



## **SOLDIER TECHNICAL**

**MAXIMUM MARKS : 200**

**PASS MARKS : 80**

**TIME : 60 MINUTES**

**MODEL TEST : 24**

### **INSTRUCTIONS FOR THE CANDIDATES**

1. Do not open answer book till ordered.
2. Question paper consists of two sections (Section A and Section B). Both the sections are compulsory. Answer to both sections will be marked only on the OMR Sheet which will be issued by Exam Centre. Candidates will not use question paper to answer the questions. Candidate has to score min. of 32 marks each in section A and B separately and a min of 80 marks in total to qualify in the exam.
3. Use only blue/black ball point pen to mark your answer on OMR Sheet. Use of pencil is strictly prohibited
4. Do not write any revealing identification in the OMR Sheet. Such candidates will be **DISQUALIFIED**.
5. Space provided on page 2 may be used for Rough work.
6. After the termination of test please return the question booklet along with the OMR sheet to the Invigilator.
7. Please ensure that you have got the correct question paper and OMR Sheet

### **INSTRUCTIONS FOR INVIGILATION BOARD**

8. Invigilation board will ensure that all candidates comply with the above instructions.
9. Invigilation board will explain the method and Do's and Don'ts regarding filling up of OMR Sheet.
10. On completion of examination the invigilation board will go through the work script and cross out with 'Green ink any part of answer sheet left blank by the candidates. The answer sheets will be packed after ensuring the action.
11. Presiding Officer will announce the set number of the question paper administered after distributing the question paper and will ensure that all the candidates have got the required set number.
12. Invigilation Board will ensure that all candidates comply with the above instructions. / Answers to all questions will be marked on OMR Sheet and this will be provided in situ by the Exam Centre.



## GENERAL KNOWLEDGE

1. Where India's first cotton textile mill was established\_\_\_\_  
A) Surat                      B) Mumbai                      C) Chennai                      D) Kolkata
2. Which is largest man made lake?  
A) Wular                      B) Chilka                      C) Udai Sagar                      D) Govind Sagar
3. Who founded the Gupta dynasty?  
A) Samudra Gupta                      B) Sri Gupta  
C) Vikramadithya Gupta                      D) Chandragupta
4. The Muslim Ruler of Delhi  
A) Qutub Uddin Aibak                      B) Iltutmish  
C) Bahadur shah                      D) Babur
5. Who is custodian of fundamental rights?  
A) President                      B) Prime Minister                      C) Supreme court                      D) Governor

## REASONING

6. Complete the series  
3,14,36,80  
A) 172                      B) 176                      C) 168                      D) 184
7. House: Room::World:?  
A) Land                      B) Sun                      C) Air                      D) Nations
8. If MIND becomes KGLB then what will be the code for DIAGRAM  
A) GLPEYKB                      B) BGYEPYK  
C) LKBGYPK                      D) BGYPYEK
9. A is D's brother. D is B's father. B and C are sister. How is A related to C?  
A) Son                      B) Grandson                      C) Father                      D) Uncle
10. I go 10m towards east, then I turn towards north and cover 20m and then I turn right and go 10m. In which direction am I from starting point?  
A) North                      B) North-East  
C) South                      D) South-West



## PHYSICS

11. If the pressure in a closed vessel is reduced by drawing out some gas the mean free path of the gas molecules will
- A) increase
  - B) increase or decrease depending on the nature of
  - C) remain unchanged
  - D) decrease
12. In the formula average velocity= $(u+v)/2$  u is the \_\_\_\_
- A) Final velocity
  - B) Initial displacement
  - C) Initial velocity
  - D) Final displacement
13. In a qualitative way, the tendency of undisturbed objects to stay at rest or to keep moving with the same velocity is called \_\_\_\_
- A) Force
  - B) Acceleration
  - C) Friction
  - D) Inertia
14. The first law of thermodynamics is simply the case of \_\_\_\_
- A) Charles law
  - B) the law of conservation of energy
  - C) the law of heat exchange
  - D) Newton's law of cooling
15. At upper atmosphere an astronaut feels \_\_\_\_
- A) extremely hot
  - B) slightly hotter
  - C) extremely cool
  - D) slightly cooler
16. In which one among the following is the speed of sound maximum?
- A) air at 0° C
  - B) air at 100°C
  - C) water
  - D) wood
17. Which one of the following types of glass can cut of ultraviolet rays?
- A) soda glass
  - B) pyrex glass
  - C) jena glass
  - D) crookes glass
18. The quality of a musical note depends upon
- A) its amplitude
  - B) its frequency
  - C) the wave velocity
  - D) its harmonic content
19. A convex lens of glass has power P in air. If it is immersed in water its power will be \_\_\_\_
- A) more than P
  - B) less than P
  - C) P
  - D) none of these
20. Line spectrum contains information about
- A) the atoms of the prism
  - B) the atoms of the source
  - C) the molecules of the source
  - D) none of these



21. In bringing an electron towards another electron the electrostatic potential energy of the system?  
A) remains same  
B) becomes zero  
C) increases  
D) decreases
22. At which place Earth's magnetic field becomes horizontal?  
A) Magnetic meridian  
B) Magnetic equator  
C) Geographical pole  
D) Tropic of cancer
23. Energy transferred to a person through gamma rays is measured in units of \_\_\_  
A) caries  
B) rutherfords  
C) roentogen  
D) none
24. Nuclear forces are \_\_\_  
A) spin dependent  
B) charge dependent  
C) long range  
D) none of these
25. In MIRC C stands for  
A) Code  
B) Colour  
C) Computer  
D) None

### CHEMISTRY

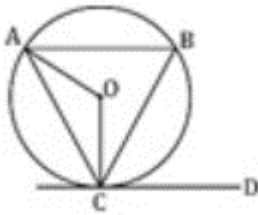
26. Which of the following has highest frequency?  
A) cosmic rays  
B) x-rays  
C) radio waves  
D) micro waves
27. Isobars are lines displaying areas of equal \_\_\_  
A) Humidity  
B) Atmospheric pressure  
C) Rainfall  
D) Temperature
28. The activity of radioisotope change with \_\_\_  
A) Temperature  
B) Pressure  
C) Chemical environment  
D) None of these
29. Molten NaCl is good conductor of electricity is due to \_\_\_  
A) Free electron  
B) Free ion  
C) Free molecules  
D) None
30. The pH value of a sample of multiple distilled water is \_\_\_  
A) zero  
B) very near to seven  
C) very near to zero  
D) 14
31. An ideal gas is one which obeys \_\_\_  
A) Gas laws  
B) Boyle's laws  
C) Charle'slaw  
D) Avagadro law
32. The ratio of rate of diffusion of oxygen and hydrogen is  
A) 1:4  
B) 1:1  
C) 1:2  
D) 2:1



33. Which law of thermodynamics introduces the concept of entropy  
A) First law                      B) Zeroth law                      C) Third law                      D) Second law
34. Which of the following has the highest fuel value\_\_\_  
A) Hydrogen                      B) Charcoal                      C) Natural gas                      D) Gasoline
35. Octane number of fuel can be increased by\_\_\_  
A) Isomeration                      B) Alkylation                      C) Reforming                      D) All of these

### MATHEMATICS

36. Which one of the following prime number while dividing 2176 leaves 9 as remainder?  
A) 197                      B) 1395                      C) 5739                      D) 7853
37. ABCD is a cyclic quadrilateral and AB is the diameter of the circle. If  $\angle CAB = 48^\circ$ , then what is the value (in degrees) of  $\angle ADC$ ?  
A)  $52^\circ$                       B)  $77^\circ$                       C)  $138^\circ$                       D)  $142^\circ$
38. In the given diagram O is the centre of the circle and CD is a tangent.  $\angle CAB$  and  $\angle ACD$  are supplementary to each other  $\angle OAC = 30^\circ$ . Find the value of  $\angle OCB$ .



- A)  $30^\circ$                       B)  $20^\circ$                       C)  $60^\circ$                       D)  $80^\circ$
39. Two circles of equal radius of 'r' intersect each other in such a way that both pass through center of each other. What is the length of common chord?  
A)  $2r$                       B)  $r\sqrt{3}$                       C)  $r\sqrt{3}/2$                       D)  $r$
40. If  $a \sin 45^\circ = b \operatorname{cosec} 30^\circ$ , what is the value of  $a^4/b^4$ ?  
A)  $6^3$                       B)  $4^3$                       C)  $2^3$                       D) None of the above
41. If  $\tan \theta + \cot \theta = 2$ , then what is the value of  $\tan^{100} \theta + \cot^{100} \theta$ ?  
A) 1                      B) 3                      C) 2                      D) None of the above
42. If  $\theta$  is said to be an acute angle, and  $7 \sin^2 \theta + 3 \cos^2 \theta = 4$ , then what is the value of  $\tan \theta$ ?  
A) 1                      B)  $\sqrt{3}$                       C)  $1/\sqrt{3}$                       D) None of the above



43. The HCF and LCM of two numbers are 21 and 4641 respectively. If one of the number lies between 200 and 300 the two numbers are:  
A) 273, 357                      B) 210,340                      C) 215,314                      D) 210,252
44. Ram buys some paper wind fans at 4 per rupee. He then buys same number of paper wind fans from another shop at 5 per rupee. He puts them all together and sells them at 4 per rupee. Will he make a profit or incur a loss? How much?  
A) Profit =  $115/9$  %                      B) Loss =  $115/9$  %  
C) Profit =  $100/9$  %                      D) Loss =  $100/9$  %
45. A: B is 1: 2; B: C is 3: 2 and C: D is 1:3. Find A: B: C: D.  
A) 3: 6: 4: 12                      B) 2: 3: 5: 7                      C) 3: 5: 7: 6                      D) 2: 1: 6: 13
46. The average age of three boys is 15 years and their ages are in proportion 3:5:7. What is the age in years of the youngest boy?  
A) 9                      B) 12                      C) 15                      D) 18
47. A cyclist moving at a speed of 20 km/hr crosses a bridge in 2 minutes. What is the length of the bridge?  
A) 555.5 m                      B) 444.4 m                      C) 777.7 m                      D) 666.6 m
48. A water tank is 30 m long, 20 m wide and 12 m deep. It is made of iron sheet which is 3 m wide. The tank is open at the top. If the cost of iron sheet is Rs. 10 per meter, what is the total cost of iron sheet required to build the tank?  
A) Rs. 6000                      B) Rs. 8000                      C) Rs. 9000                      D) Rs. 10,000
49. The digit at the ten's place of a two digit number is 3 more than the digit at the unit's place. Let the digit at unit's place be b. Then the number is\_\_  
A)  $11b+30$                       B)  $10b+30$                       C)  $11b+3$                       D)  $10b+3$
50. If  $\theta$  is said to be an acute angle, and  $4 \cos^2 \theta - 1 = 0$ , then what is the value of  $\tan (\theta - 15^\circ)$ ?  
A) 1                      B)  $\sqrt{2}$                       C)  $1/\sqrt{3}$                       D) None of the above



## SOLDIER TECHNICAL

### Answer Key

1.	B	11.	C	21.	C	31.	A	41.	C
2.	D	12.	C	22.	B	32.	A	42.	C
3.	B	13.	D	23.	C	33.	D	43.	A
4.	A	14.	B	24.	A	34.	A	44.	C
5.	C	15.	C	25.	D	35.	D	45.	A
6.	C	16.	D	26.	A	36.	A	46.	A
7.	D	17.	D	27.	B	37.	C	47.	D
8.	B	18.	D	28.	D	38.	A	48.	A
9.	D	19.	B	29.	B	39.	B	49.	A
10.	B	20.	B	30.	B	40.	B	50.	A