INDUS RANGERS DEFENCE ACADEMY

4TH Floor Shakumbhari Complex, Chetmani Near: IP Vijaya Mall Bhelupur Varanasi, (U.P.– 221010)

IMU – CET [WEEKLY TEST]

PRACTICE SHEET – 5

Time: 1:30 Hr **M. M.: 240 Marks**

General Instructions:

- There are 60 questions
- All questions have 4 marks for correct and –1 mark for wrong answer as a penalty.
- The name, date, and exam must be filled in OMR sheet otherwise the result will not be published.
- OMR fill should be properly.

[ENGLISH]

1. I checked the answers. Two of _____ were wrong.
   (A) it (B) its (C) them (D) they
2. The postman gave me two letters, so I gave _____ to my mother.
   (A) them (B) its (C) they (D) it
3. The army lost the battle because _____ was not strong.
   (A) they (B) them (C) it (D) its
4. My parents are coming. I'll open the door for _____ .
   (A) they (B) them (C) him (D) her
5. Is this radio _____ ?
   (A) to you (B) of you (C) you (D) yours
6. Give that ball to Tom and me. It _____ .
   (A) is mine (B) is ours (C) is theirs (D) is our
7. We washed _____ and then had our dinner.
   (A) myself (B) himself (C) herself (D) ourselves
8. You must learn to defend _____ , Tom.
   (A) yourself (B) yourselves (C) himself (D) ourselves
9. I cut _____ on that piece of wire.
   (A) himself (B) myself (C) oneself (D) herself
10. I saw the girls, so I spoke to _____ .
    (A) she (B) her (C) they (D) them
11. You can have these books. _____ are too hard for me.
    (A) It (B) They (C) Its (D) There
12. The rope was not very strong, so we did not use _____ .
    (A) them (B) its (C) they (D) it
13. The policeman spoke to my sister and me. He told _____ about the bridge.
    (A) us (B) he (C) I (D) we
14. The bananas were not ripe, so we did not buy _____ .
    (A) it (B) its (C) them (D) they
15. Please open the window. I can't reach _____ .
    (A) him (B) her (C) them (D) it
16. My father listened to the news. He was very pleased with _____.
    (A) they (B) them (C) it (D) its
17. My friend cut _____ when she was cooking.
    (A) myself (B) himself (C) herself (D) her

18. Help _____ to have some more coffee.
(A) yourself (B) myself (C) you (D) yours

19. He taught _____ to play the guitar. I've never had lessons.
(A) me (B) myself (C) himself (D) herself

20. The cow hurt _____ when it tried to get through the fence.
(A) himself (B) herself (C) itself (D) themselves

[MATHEMATICS]

21. If a matrix B is obtained from a square matrix A of order 3 by interchanging any two of its row, then |A + B| equal to
(A) 2|A| (B) 2|B| (C) 0 (D) |A|−|B|

22. If a, b, c are cube roots of unity, then $\begin{vmatrix} e^a & e^{2a} & e^{3a}-1 \\ e^b & e^{2b} & e^{3b}-1 \\ e^c & e^{2c} & e^{3c}-1 \end{vmatrix} =$
(A) 0 (B) e (C) e^2 (D) e^3

23. The determinant $\begin{vmatrix} a+b+c & a+b & a \\ 4a+3b+2c & 3a+2b & 2a \\ 10a+6b+3c & 6a+3b & 3a \end{vmatrix}$ is independent of which one of the following?
(A) a and b (B) b and c (C) a and c (D) All of these

24. Find the value of $\begin{vmatrix} a^2+2a & 2a+1 & 1 \\ 2a+1 & a+2 & 1 \\ 3 & 3 & 1 \end{vmatrix}$
(A) $(a-1)$ (B) $(a-1)^2$ (C) $(a-1)^3$ (D) 0

25. If $D_r = \begin{vmatrix} r & x & \frac{n(n+1)}{2} \\ 2r-1 & y & n^2 \\ 3r-2 & z & \frac{n(3n-1)}{2} \end{vmatrix}$ $then$ $\sum_{r=1}^{n} D_r =$
(A) 0 (B) –1 (C) 1 (D) n

26. If $\begin{vmatrix} x^2+1 & x+1 & x-2 \\ x^2+3x-1 & 3x & 3x-3 \\ x^2+3x+2 & 2x-1 & 2-x \end{vmatrix} = Ax - 6$, then the value of A is
(A) 12 (B) 18 (C) 24 (D) –24

27. Let A and B be two invertible square matrices each of order n. What is adj(AB) equal to?
(A) (adj A) (adj B) (B) (adj A) + (adj B)
(C) (adj A) – (adj B) (D) (adj B) (adj A)

28. What is the value of $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ if $a^3+b^3+c^3 = -1$?
(A) –1 (B) 3abc (C) 3abc + 1 (D) 3abc – 1

29. If a, b, c are real numbers, then the value of the determinant $\begin{vmatrix} 1-a & a-b-c & b+c \\ 1-b & b-c-a & c+a \\ 1-c & c-a-b & a+b \end{vmatrix}$ is
(A) 0 (B) $(a-b)(b-c)(c-a)$
(C) $(a+b+c)^2$ (D) $(a+b+c)^3$

30. If $A = \begin{bmatrix} 5a & -b \\ 3 & 2 \end{bmatrix}$ and A adj A = A A^T, then 5a + b is equal to
(A) – 1 (B) 5 (C) 4 (D) 13

31. Let A is a 3 × 3 matrix and B is its adjoint matrix. If |B| = 64, then |A|=
(A) ±2 (B) ±4 (C) ±8 (D) ±12

32. If A_{ij} denotes the cofactor of the element a_{ij} of the determinant $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$ then value of $a_{11}A_{31} + a_{12}A_{32} + a_{13}A_{33}$ is

(A) 0 (B) 5 (C) 10 (D) –5

33. Find cofactors of a_{21} and a_{31} of the matrix. $A = [a_{ij}] = \begin{bmatrix} 1 & 3 & -2 \\ 4 & -5 & 6 \\ 3 & 5 & 2 \end{bmatrix}$

(A) –16, 8 (B) –16, –8 (C) 16, 8 (D) 16, –8

34. If $A = \begin{bmatrix} \alpha & 3 \\ 3 & \alpha \end{bmatrix}$ and $\det(A^3) = 343$, then α is equal to

(A) ± 2 (B) ± 3 (C) ± 4 (D) ± 5

35. If $|A_{n\times n}| = 3$ and |adj A|=243, what is the value of n?

(A) 4 (B) 5 (C) 6 (D) 7

[REASONING]

36. In a certain code language, 'BROWSE' is written as 'ZJMEIW' and 'ROAD' is written as 'JMAX'. How will 'BUDGET' be written in that language?

(A) ZGXWHU (B) ZGXUHW (C) ZGXUWH (D) ZGXHWU

37. In a certain code language, 'JAMB' is written as 'SBPA' and 'BOAT' is written as 'ANBI'. How will 'JERK' be written in that language?

(A) SKRX (B) SXRK (C) SXKR (D) SRKX

38. In a certain code language, 'DESTROY' is written as 'DYORTSE' and 'EFFECTS' is written as 'ESTCEFF'. How will 'FOUNDED' be written in that language?

(A) DEDNUOF (B) DFOUNDE (C) FOEDDNU (D) FDEDNUO

39. In a certain code language, 'QUOD' is written as 'GCIT' and 'CRY' is written as 'UFY'. How will 'QUIP' be written in that language?

(A) GHOC (B) GCOH (C) GCHO (D) GHCO

40. In a certain code language, 'THORP' is written as 'EQJGI' and 'HEART' is written as 'QTXGE'. How will 'TENDER' be written in that language?

(A) ETKUGT (B) ETKTGU (C) ETKUTG (D) ETKGTU

41. In a certain code language, 'MERRY' is written as 'QYLLE' and 'OVEN' is written as 'OHYP'. How will 'MESIAL' be written in that language?

(A) QKYUCR (B) QYKURC (C) QYKRCU (D) QYKUCR

42. In a certain code language, 'ROVE' is written as 'JMFW' and 'ROSE' is written as 'JMIW'. How will 'RUIN' be written in that language?

(A) JNGS (B) JSGN (C) JGNS (D) JGSN

43. In a certain code language, 'DANCER' is written as 'REPEAD' and 'QUEAZY' is written as 'YZGCUQ'. How will 'SQUAWK' be written in that language?

(A) KWWCQS (B) KMWCQS (C) KWBUQS (D) KWAUQS

44. In a certain code language, 'JUMP' is written as 'HRIK' and 'WOLF' is written as 'ULHA'. How will 'FOWL' be written in that language?

(A) HLSG (B) DLSG (C) FLSG (D) ALSG

45. In a certain code language, 'MAINTY' is written as 'SGOTZE' and 'GENIOUS' is written as 'MKTOUAY'. How will 'POPULAR' be written in that language?

(A) VUKARGX (B) VUVARGX (C) KUUARGX (D) KUVARGX

46. In a certain code language, 'INSTITUTE' is written as 'JOTU-KWXWH' and 'OPPRESSOR' is written as 'PQQSGVVRU'. How will 'TRANSFORM' be written in that language?

(A) UBSOUIRUP (B) USBOUIRUP (C) USCOUIRUP (D) UTBOUIRVP

47. In a certain code language, 'MENTAL' is written as 'NTEAML' and 'INCOME' is written as 'CONMIE'. How will 'FOREGO' be written in that language?
(A) OGEROF (B) OFOREG (C) FOGERO (D) REOGFO

48. In a certain code language, 'QUIRKY' is written as 'TCLZNG' and 'MUZHIK' is written as 'PCCPLS'. How will 'FROWZY' be written in that language?
(A) IZKECG (B) IZRECG (C) IZREDG (D) IZRECF

49. In a certain code language, 'BFGD' is written as 'IMNK' and 'PTUR' is written as 'WABY'. How will 'GKLI' be written in that language?
(A) NRSO (B) NRSP (C) MRSO (D) MRSP

50. In a certain code language, 'FOX' is written as 'SJA' and 'CRIPPLE' is written as 'VGPIIMT'. How will 'MOVEMENT' be written in that language?
(A) LJCSLTKE (B) LJCTLTKE (C) LJCTLTJE (D) LJCTLTKE

[PHYSICS]

51. The temperature of a body represents that after touching heat –
(A) Flows from that body to relatively higher temperature of body
(B) flows from that body to a relatively lower temperature of body
(C) flows from that body to the earth
(D) Flows from earth to that body

52. The S.I. unit of heat is –
(A) Calorie (B) Joule (C) Joule/Kilogram (D) Kilogram/Joule

53. The C.G.S. unit of heat is –
(A) Calorie (B) Calorie/gram (C) Joule (D) Therm

54. The difference of two temperature measured Celsius scale is equal to –
(A) The difference of these two temperatures measured on Kelvin scale
(B) The difference of these two temperatures measured on Fahrenheit scale
(C) The difference of these two temperatures measure on Reaumur scale
(D) None of these

55. After doing 4°C to 0°C the volume of water –
(A) Decreases (B) Increases (C) Remain unchanged (D) None of these

56. Which of the following relation is correct?
(A) $C = \frac{5}{9}F + 32$ (B) $C = \frac{9}{5}F - 32$ (C) $C = \frac{9}{5}F + 32$ (D) $C = \frac{5}{9}(F - 32)$

57. The temperature of a place in winter season is –64°C. What will be this temperature of Fahrenheit scale?
(A) 83.2°F (B) –83.2°F (C) –102.5°F (D) N.O.T

58. The temperature of a cold area is –5°C. Its value on Fahrenheit scale will be –
(A) 13°F (B) 17°F (C) 23°F (D) N.O.T

59. A mountain climber finds that water boils at 80°C. The temperature of this boiling water is …… Fahrenheit.
(A) 50°F (B) 150°F (C) 176°F (D) N.O.T

60. A Fahrenheit thermometer reads 113°F while a faulty celcius thermometer reads 44°C, what correction is required in the celcius thermometer?
(A) +2°C (B) +1°C (C) –1°C (D) N.O.T