YADURISE

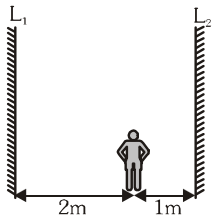
Yaduvanshi Renowned Intellectual Search Exam

Class - 10th

Reg. No./ Student ID ..... Name.....

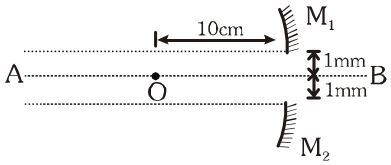
PART - I
PHYSICS

1. Two mirrors labelled L_1 for left mirror and L_2 for right mirror in the figure are parallel to each other and 3.0 m apart . A person standing 1.0 m from the right mirror (L_2) looks into this mirror and sees a series of images. The second nearest image seen in the right mirror is situated at a distance :



(A) 2.0 m from the person (B) 4.0 m from the person
(C) 6.0 m from the person (D) 8.0 m from the person

2. A concave mirror of focal length 20 cm is cut into two parts from the middle and the two parts are moved perpendicularly by a distance 1 mm from the previous principal axis AB. The distance between the images formed by the two parts is :



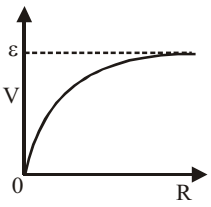
(A) 2 mm (B) 6 mm (C) 3 mm (D) 4 mm

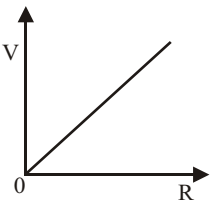
3. The focal length of a concave mirror is 50 cm. Where an object be placed so that its image is two times magnified, real and inverted
(A) 75 cm (B) 72 cm (C) 63 cm (D) 50 cm

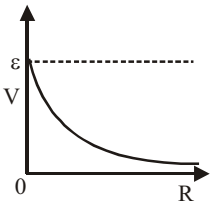
4. A square of side 3 cm is placed at a distance of 25 cm from a concave mirror of focal length 10 cm. The centre of the square is at the axis of the mirror and the plane is normal to the axis. The area enclosed by the image of the wire is -
(A) 4 cm^2 (B) 6 cm^2 (C) 16 cm^2 (D) 36 cm^2

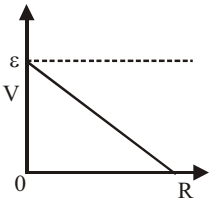
5. A point object is placed at a distance of 10 cm and its real image is formed at a distance of 20 cm from a concave mirror. If the object is moved by 0.1 cm towards the mirror, the image will shift by about.
(A) 0.4 cm away from the mirror (B) 0.4 cm towards the mirror
(C) 0.8 cm away from the mirror (D) 0.8 cm towards the mirror

6. A cell having an emf 'e' and internal resistance 'r' is connected across a variable external resistance R. As the resistance R is increased, the plot of potential difference V across R is given by :-

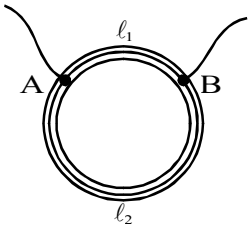
(A) 

(B) 

(C) 

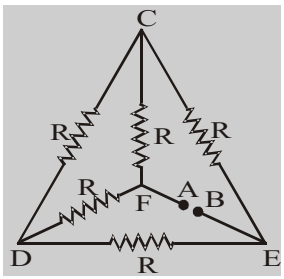
(D) 

7. A ring is made of a wire having a resistance $R_0 = 12W$. Find the points A and B as shown in the figure at which a current carrying conductor should be connected so that the resistance R of the sub circuit between these points is equal to $\frac{8}{3}$ W.



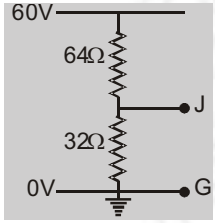
(A) $\frac{\ell_1}{\ell_2} = \frac{3}{8}$ (B) $\frac{\ell_1}{\ell_2} = \frac{1}{2}$ (C) $\frac{\ell_1}{\ell_2} = \frac{5}{8}$ (D) $\frac{\ell_1}{\ell_2} = \frac{1}{3}$

8. Five equal resistances each of resistance R are connected as shown in the Figure. A battery of V volts is connected between A and B. The current flowing in AFCEB will be



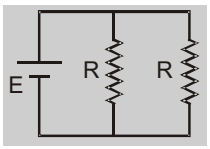
(A) $\frac{V}{R}$ (B) $\frac{V}{2R}$ (C) $\frac{2V}{R}$ (D) $\frac{3V}{R}$

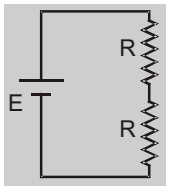
9. Find potential of J with respect to G –

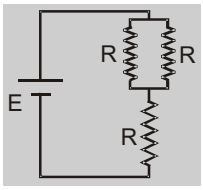


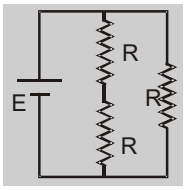
(A) 40 V (B) 60 V (C) 20 V (D) 30 V

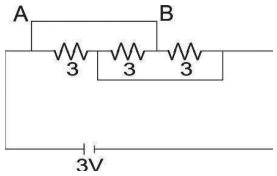
10. Consider four circuits shown in the figure below. In which circuit power dissipated is greater (Neglect the internal resistance of the power supply) :–

(A) 

(B) 

(C) 

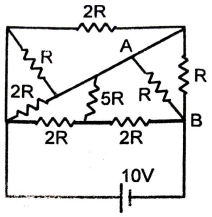
(D) 

11. 

Find current in AB.

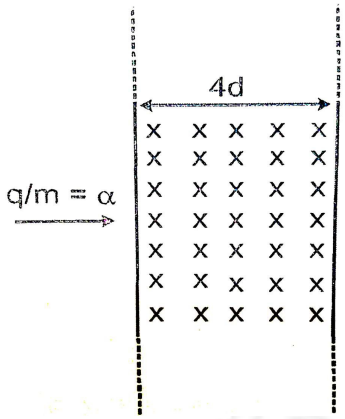
(A) 3A (B) 2A (C) 4A (D) 1A

12. In the given electrical circuit, the potential difference between point A and B is (assume the battery is ideal and the conducting wires have almost zero resistance):



(A) 5V (B) 10 V (C) 25 V (D) 70 V

13. If a charged particle of charge to mass ratio $\frac{q}{m} = \alpha$ is entring in a magnetic field of strength B at a speed v = (2 α d)(B), then which of the following is correct:



(A) angle subtended by charged particle at the centre of circular path is 2π.
(B) the charge will move on a circular path and will come out from magnetic field at a distance 4d from the point of insertion.
(C) the time for which particle will be in the magnetic field is $\frac{2\pi}{\alpha B}$.
(D) the charged particle will subtend an angle of 90° at the centre of circular path

14. A uniform wire when connected directly across a 220 V line produces heat H per second. If the wire is divided into n-parts and all parts are connected in parallel across a 220 V line, the heat produced per second will be

(A) $\frac{H}{n}$ (B) $\frac{H}{n^2}$ (C) n^2H (D) nH

15. Two point charges + 16q and –4q located at x = 0 and x = L respectively. The location of a point on the x-axis from x = 0, at which the net electric field due to these two charges is zero is

(A) L (B) 2L (C) $\frac{L}{2}$ (D) $\frac{L}{4}$

PART - II
CHEMISTRY

16. When 8.3 g copper sulphate reacts with excess of potassium iodide then the amount of Iodine liberated is
(A) 42.3 g (B) 24.3 g (C) 4.23 g (D) 2.43 g

17. To 50 mL of 1.5 M NaOH solution, 2M HCl solution is added gradually. The pH of the reaction system after the addition of 35 mL of HCl solution will be
(A) 0.84 (B) 1.23 (C) 12.77 (D) 7.95

18. In the following reaction

$3Ba(NO_3)_2 + 2Na_3PO_4 \longrightarrow Ba_3(PO_4)_2 + 6NaNO_3$

2 mol each of $Ba(NO_3)_2$ and Na_3PO_4 form $Ba_3(PO_4)_2$

(A) 1 mol (B) $\frac{2}{3}$ mol (C) $\frac{1}{2}$ mol (D) 4 mol

19. Which is not the disproportionation reaction

(A) $3H_3PO_2 \longrightarrow 2H_3PO_3 + PH_3$ (B) $HCHO + OH^- \longrightarrow HCOO^- + CH_3OH$

(C) $NH_4NO_3 \longrightarrow NO_2 + 2H_2O$ (D) $Cl_2 + 6OH^- \longrightarrow 5Cl^- + ClO_3^- + 3H_2O$

20. Identify the correct order for the strength of the acids
(A) $H_2CO_3 > HNO_3 > HClO_4$ (B) $HClO_4 > HClO_3 > HClO_2$
(C) $H_3PO_4 > H_3PO_3 > H_3PO_2$ (D) HF > HCl > HBr

21. Red hot carbon will remove oxygen from the oxide XO and YO but not from ZO. Y will remove oxygen from XO. Use this evidence to deduce the order of activity of three metals X, Y and Z putting the most active first.
(A) XYZ (B) ZYX (C) YXZ (D) ZXY

22. Which of the following not lewis acid?
(A) $AlCl_3.6H_2O$ (B) $AlCl_3$ (C) $SnCl_4$ (D) $FeCl_3$

23. Which of the following is an electrophile
(A) $AlCl_3$ (B) $C_2H_5NH_2$ (C) H_2O (D) NH_3

24. The mixture of concentrated HCl and HNO_3 made in 3 : 1 contain
(A) ClO_2 (B) NOCl (C) NCl_3 (D) N_2O_4

25. The aqueous solution of which of the salts has pH close to 7.
(A) $FeCl_3$ (B) CH_3COONa (C) CH_3COONH_4 (D) KCN

26. Heating an aqueous solution of aluminum chloride to dryness will give
(A) $AlCl_3$ (B) Al_2Cl_6 (C) Al_2O_3 (D) $Al(OH)Cl_2$

27. Pb reacts with dilute HNO_3 produces
(A) NO (B) NH_4NO_3 (C) N_2O_5 (D) NO_2

28. White lead is
(A) $PbCO_3$ (B) $PbCO_3.PbO$ (C) $2PbCO_3.Pb(OH)_2$ (D) $2PbSO_4.PbO$

29. Baking powder contains
(A) $NaHCO_3$, $Ca(H_2PO_2)_2$ and starch (B) $NaHCO_3$, $Ca(H_2PO_2)_2$
(C) $NaHCO_3$, Starch (D) $NaHCO_3$

30. Both oxidation and reduction takes place in

(A) $NaCl + HCl \longrightarrow NaCl + HBr$ (B) $HBr + AgNO_3 \longrightarrow AgBr + HNO_3$

(C) $H_2 + Br_2 \longrightarrow 2HBr$ (D) $CaO + H_2SO_4 \longrightarrow CaSO_4 + H_2O$

PART - III
BIOLOGY

31. Coenzymes NAD and NADP contains vitamins:
(A) niacin (B) biotin (C) thiamine (D) vitamin B_{12}

32. Brunner's Gland is present in
(A) duodenum (B) jejunum (C) ileum (D) rectum

33. The pneumotaxic centre and rhythm centre are respectively present in
(A) pons and medulla oblongata (B) corpus callosum and pons
(C) medulla oblongata and hypothalamus (D) diencephalon and pons

34. Mega Karyocytes, special cells in the bone marrow that produce cell fragments are called:
(A) leucocytes (B) erythrocytes (C) thrombocytes (D) fibrinogen

35. When 2 to 3 drops of Benedict's regeant are added to a urine sample and heated gently, it turns yellow. This colour change indicates that
(A) Urine contain 2% Glucose (B) Urine contain 0.5% Glucose
(C) Urine contain 1.5% Glucose (D) Urine contain 1% Glucose

36. ADH deficiency shows the following condition
(A) only polydipsia (B) polyuria (C) polydipsia (D) glucosuria

37. Which is the largest bone in middle ear:
(A) incus (B) malleus (C) stapes (D) cochlea

38. Electric potential of the brain is recorded by
(A) CT scan (B) Sphygmomanometer (C) ECG (D) EEG

39. Which area of cerebral cortex is responsible for the interpretation of speech.
(A) Broca's area (B) Wernicke's area (C) Premotor area (D) Association area of sensory cortex

40. The depolarization of nerve membrane takes place through influx of ..... ions.
(A) Calcium (B) Potasium (C) Sodium (D) Magnesium

41. ATP production is anaerobic respiration remains to be
(A) 2 Only (B) 8 Only (C) 28 Only (D) 38 Only

42. What is diapedesis?
(A) A kind of amoeboid movement
(B) Process of coming out of WBC through the capillary wall to fight against foreign micro-organism
(C) A type of locomotion found in hydra
(D) The process of filtration of urea in kidney

43. In capsella meiosis takes place during
(A) Development of pollen grains (B) Development of egg
(C) Germination of zygote (D) Development of embryo sac

44. The cells constituting walls of the blood capillaries are known as
(A) Parietal cells (B) Haemocytes (C) Oxyntic cells (D) Endothelial cells

45. Anterior lobe of pituitary secretes
(A) TSH, ADH and prolactin (B) LH, FSH and a growth hormone
(C) LCTH, TSH and oxytocins (D) STH, GH and antidiuretic hormone

PART - IV
MATHEMATICS

46. $x^4 - 4x^3 + ax^2 - bx + 1 = 0$ has positive real roots. What is the maximum possible value of a + b ?
(a) 20 (b) 12 (c) 8 (d) 10

47. If a three digit number 'abc' has 3 factors, how many factors does the 6-digit number of form 'abcabc' have?
(a) 16 factors (b) 24 factors (c) 16 or 24 facotrs (d) 20 factors

48. A polynomial f(x) leaves remainder 75 and 15 respectively when divided by (x –1) and (x + 2). Then the remainder when f(x) is divided by (x – 1) (x + 2) is
(A) 5(4x + 11) (B) 5(4x – 11) (C) 5(3x + 11) (D) 5(3x – 11)

49. A railway half ticket costs half the full fare and reservation charge is same on half ticket as on full ticket. One reserved first class ticket from Chennai to Trivandrum costs Rs. 216 and one full and one half reserved first class tickets cost Rs. 327. What is the basic first class full fare and what is the reservation charge?
(a) Rs. 105 & Rs. 6 (b) Rs. 210 & Rs. 12 (c) Rs. 216 & Rs. 12 (d) Rs. 210 & Rs. 6

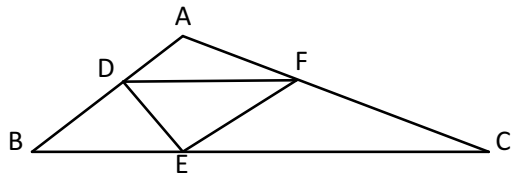
50. $\sqrt{10+\sqrt{24}+\sqrt{60}+\sqrt{40}}$ is equal to
(a) $\sqrt{2}+\sqrt{3}+\sqrt{5}$ (b) $\sqrt{5}+\sqrt{3}+\sqrt{7}$ (c) $1+\sqrt{2}+\sqrt{7}$ (d) $\sqrt{5}+\sqrt{3}-\sqrt{7}$

51. The sum of 2n terms of A.P. {1, 5, 9, 13, ...} is greater than sum of n terms of A.P. {56, 58, 60, ...}. What is the smallest value n can take?
(A) 8 (B) 10 (C) 9 (D) Cannot determined

52. An A.P. has a property that the sum of first ten terms is half the sum of next ten terms. If the second term is 13, then the common difference is
(a) 3 (b) 2 (c) 5 (d) 4

53. Consider the points A(–5, –1), B(–1, 0), C(1, 2) and D(1, 3). Let P be a point such that $d = PA^2 + PB^2 + PC^2 + PD^2$. The least possible value of d is
(a) 28 (b) 30 (c) 32 (d) 34

54. In the fig AD = BD, $BE = \frac{1}{2}EC$ and $CF = \frac{1}{3}AF$. If the area of $\Delta ABC = 120cm^2$, then area of ΔDEF is:



(a) 21 (b) 35 (c) 40 (d) 45

55. If the polynomial $f(x) = ax^3 + bx - c$ is divisible by the polynomial $g(x) = x^2 + bx + c$, then ab will equal to:
(a) 1 (b) $\frac{1}{c}$ (c) – 1 (d) $\frac{-1}{c}$

56. A triangle ABC is divided into four regions by three lines parallel to BC. The lines divide AB into four equal segments. If the second largest region has area 225, what is the area of ABC?
(A) 600 (B) 700 (C) 720 (D) Cannot determined

57. ABC is a triangle and D and E are interior points of the sides AB and BC respectively such that $\frac{AD}{DB} = \frac{1}{3}$ and $\frac{CE}{EB} = 3$. If AE and CD intersect at F, find $\frac{CF}{FD}$.
(a) 12 (b) 13 (c) 1 : 2 (d) Cannot determined

58. If $100^{25} - 25$ is written in decimal notation, find the sum of its digits.
(a) 222 (b) 444 (c) 333 (d) 445

59. The sum of real values of y satisfying the equations $x^2 + x^2y^2 + x^2y^4 = 525$ and $x + xy + xy^2 = 35$ is:
(a) 15 (b) 10 (c) 5/2 (d) 3/2

60. If the real number x, y, z are such that $x^2 + 4y^2 + 16z^2 = 48$ and $xy + 4yz + 2zx = 24$, What is the value of $x^2 + y^2 + z^2 = ?$
(a) 24 (b) 22 (c) 21 (d) 20

PART - V
I.Q. (INTELLIGENCE QUOTIENT)

Note:- Choose any one of I.Q. (INTELLIGENCE QUOTIENT) or G.A. (GENERAL AWARENESS) in Part - V.

Direction (61-64) In a certain code language if
"JOIN YADUVANSHI NARNAUL BRANCH" is coded as B # 9, I # 5, L # 3, F @ 6
"AND BUILD YOUR CAREER" is coded as F @ 4, M @ 2, B # 3, I # 5
"BEST RESULT NTSE" is coded as G # 3, F # 5, G # 3
"FUTURE WITH CLAT" is coded as G # 3, F # 5, D # 3

61. Then what is code for **"CHAMPION"**?
(A) K # 7 (B) T # 7 (C) K @ 7 (D) T @ 7

62. Then what is code for **"YADUVANSHI"**?
(A) B # 9 (B) F @ 6 (C) L # 3 (D) I # 5

63. Then what is code for **"NARNAUL"**?
(A) F @ 6 (B) B # 9 (C) L # 3 (D) I # 5

64. Then what is code for **"ALWAYS"**?
(A) B # 5 (B) D # 5 (C) B @ 5 (D) D @ 5

Directions (65-67): Study the following information carefully and answer the questions given below :
A certain number of people are sitting in a straight, horizontal line: facing north. The 17 year old sits fourth from the left end of the line. Only two people sit between the 17 year old and the 40 year old. There are eight people between the 40 year old and the 19 year old. The 5 year old sits fourth to the left of the 19 year old. The 9 year old sits second to the left of the 5 year old. No one sits to the right of the 19 year old.

65. How many people are sitting in the line ?
(A) 9 (B) 16 (C) Cannot be determined (D) 10

66. Which of the following correctly represents the correct position of the 9 year old in theline ?
(A) 8th from the right end (B) 8th from the left end
(C) 7th from the left end (D) 3rd to the right of the 40 year old

67. If Zara sits exactly between the 5 year old and the 9 year old, how many people sit between Zara and the 40 year old?
(A) Four (B) Five (C) Six (D) Three

Directions (68-71): Study the following information carefully and answer the questions given below :
A, B, C, D, E, F, G and H are eight friends and sitting around a circular table but not necessarily in same order. Some of them are facing inside and some of them are facing outside. A sits third to right of H. Only two people sit between H and B. C sits second to left of B. Only three people sit between B and E. D is second to left of F. Immediate neighbours of H face same direction as H. F sits third to left of A. who faces centre. The immediate neighbours of A face opposite to the direction of A.

68. Who is sitting third to the right of F?
(A) C (B) B (C) A (D) E

69. Who are facing the centre ?
(A) AB (B) AGH (C) AD (D) ADC

70. Who sits opposite to H?
(A) A (B) D (C) F (D) E

71. **Statements:** I. Some Japanese are Chinese.
II. All Chinese are Indians.
III. No Indian is Mexicans.
IV. Some Maxicans are Malaysians.
Conclusions: I. All Japanese being mexicans is a possibility.
II. No Chinese is maxicans.

III. Some Japanese are Indians.

(A) Only II follow (B) Only III follow (C) Both I and II follow (D) Both II and III follow

72. **Statements:** I. All Bats are lions.
II. Some cats are lions.
III. No cat is tiger.
Conclusions: I. Some tiger can be bats.
II. No cat is bat.

(A) Only I follow (B) Only II follow (C) Neither I nor II follow (D) Both I and II follow

73. **Statements:** I. All cakes are fruits.
II. No biscuits is a jam.
Conclusions: I. All biscuits are cake.
II. No cake is jam.

(A) Only I follow (B) Only II follow (C) Either I nor II follow (D) Neither I nor II follow

74. At what time between 7-8 hands of clock are 2 minute apart.

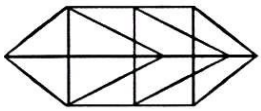
(A) 24 min to 8 o'clock (B) 20 minute to 8 o'clock

(C) 7 : $5\frac{5}{11}$ o'clock (D) None of these

75. If the 26th August of a year is Friday, the number of Mondays in that month of the year is

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

76. How many triangles are there in the figure?

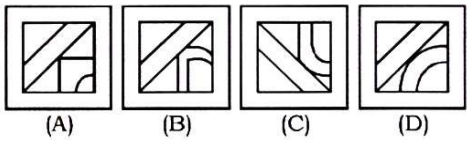


(A) 15 (B) 19 (C) 22 (D) 24

77. Which answer figure will be completed to the question figure?

Question figure:

Answer figure:



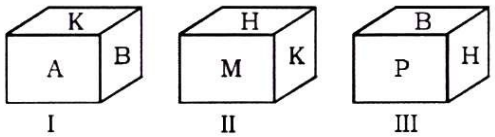
Directions (78) Study the following information carefully to answer the questions.

(i) 'P×Q' means P is the brother of Q
(ii) 'P÷K?' means P is the mother of Q
(iii) 'P+Q' means P is the sister of Q
(iv) 'P-Q' means P is the father of Q

78. In H+I÷L, how is L related to H?

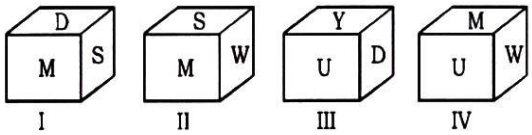
(A) Brother (B) Sister (C) niece or nephew (D) Brother or sister

79. Three forms of a dice are shown below. Which letter will on the surface opposite to the letter 'A'?



(A) H (B) P (C) B (D) M

80. From the given four positions of a single dice, find the letter at the face opposite to the face having letter D.



(A) M (B) S (C) W (D) U

G.A. (GENERAL AWARENESS)

61. The Reserve Bank of India will soon issue new Rs 100 denomination bank notes which has motif of which monument on the reverse of the note?
(A) Rani ki vav (B) Hampi with chariot (C) Ellora Caves (D) Raj Ghat

62. Which of the following states is set to become the first Indian state to roll out Universal Basic Income (UBI) ?
(A) Sikkim (B) Assam (C) Manipur (D) Arunachal Pradesh

63 Novak Djokovic won Men's Singles title in Australian Open-2019. Whom he defeated in Final?
(A) Rafael Nadal (B) Roger Federer (C) Andy Murray (D) Alexander Zverev

64. Which product of Kandhamal in Odisha has recently received GI Tag?
(A) Turmeric (B) Ginger (C) Red Pepper (D) Garlic

65. The researchers of which country has developed the first ant-like walking robot without GPS?
(A) Germany (B) France (C) England (D) Japan

66. Who is the first Indian Athlete to Quality for Olympics 2020:
(A) Ravikant (B) Mary Kom (C) Kulvinder Singh (D) KT Irfan

67. "Lessons Life Taught Me Unknowingly" book was written by
(A) Amitabh Bachchan (B) Balwant Singh (C) Chetan Bhagat (D) Anupam Kher

68. Chagos Islands is the bone of contention between which of the following countries?
(A) South Korea & North Korea (B) United States & Indonesia
(C) Japan & China (D) UK & Mauritius

69. What is the article of finance commission in the constitution of India?
(A) Article 280 (B) Article 275 (C) Article 285 (D) Article 290

70. 3rd Khelo India Youth Games will be at
(A) Pune (B) Assam (C) Delhi (D) Kanpur

71. Which city has been adjudged cleanest city in Swachh Survekshan 2019?
(A) Indore (B) Mysore (C) Raipur (D) Ahmedabad

72. India's first elephant hospital is located at
(A) Mathura (B) Noida (C) Gaziabad (D) None of the above

73. What is "THAAD", that was in the news recently?
(A) Russia's anti missile defence system (B) largest aircraft carrier of china
(C) UK's largest aircraft carrier ship (D) US anti missile defence system

74. Ravish Kumar of NDTV news channel was chosen for 2019_____Award.
(A) Nobel (B) Bharat Ratna (C) Padam Sri (D) Magsaysay

75. Which former ISRO scientist is the recipient of the 2019 Padma Bhushan?
(A) K. Radhakrishnan (B) Tapan Misra (C) Nambi Narayanan (D) A S Kiran Kumar

76. "Bhungroo Technology" sometimes seen in the news is related to:
(A) Stubble Burning (B) Air Pollution Control (C) Cryogenic Engine (D) Water Harvesting

77. Who has been appointed as the first transgender election Ambassador in India?
(A) Laxmi Narayan Tripathi (B) K Prithika Yashini
(C) Gauri Sawant (D) Madhu Bai Kinnar

78. Which IIT has tied up with Wipro for advanced research in 5G and AI?
(A) IIT Kanpur (B) IIT Madras (C) IIT Kharagpur (D) IIT Bombay

79. Who has been conferred with 2019 Pravasi Bhartiya Samman Award (PBSA)?
(A) Rajendra Joshi (B) Ramesh Mehta (C) Prathap C Reddy (D) Kamal Karanth

80. Which country's team has won the 2019 Sultan Azlan Shah Hockey tournament?
(A) Poland (B) India (C) South Korea (D) Japan