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**HY/APMAAK/1222/C 22-SEP-2022**

**HALF YEARLY EXAMINATION (2022-2023)**

|  |  |
| --- | --- |
| **SUBJECT: Applied Mathematics (ANSWER KEY)**  **GRADE: XII** | **Maximum Marks: 80****Time Allowed: 3 Hours** |

|  |  |
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| **SECTION I** | |
|  | |
| **1.** |  |
| **2.** | A **23** =-7 |
| **3.** |  |
| **4.** |  |
| **5.** | f A ( Adj A) = |
| **6.** |  |
| **7.** | **108** |
| **8** | -1 |
| **9** | ( 5,4) |
| **10** | 11 |
|  | **Section II**  **Each question carries 2marks** |
| **11.** | 2A = 3 B- 5 C + O  2 A = 3 - 5  A =  **OR**  X = Y = |
| **12** | 10√3 sq.cm |
| **13** |  |
| **14** | X=-3 |
| **15** |  |
| **16** |  |
| **17.** | Max=10, Min= -∞ |
| **18** |  |
| **19** |  |
| **20** |  |
|  | **SECTION III** |
| **19.** |  |
| **20.** | A =  **OR**  X = , Y= |
| **21.** |  |
| **22.** | C(x)=24000+2x  R(x)=8x  X=4000 |
| **23.** | A = + |
| **24.** | A -1= = |
|  |  |
| **25.** | We have =          f(x) is increasing on interval  f(x) is decreasing on interval |
| **26.** |  |
| **27.** |  |
| **28.** | 2x-3y+3=0 |
| **29.** |  |
| **30.** | -8/3 ft/sec |
|  | **Section IV**  **All questions are compulsory. In case of internal choice attempt any one**  **Each question carries 3 marks** |
| **31.** | **a, c, c, d, b** |
| **32.** | b, a, d, a, b |
| **33.** |  |
| **34.** | We have,  Maximize, z = 17.5x+7y  Subject to the constraints.  x + 3y ≤ 12  3x + y ≤ 12  x ≥ 0, y ≥ 0     |  |  | | --- | --- | | **Corner points** | **values of z** | |  | 28← | |  | 73.5← Max value | |  | 70 |   Hence, the maximum value of z is 19 at |

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