ 4
- ◯ −5

16. Q.11 For a random experiment of tossing three coins n(s) is *
(2 Points)

- ◯ 8 ✓
- ◯ 4
- ◯ 2
- ◯ 32

17. Q.12 A room has three sockets for lamps. From a collection of 10 light bulbs of which 6 are defective a person selects 3 bulbs at random and puts them in the socket. What is the probability that the room is lighted? *
(2 Points)

- ○ $\frac{5}{6}$ ✓
- ○ $\frac{1}{6}$
- ○ $\frac{1}{3}$
- ○ 1

18. Q.13. If A and B are subsets of universal set x ,n(x)=50 n(A)=35 n(B)=20 n(A'∩B')=5 Find n(A∪B) *
(2 Points)

- ○ 45 ✓
- ○ 50
- ○ 10
- ○ 15

19. Q.14. SOLVE: *
(2 Points)

$(x-1,\ y+4) = (1,2)$ *Find x and y*

- ○ $2,\ -2$ ✓
- ○ $0, 2$
- ○ $1,\ 5$
- ○ $0,\ 0$

20. Q.15. Find the value of the determinant: $\begin{bmatrix} 4 & 7 \\ -7 & 0 \end{bmatrix}$ *

(2 Points)

- ◯ 49 ✓
- ◯ −49
- ◯ 0
- ◯ 53

21. Q.16. By performing the property, R2 + (-2) R1 , $\begin{bmatrix} 1 & 1 \\ 2 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 0 & k \end{bmatrix}$

the value of k = ? *

(2 Points)

please read the above equation as $R_2 + (-2)\,R_1$

- ◯ 0 ✓
- ◯ 2
- ◯ 1
- ◯ −1

22. Q.17. SOLVE: *

(2 Points)

If $y = x^5$, *find* $\frac{dy}{dx}$

- ◯ $5x^4$ ✓
- ◯ $5x^3$
- ◯ $5x^2$
- ◯ x^4

23. Q.18. SOLVE: *
(2 Points)

If $y = \frac{x}{\log x}$, *find* $\frac{dy}{dx}$

- ○ $\frac{\log x - 1}{(\log x)^2}$ ✓
- ○ $\frac{\log x + 1}{(\log x)^2}$
- ○ $\frac{1 + \log x}{(\log x)^2}$
- ○ $\frac{1}{(\log x)^2}$

24. Q.19. SOLVE: *
(2 Points)

The value of $Q_1 =$

- ○ $(\frac{N+1}{4})\, ohs$ ✓
- ○ $(\frac{N+1}{2})\, ohs$
- ○ $(\frac{N+1}{10})\, ohs$
- ○ $(\frac{N+1}{100})\, ohs$

25. Q.20 SOLVE: *
(2 Points)

Calculate the S. D (x) *if* $n = 18$, $\sum x^2 = 792$, $\sum x = 108$

- ○ $\sqrt{8}$ ✓
- ○ $\sqrt{2}$
- ○ -4
- ○ 0

26. Q.21. SOLVE: *
(2 Points)

If $n = 7$, $\sum (x - x^{-})^2 = 2660$, *find var* (x)

- ○ 380 ✓
- ○ 381
- ○ 382
- ○ −4

27. Q.22. SOLVE: *
(2 Points)

If $cov(x, x) = 10$, $var(x) =$

- ○ 10 ✓
- ○ 20
- ○ 15
- ○ 11

28. Q.23. From the given information: *
(2 Points)

$\sum (x - x^{-})^2 = 90$, $\sum (x - x^{-})\ (y - y^{-}) = 60$ *and* $r = 0.8$ $6y = 2.5$, *find the number of items*

- ○ 10 ✓
- ○ 20
- ○ 5
- ○ −4

29. Q.24. If the correlation coefficient between x and y is 0.8 *
(2 Points)

If $u = \frac{x-5}{7}$ $v = \frac{y-3}{8}$ *, the correlation coefficient between u and v is*

- ◯ 0.8 ✓
- ◯ 0.5
- ◯ 0.1
- ◯ 5

30. Q.25. SOLVE: *
(2 Points)

If, $f(x) = x^2 + 3$ *for* $x \leq 2$, $f(x) = 5x + 7$ *for* $x > 2$, *Find* $f(2)$

- ◯ 7 ✓
- ◯ 3
- ◯ 17
- ◯ 5