WB JELET Sample Paper – Practice Test

Section A: Engineering Mathematics (5 Questions)

- **Q1.** Evaluate the Laplace transform of $f(t)=t^2$.
- A) $1/s^2$
- B) $2/s^3$
- C) 2/s²
- D) 2/s4

Correct Answer: B

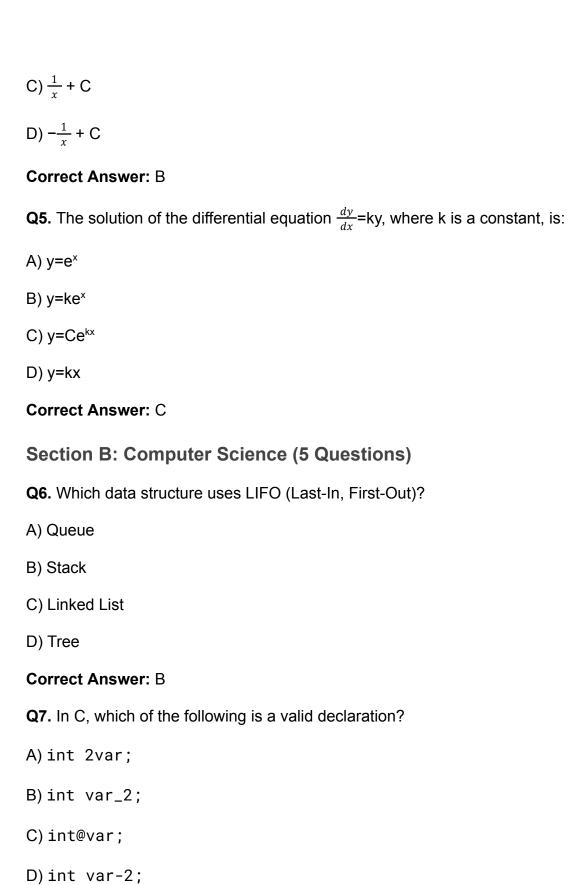
- **Q2.** If $A = [2 \ 1 \ 0 \ 3]$, find the eigenvalues of A.
- A) 2, 3
- B) 1, 3
- C) 2, 2
- D) 3, 3

Correct Answer: A

- **Q3.** Find the derivative of $f(x)=e^x \sin^x x$
- A) e^x cos x
- B) $e^x (\sin x + \cos x)$
- C) $e^x(\cos x \sin x)$
- D) sin x +cos x

Correct Answer: B

- **Q4.** What is the integral $\int_{\frac{x^2+1}{x^2+1}}^{\frac{1}{x^2+1}} + dx$?
- A) In|x|+C
- B) tan⁻¹ x+C



Correct Answer: B

Q8. What is the time complexity of binary search in a sorted array?
A) O(n)
B) O(n ²)
C) O(log n)
D) O(1)
Correct Answer: C
Q9. Which logic gate has output 1 only when both inputs are 1?
A) OR
B) NOR
C) AND
D) XOR
Correct Answer: C
Q10. Which layer of the OSI model ensures reliable transmission of data?
A) Network Layer
B) Data Link Layer
C) Transport Layer
D) Application Layer
Correct Answer: C
Section C: Electrical Engineering (5 Questions)
Q11. What is the unit of electrical capacitance?
A) Ohm
B) Volt
C) Farad

D) Henry
Correct Answer: C
Q12. The current through a resistor is directly proportional to:
A) Capacitance
B) Voltage
C) Inductance
D) Resistance
Correct Answer: B
Q13. A diode allows current to flow in:
A) Both directions
B) Reverse direction only
C) Forward direction only
D) No direction
Correct Answer: C
Q14. The frequency of the AC power supply in India is:
A) 50 Hz
B) 60 Hz
C) 100 Hz
D) 25 Hz
Correct Answer: A
Q15. In a series RLC circuit at resonance, the impedance is:
A) Maximum
B) Minimum

C) Infinite
D) Zero
Correct Answer: B
Section D: Mechanical Engineering (5 Questions)
Q16. The ratio of stress to strain is:
A) Poisson's ratio
B) Young's modulus
C) Bulk modulus
D) Modulus of rigidity
Correct Answer: B
Q17. A 4-stroke engine completes one power stroke in:
A) Every 2 revolutions
B) Every 1 revolution
C) Every 4 revolutions
D) Every 3 revolutions
Correct Answer: A
Q18. The unit of power is:
A) Newton
B) Watt
C) Joule
D) Pascal
Correct Answer: B
Q19. Bernoulli's theorem deals with the conservation of:

- A) Mass
- B) Pressure
- C) Energy
- D) Temperature

Correct Answer: C

Q20. Which of the following is used as a refrigerant in domestic refrigerators?

- A) Ammonia
- B) Freon
- C) CO₂
- D) Nitrogen

Correct Answer: B

