EHF

LEARNING FOR LIFE

EDUHEAL FOUNDATION

CLASS 8

LEVEL – 1

Set A1

EHF OLYMPIADS

• 4000 schools • 6 lakh students

• 10 olympiads • Global outreach

NATIONAL IIT-PMT OLYMPIAD (NIPO)

EHF NATIONAL IIT-PMT OLYMPIAD

Name : .....

Roll No : .....

Class : .....

School : .....

BSE international finance olympiad (BIFO)

NATIONAL IIT-PMT OLYMPIAD (NIPO)

Level - 1 : All Level-1 successful* participants will get certificate, apititude report and online subscription, and school toppers will be eligible for school hero medals.

Level - 2 : School toppers* will be selected for level-2-National level - online computer based interactive test held at exam centres all over India. Besides selection for level-3, winner will get merit certificate, medals, educational CDs, laptop, scholarship and other prizes. There is no level-2 in Art and Cricket.

Level - 3 : Toppers will qualify# for level-3-International level-where you will compete with students globally. Get selected for EHFs International Olympiad training camp. Only Indian organization giving students exposure to global competitions. Represent India & win laurels. Guidance by top scientists. Prizes ranges from cash (millions of $), gadgets, foreign trips, publicity, fame, scholarships, Internships, conference participation and more.

* # See prospectus/website for details

Instructions for the Candidate

1. You are allowed additional 10 minutes to fill the required details in the RESPONSE SHEET (OMR).
2. The question paper is made as per syllabus guidelines & pattern given in the information Booklet. The Question Paper for Classes 1 to 6 contains 25 Questions each to be answered in 40 minutes. The Question paper for classes 7 to 12 contains 50 Questions each to be answered in 60 minutes. All questions are compulsory. Further instructions are given in the instruction letter to the teacher.
3. Use the response sheet to mark your responses by darkening the required circle. The response sheet has to be returned to the foundation, duly filled in. THE STUDENT CAN RETAIN THE QUESTION PAPER.

WEBSITE : WWW.EDUHEALFOUNDATION.ORG
E-MAIL : INFO@EDUHEALFOUNDATION.ORG

ROUGH WORK

SCIENCE

1. Low frequency sounds which we cannot hear are called

(1) Amplified sounds (2) Rectified sounds

(3) Ultrasonic sounds (4) Infrasonic sounds

2. Which of the following types of forces is not contact force?

(1) Muscular force (2) Frictional force

(3) Magnetic force (4) All of the above

3. Weight of a body is maximum at the

(1) Poles (2) Equator

(3) Centre of the earth (4) Top of mountains

4. Some viruses have RNA but no DNA. This indicates that:

(1) They cannot replicate

(2) These viruses do not have in heritable information

(3) RNA can transmit hereditary information

(4) Their nucleic acids must combine with host DNA for virus duplication

5. The vector which spreads sleeping sickness is:

(1) Housefly (2) Tse - Tse fly

(3) *Aedes mosquito* (4) *Culex* mosquito

6. Fertigation is:

(1) Sprinkler irrigation system

(2) River life system

(3) River valley system

(4) Applying fertilizers through drip irrigation

7. Orlon is a polymer of

(1) PVC (2) Bakelite

(3) Acrylonitrile (4) Nylon

8. Among the following polymers, the weakest molecular forces are present in

(1) Thermosetting plastics

(2) Fibres

(3) Thermoplastics

(4) Rubber

9. Coal gas is a mixture of:

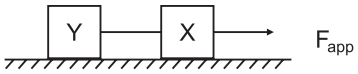
(1) CO and H_2 only

(2) H_2, saturated and unsaturated hydrocarbons, CO, CO_2, N_2 and O_2

(3) Saturated and unsaturated hydrocarbons only

(4) CO, CO_2 and CH_4 only

10. Blocks X and Y are attached to each other by a light rope and can slide along a horizontal, rough surface. Block X has a mass of 10 kg and block Y has a mass of 5 kg. An applied force of 36 N [right] acts on block X. Suppose the magnitude of the force of friction on blocks X and Y are 8N and 4N respectively. The magnitude of tension in the string between the blocks is



(1) 36 N (2) 4 N

(3) 12 N (4) 18 N

11. A wave on a long spring has frequency *f*, wavelength λ and speed v. The tension in the spring is changed. A new wave on the spring has three times frequency and twice the wavelength. The new wave speed is

(1) 6v (2) 3v

(3) 2v (4) v

12. Two athletes A and B in a team are practising to compete in a boat race. Athlete A has a mass of 70 kg, B a mass of 75 kg and the boat has a mass of 20 kg. Athlete A can exert an average force of 400 N [forward] and B an average force of 420 N [forward] on the boat using paddles. During paddling the magnitude of water resistance on the boat is 380 N. The initial acceleration of the boat is

(1) 2.0 m/s^2 (2) 1.5 m/s^2

(3) 2.7 m/s^2 (4) 3.5 m/s^2

13. When a mixture of air and steam is passed over red hot coke the outgoing gas contains

(1) Producer gas

(2) Water gas

(3) Coal gas

(4) Mixture of (1) & (2)

14. Terylene is a condensation polymer of ethylene glycol and

(1) Benzoic acid

(2) Phthalic acid

(3) Salicylic acid

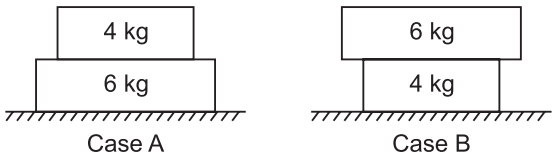
(4) Terephthalic acid

15. Which one of the following fractions of petroleum has the lowest boiling point?

(1) Kerosene (2) Diesel

(3) Petrol (4) L.P.G.

16. The base areas of the 6 kg and the 4 kg blocks in the given figures are in the ratio 4 : 1. The pressure exerted on the ground in case A is



(1) Four times of that in case B

(2) Twice of that in case B

(3) One fourth of that in case B

(4) Same as that in case B

17. Match the following:

	Column-I		Column-II
a.	Rayon	(i)	Natural fibre
b.	Nylon	(ii)	Coal, water and air
c.	Acrylic	(iii)	Artificial silk
d.	Cotton	(iv)	Artificial wool

(1) a(i), b(ii), c(iii), d(iv)

(2) a(iv), b(ii), c(iii), d(i)

(3) a(iii), b(ii), c(iv), d(i)

(4) a(iii), b(i), c(iv), d(ii)

18. 'A' and 'B' are the two different varieties of plastics. 'A' is used for manufacturing toys, combs etc. and 'B' is used for making electrical switches. Plastic 'A' and 'B' respectively are

(1) PVC, bakelite

(2) Polythene, melamine

(3) Bakelite, melamine

(4) PVC, melamine

19. Which of the following is the good conductor of electricity?

(1) Wood (2) Plastic

(3) Distilled water (4) Sea water

20. $C + BSO_4 \rightarrow CSO_4 + B$

$A + BSO_4 \rightarrow$ No reaction

$CSO_4 + A \rightarrow$ No reaction

The correct order of decreasing reactivity of A, B and C is

(1) A > B > C (2) C > B > A

(3) C > A > B (4) B > A > C

21. Identify the agricultural process on the basis of the given information:

(i) It helps in turning and loosening of soil

(ii) It helps in proper mixing of manure.

(1) Harvesting (2) Weeding

(3) Tilling (4) Sowing

22. Which of the following shows the least biodiversity?

(1) Biosphere reserve

(2) Wildlife sanctuary

(3) Huge crop field

(4) National park

23. Who discovered the bacteria that cause cholera?

(1) Pierre Berthelot

(2) Robert Koch

(3) Louis Pasteur

(4) Both (1) and (2)

24. Planet of our solar system with fastest orbiting speed is

(1) Venus

(2) Pluto

(3) Mercury

(4) Jupiter

25. If light falls perpendicularly on a plane mirror, what will be the angle in which it will be reflected?

(1) 45 degree

(2) 90 degree

(3) 180 degree

(4) 360 degree

26. The cube of $2.1\ a^2b^3c^5$ is

(1) $92.61a^{2/3}bc^{5/3}$ (2) $9.261a^{2/3}bc^{5/3}$

(3) $9.261a^6b^9c^{15}$ (4) $92.61a^6b^9c^{15}$

27. A bag has 5 blue balls and 3 white balls. A ball is drawn from the bag without looking into the bag. The probability of getting a white ball is

(1) $\frac{1}{8}$ (2) $\frac{1}{3}$

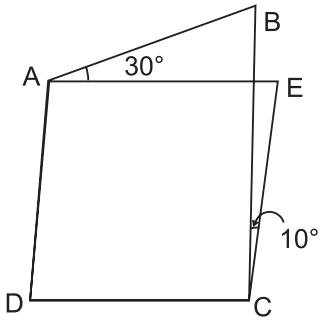
(3) $\frac{3}{5}$ (4) $\frac{3}{8}$

28. In a parallelogram ABCD, if DO and CO are the bisectors of $\angle ADC$ and $\angle BCD$ respectively, then reflex $\angle DOC$ is equal to

(1) 270° (2) 200°

(3) 210° (4) 205°

29. In the given figure, AECD is a parallelogram and $\angle DAB + \angle DCB = 180°$. The measure of $\angle AEC$ is equal to



(1) 105° (2) 40°

(3) 110° (4) 100°

30. Which of the following is greatest?

(1) $\frac{23}{36}\%$ (2) 0.6%

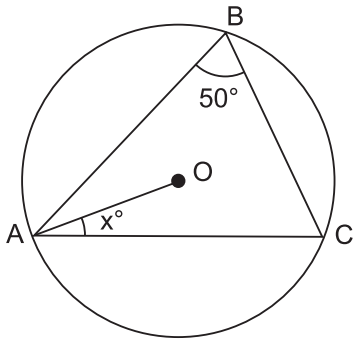
(3) $7\frac{3}{8}\%$ (4) $13\frac{3}{4}\%$

31. If $p^2 + q^2 + r^2 = 20$ and $pq + qr + rs = 15$, then the value of $p + q + r$ is

(1) $4\sqrt{2}$ (2) $2\sqrt{2}$

(3) 5 (4) $5\sqrt{2}$

32. In the given figure, O is the centre of circle. If $\angle ABC = 50°$, then the value of x is



(1) 45°

(2) 50°

(3) 40°

(4) 60°

33. The value of $\sqrt[3]{\frac{343}{-1000}}$ is

(1) $-\frac{7}{10}$ (2) $\frac{17}{10}$

(3) $\frac{7}{10}$ (4) $-\frac{17}{10}$

34. The value of $\sqrt{5+\sqrt{11+\sqrt{19+\sqrt{29+\sqrt{49}}}}}$ on simplifying is

(1) 3 (2) 2

(3) 1 (4) 4

35. If $x + \frac{1}{x} + 2 = 0$, then the value of $x^{33} + x^{32} + x^{13} + x^{12} + x + 1$ is

(1) 2 (2) 0

(3) 3 (4) 4

36. ABCD is a parallelogram in which diagonals AC and BD intersect at point O. If $\angle BAO = 20°$, $\angle COD = 133°$, then the value of $\angle ODC$ is

(1) 25° (2) 22°

(3) 35° (4) 27°

37. The factor of $(p + q)^2 - (p - q)^2$ is

(1) $2pq$ (2) $4\,pq$

(3) $p + q$ (4) $p - q$

38. 85 students consume a particular stock in 60 days. How many days 51 students will take to consume that stock?

(1) 100 (2) 200

(3) 300 (4) 400

39. An error 2% in excess is made while measuring the side of a square. The percentage of error in the calculated area of the square is:

(1) 2% (2) 2.02%

(3) 4% (4) 4.04%

40. A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is:

(1) 35.55 km/hr

(2) 36 km/hr

(3) 71.11 km/hr

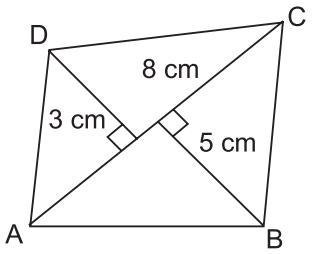
(4) 71 km/hr

41. The exponential form of $1/8 \times (3)^{-3}$ is given by which of the following expression:

(1) 6^{-3} (2) 2^3

(3) 3^{-6} (4) 5^{-3}

42. In the given figure, area of quadrilateral ABCD will be



(1) 48 cm^2 (2) 32 cm^2

(3) 18 cm^2 (4) 24 cm^2

43. By which smallest natural number 392 must be multiplied so as to make the product a perfect cube?

(1) 2 (2) 14

(3) 7 (4) 49

44. The least number of complete years in which a sum of money put out at 20% compound interest will be more than doubled is:

(1) 3 (2) 4

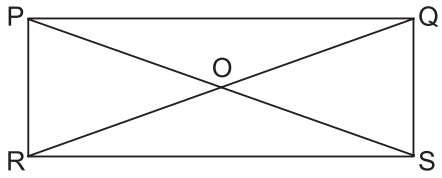
(3) 5 (4) 6

45. A dice is thrown. What is the probability that the number shown on the dice is divisible by 2 number?

(1) 3/4 (2) 1/2

(3) 5/6 (4) 2/5

46. Refer to the following rectangle PQRS,



which of the following statements is true?

(1) Area of $\Delta POR <$ Area of ΔORS

(2) Area of $\Delta POR =$ Area of ΔORS

(3) Area of $\Delta ORS >$ Area of ΔPOR

(4) $\Delta POR \cong \Delta ORS$

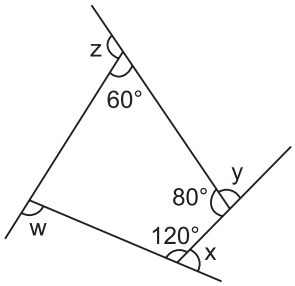
47. Find $x + y + z + w$.

(1) 180°

(2) 30°

(3) 360°

(4) 720°



48. How many bricks will be required for a wall which is 8 m long, 6 m high and 22.5 cm thick, if each brick measures 25 cm × 11.25 cm × 6 cm?

(1) 8000 (2) 6000

(3) 7100 (4) 6400

49. Factorise: $125x^3y^5z^4 - 5xy^3z^6$

(1) $(5xy - z)(5xy + z)$

(2) $5xy^3z^4(5xy - z)(5xy + z)$

(3) $5xy^3z^4(5xy + z)$

(4) $5xy^3z^4(5xy - z)$

50. The park in a town is made in the form of a kite. Its perimeter is 90 metres and one side is 10 m more than other side. What are the lengths of other sides?

(1) 17.5 m, 17.5 m, 29 m and 29 m

(2) 17.5 m, 17.5 m, 27.5 m and 27.5 m

(3) 20 m, 20 m, 27.5 m and 27.5 m

(4) 20 m, 20 m, 29 m and 29 m

END OF THE EXAM