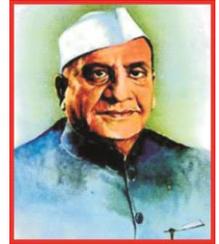




SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE, PAUNI
DISTRICT: BHANDARA (M.S.)
'B' Grade Reaccredited College by NAAC, Bangalore



Student's Performance Test for B.Sc. Semester I

Academic Session: 2017-18
Time: 01 Hr.

Course Name: B.Sc. Computer Sci
Max. Marks: 60

Name of the student:Signature of the Invigilator.....

Instructions:

1. The test comprises **30** multiple type questions from **Computer Science, Maths and Physics**
2. Each subject has **10** questions based on the previous year (12th Std.) examination.
3. Students have to attempt all the questions. 4. Each questions will carry **2** marks.
4. Student has to tick (✓) the correct option.

1. Which of the following is not used as secondary storage

- A. Semiconductor memory B. Magnetic disks C. Magnetic drums D. Magnetic tapes

2. A collection of wires that connects several device is called

- A. Link B. Bus C. Cable D. Port

3. A offline device is

- A. A device which is not connected to CPU B. A device which is connected to CPU
C. A device which is in breakdown stage D. None of these

4. Which of the following is the fastest

- A. CPU B. Magnetic tapes and disks C. Video terminal D. Sensors, mechanical controllers

5. Memories in which any location can be reached in a fixed and short amount of time after specifying its address is called

- A. Sequential access memory B. Random access memory C. Secondary memory D. Mass storage

6. The register which contains the data to be written into or read out of the addressed location is known as

- A. Index register B. Memory address register C. Memory data register D. Program counter

7. The register which keeps track of the execution of a program and which contains the memory address of the next instruction to be executed is known as

- A. Index register B. Instruction register C. Memory address register D. Program counter

8. Which of the following is used as storage locations both in the ALU and in the control section of a computer

- A. Accumalator B. Register C. Adder D. Decoder

9. Accumulator is a

- A. Hardwired unit B. Sequential circuit C. Finite state machine D. Register

10. Non volatility is an important advantage of

- A. CCDs B. Magnetic tapes and disks C. Magnetic bubbles D. Both b and c

11. Radioactive decay is a

- A. Random process B. Non-spontaneous process C. Regular process D. Massive process

12. In gamma emission, change in nucleon number is

- A. Zero B. Definite C. Increases by 1 D. Decreases by 1

13. What happens when a neutron is absorbed by a nucleus of an atom of U235?

- A. Mass number of atom increases
B. One electron is let out
C. U^{236} isotope is formed
D. Nucleus becomes unstable
14. Combining of two light nuclei of low mass to produce a heavy nucleus is called
A. Nuclear fusion
B. Nuclear fission
C. Spontaneous fission
D. Double beta decay
15. Why is it necessary to accelerate positively charged nuclei to high kinetic energies to cause fusion?
A. To overcome electrical repulsive forces
B. To result in high amount of energy in short period of time
C. To get the isobars and isotopes
D. To get a sustainable reaction
16. Heavy nuclei are such that they can be fission by neutrons of an energy such substance are called?
A. Fission fragments
B. Fission Neutrons
C. Fission species
D. Fission elements
17. Co-ordination number of a crystalline solid is:
A. Number of particles in the unit cell
B. Number of nearest neighbours of a particle
C. Number of octahedral voids in a unit cell
D. Number of tetrahedral voids in a unit cell
18. Packing efficiency of a crystal structure is the ratio of
A. Volume occupied by particles to the total volume of the unit cell
B. Volume occupied by particles to that by voids
C. Total volume of the unit cell to the volume occupied by particles
D. Volume occupied by voids to that by particles
19. The smallest portion of a crystal which when repeated in different directions generates the entire crystal is called
A. Lattice points
B. Crystal lattice
C. Unit cell
D. None of the mentioned
20. A short pulse of white light is incident from air to a glass slab at normal incidence. After travelling through the slab, the first colour to emerge is
A. Blue.
B. Green.
C. Violet.
D. Red.
21. A and B are invertible matrices of the same order such that $|(AB)^{-1}| = 8$, If $|A| = 2$, then $|B|$ is
A. 16
B. 4
C. 6
D. $\frac{1}{16}$
22. The total revenue in ₹ received from the sale of x units of an article is given by $R(x) = 3x^2 + 36x + 5$. The marginal revenue when $x = 15$ is (in ₹)
A. 126
B. 116
C. 96
D. 90
23. The side of an equilateral triangle is increasing at the rate of 2 cm/s. The rate at which area increases when the side is 10 is
A. $10 \text{ cm}^2/\text{s}$
B. $\sqrt{3} \text{ cm}^2/\text{s}$
C. $10\sqrt{3} \text{ cm}^2/\text{s}$
D. $103 \text{ cm}^2/\text{s}$
24. The point(s) on the curve $y = x^2$, at which y-coordinate is changing six times as fast as x-coordinate is/are
A. (2, 4)
B. (3, 9)
C. (3, 9), (9, 3)
D. (6, 2)
25. The equation of the normal to the curve $y = \sin x$ at (0, 0) is
A. $x = 0$
B. $y = 0$
C. $x + y = 0$
D. $x - y = 0$
26. The line $y = x + 1$ is a tangent to the curve $y^2 = 4x$ at the point
A. (-1, 2)
B. (1, 2)
C. (1, -2)
D. (2, 1)
27. The curves $y = ae^{-x}$ and $y = be^x$ are orthogonal if
A. $a = b$
B. $a = -b$
C. $ab = -1$
D. $ab = 1$
28. If the curves $ay + x^2 = 7$ and $x^3 = y$ cut orthogonally at (1,1), then the value of a is
A. 1
B. 0
C. -6
D. 6
29. The absolute maximum value of $y = x^3 - 3x + 2$ in $0 \leq x \leq 2$ is
A. 4
B. 6
C. 2
D. 0
30. $\int \cot^2 x \, dx$ equals to
A. $\cot x - x + C$
B. $\cot x + x + C$
C. $-\cot x + x + C$
D. $-\cot x - x + C$