Entrance Examination for Admission to the M.Tech. Courses in the Teaching Departments, 2025

CSS

TECHNOLOGY MANAGEMENT

For office use only

General Instructions

1. The Question Paper is having 100 Objective Questions, each carrying one mark.

2. The answers are to be (✓) 'tick marked' **only** in the "**Response Sheet**" provided.

3. <u>Negative marking</u> : **0.25 marks** will be deducted for each wrong answer .

Time : 2 Hours   **Max. Marks : 100**

To be filled in by the Candidate										
Register Number	in Figures									
	in words									

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Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

1. Which data structure uses FIFO (First-In-First-Out) ordering?
    A. Stack
    B. Queue
    C. Tree
    D. Graph
    E. None of the above

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2. What is the worst-case time complexity of binary search?

    A. O(n)
    B. O(log n)
    C. O(n log n)
    D. O(1)
    E. None of the above

3. Which layer of the OSI model is responsible for reliable data transfer?

    A. Network Layer
    B. Session Layer
    C. Transport Layer
    D. Data Link Layer
    E. None of the above

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4. In an operating system, what is the purpose of a semaphore?

   A. To increase CPU speed

   B. To manage memory

   C. To avoid race conditions in process synchronization

   D. To compile programs

   E. None of the above

5. Which data structure is best suited for implementing recursion?

   A. Queue

   B. Stack

   C. Linked List

   D. Heap

   E. None of the above

6. In a database, what is a primary key?

   A. A key used to encrypt data

   B. A unique identifier for a record in a table

   C. A key used to search through records

   D. A default key provided by SQL

   E. None of the above

7. What is deadlock in operating systems?

   A. A situation where data is lost

   B. A memory leak

   C. An error in coding logic

   D. A condition where processes wait indefinitely for resources

   E. None of the above

8. What does HTTP stand for?

    A. HyperText Transfer Protocol

    B. High Text Transfer Protocol

    C. Hybrid Text Transfer Process

    D. Host Transfer Text Protocol

    E. None of the above

9. Which of these is a valid IP address?

    A. 192.168.1.256

    B. 255.300.1.1

    C. 172.16.254.1

    D. 123.456.78.90

    E. None of the above

10. In object-oriented design, abstraction refers to:

    A. Hiding internal details and showing only essential features

    B. Reusing code

    C. Inheriting from parent classes

    D. Combining data and methods

    E. None of the above

11. A hash table is typically used to implement:

    A. Queue

    B. Priority Queue

    C. Dictionary

    D. Linked List

    E. None of the above

12. In surveying, the instrument used to measure horizontal and vertical angles is:

A. Dumpy level

B. Theodolite

C. Clinometer

D. Compass

E. None of the above

13. In structural design, which of the following refers to the bending of a beam under load?

A. Torsion

B. Buckling

C. Stress

D. Shear

E. None of the above

14. What type of foundation is generally used for high-rise buildings?

A. Spread footing

B. Raft foundation

C. Pile foundation

D. Pad foundation

E. None of the above

15. The maximum water-cement ratio for M20 concrete as per IS 456 is:

A. 0.9

B. 0.6

C. 0.8

D. 0.7

E. None of the above

16. The ratio of lateral strain to longitudinal strain is called:

    A. Young's modulus

    B. Modulus of rigidity

    C. Bulk modulus

    D. Poisson's ratio

    E. None of the above

17. Which one of the following soils has the highest permeability?

    A. Clay

    B. Silt

    C. Sand

    D. Gravel

    E. Loam

18. Which type of curve is used in roads to connect two straight paths smoothly?

    A. Vertical curve

    B. Spiral curve

    C. Transition curve

    D. Parabolic curve

    E. None of the above

19. Which of the following materials is commonly used as a binding agent in cement-based mixtures?

    A. Gypsum

    B. Calcium Carbonate

    C. Lime

    D. Silica

    E. None of the above

20. The difference between the observed level and the benchmark is called:

    A. Back sight

    B. Fore sight

    C. Reduced level

    D. Height of instrument

    E. None of the above

21. Which law states that energy can neither be created nor destroyed?

    A. Newton's First Law

    B. Pascal's Law

    C. Law of Conservation of Mass

    D. Second Law of Thermodynamics

    E. None of the above

22. In a four-stroke engine, how many times does the piston move during one power cycle?

    A. 4

    B. 3

    C. 2

    D. 6

    E. None of the above

23. The ability of a material to absorb energy and plastically deform without fracturing is called:

    A. Toughness

    B. Hardness

    C. Ductility

    D. Malleability

    E. None of the above

24. Bernoulli's equation is based on the principle of conservation of:

    A.   Momentum

    B.   Energy

    C.   Mass

    D.   Force

    E.   None of the above

25. Which manufacturing process involves removing material from a workpiece?

    A.   Casting

    B.   Welding

    C.   Forging

    D.   Machining

    E.   None of the above

26. The stress-strain curve of a ductile material typically shows:

    A.   Only elastic behavior

    B.   Sudden fracture without warning

    C.   A clear yield point

    D.   No elongation before fracture

    E.   None of the above

27. Which of the following is not a type of gear?

    A.   Helical gear

    B.   Bevel gear

    C.   Worm gear

    D.   Spur gear

    E.   None of the above

28. The ratio of actual heat drop to isentropic heat drop in turbines is known as:

A. Mechanical efficiency

B. Volumetric efficiency

C. Isentropic efficiency

D. Thermal efficiency

E. None of the above

29. The term "viscosity" refers to:

A. Heat content of a fluid

B. Resistance of a fluid to flow

C. Density of a fluid

D. Pressure exerted by a fluid

E. None of the above

30. A flywheel is used to:

A. Increase torque

B. Store rotational energy

C. Reduce speed

D. Convert AC to DC

E. None of the above

31. Which of the following is a unipolar device?

A. MOSFET

B. BJT

C. Diode

D. SCR

E. None of the above

32. In amplitude modulation (AM), the carrier signal's _____ is varied according to the message signal.

    A. Frequency

    B. Phase

    C. Amplitude

    D. Wavelength

    E. None of the above

33. The unit of capacitance is:

    A. Ohm

    B. Henry

    C. Coulomb

    D. Farad

    E. None of the above

34. The modulation technique used in television broadcasting is:

    A. Amplitude Modulation

    B. Phase Modulation

    C. Pulse Code Modulation

    D. Quadrature Amplitude Modulation

    E. None of the above

35. An ideal op-amp has:

    A. Infinite input impedance and zero output impedance

    B. Zero input impedance and infinite output impedance

    C. High bandwidth and low gain

    D. Low input resistance and high offset

    E. None of the above

36. In a PN junction diode, current flows easily when it is:

    A.   Reverse biased

    B.   Forward biased

    C.   At breakdown

    D.   Unbiased

    E.   None of the above

37. Which semiconductor device is commonly used for switching and amplification?

    A.   Resistor

    B.   Diode

    C.   Transistor

    D.   Inductor

    E.   None of the above

38. What is the typical forward voltage drop of a silicon diode?

    A.   0.1 V

    B.   0.3 V

    C.   1.1 V

    D.   0.7 V

    E.   None of the above

39. A full adder has how many inputs and outputs?

    A.   2 inputs, 1 output

    B.   3 inputs, 2 outputs

    C.   2 inputs, 2 outputs

    D.   3 inputs, 1 output

    E.   None of the above

40. The Fourier Transform is used to convert a signal from:

    A.   Frequency domain to time domain

    B.   Time domain to frequency domain

    C.   Analog to digital

    D.   Digital to analog

    E.   None of the above

41. The power factor of an AC circuit is defined as the ratio of:

    A.   Active power to apparent power

    B.   Voltage to current

    C.   Reactive power to apparent power

    D.   Voltage to resistance

    E.   None of the above

42. Which of the following is a passive component?

    A.   Diode

    B.   Transistor

    C.   Capacitor

    D.   Integrated circuit

    E.   None of the above

43. In a DC motor, the speed of the motor is primarily controlled by:

    A.   Armature current

    B.   Field current

    C.   Commutator

    D.   Rotor speed

    E.   None of the above

44. The primary function of a transformer is to:

A. Convert DC to AC

B. Convert AC to DC

C. Change the voltage level of an AC signal

D. Increase the current in an AC circuit

E. None of the above

45. The current through an inductor lags the voltage by:

A. 90°

B. 0°

C. 180°

D. 45°

E. None of the above

46. The maximum power theorem states that maximum power is delivered to the load when the load resistance is equal to:

A. The internal resistance of the source

B. The impedance of the circuit

C. The open-circuit resistance

D. The reactance of the circuit

E. None of the above

47. Which of the following is used to measure the electrical resistance of a conductor?

A. Ammeter

B. Voltmeter

C. Ohmmeter

D. Wattmeter

E. None of the above

48. The efficiency of an electric motor is the ratio of:
    A. Output power to input power
    B. Input power to output power
    C. Voltage to current
    D. Resistance to power
    E. None of the above

49. In an RLC series circuit, the impedance is:
    A. Always equal to the resistance
    B. The sum of the inductance and resistance
    C. Zero
    D. The sum of the resistance and reactance
    E. None of the above

50. What does the term 'reactive power' refer to in an AC circuit?
    A. Power that is converted into mechanical energy
    B. Power that does no work but is needed for magnetic and electric field creation
    C. Power that is consumed by resistors
    D. Power that results from harmonic distortion
    E. None of the above

51. Study the following pie chart and answer the question:
    The pie chart represents the distribution of employees in a company based on their departments:
    • Sales: 25%
    • Marketing: 20%
    • Finance: 15%
    • HR: 10%
    • IT: 30%
    What is the total number of employees in the company if the number of employees in the department is 300?
    A. 800
    B. 900
    C. 1100
    D. 1000
    E. None of the above

52. If the average of five consecutive odd numbers is 27, what is the smallest number?

    A. 21

    B. 19

    C. 25

    D. 27

    E. 23

53. Years: 2016, 2017, 2018, 2019, 2020

    Number of Students Passed (in thousands): 10, 12, 14, 16, 18

    What is the average number of students who passed in the last five years?

    A. 12,000

    B. 14,000

    C. 15,000

    D. 16,000

    E. None of the above

54. What is the ratio of the number of male employees to female employees in a company?

    (1) The company has 200 male employees and 300 female employees.

    (2) The total number of employees in the company is 500.

    A. Statement (1) alone is sufficient to answer the question.

    B. Statement (2) alone is sufficient to answer the question.

    C. Both statements together are sufficient to answer the question.

    D. Both statements together are not sufficient to answer the question.

    E. None of the above

55. The following bar chart shows the number of books sold by a bookstore in three categories over 4 months:

Children's books sold:

- January: 400

- February: 300

- March: 500

- April: 600

What is the average number of Children's books sold in the first 4 months?

A. 450

B. 475

C. 500

D. 525

E. None of the above

56. The following pie chart represents the distribution of sales across different regions in a company:

- North: 25%

- South: 35%

- East: 20%

- West: 20%

If the total sales of the company are 400,000, what is the sales amount for the South region?

A. Rs. 100,000

B. Rs. 125,000

C. Rs. 140,000

D. Rs. 150,000

E. None of the above

57. What is the length of the rectangle?

(1) The perimeter of the rectangle is 60 units.

(2) The width of the rectangle is 15 units.

A. Statement (1) alone is sufficient to answer the question.

B. Statement (2) alone is sufficient to answer the question.

C. Both statements together are sufficient to answer the question.

D. Both statements together are not sufficient to answer the question.

E. None of the above

58. Statements and Conclusions

Statement: All managers are leaders. Some leaders are visionaries,

Conclusion:

I. Some managers are visionaries.

II. All leaders are managers.

A. Only I follows

B. Only II follows

C. Both I and II follow

D. Neither I nor II follows

E. None of the above

59. Coding-Decoding

If TEAM is coded as UFBN, then how is WORK coded?

A. XPSJ

B. YQTL

C. XPTL

D. XQTL

E. None of the above

60. Blood Relations

Pointing to a man, a woman said, "He is the son of my husband's only sister."

How is the man related to the woman?

A. Son-in-Law

B. Cousin

C. Son

D. Brother-in-law

E. None of the above

61. Number Series

Find the next number in the series:

2, 6, 12, 20, 30, ?

A. 40

B. 38

C. 36

D. 44

E. None of the above

62. Statements:

- All pens are books.
- All books are papers.

Conclusions:

I. Some papers are pens.

II. All pens are papers.

A. Only I follows

B. Only II follows

C. Both I and II follow

D. Neither I nor II follows

E. None of the above

63. Statements:

- All businessmen are rich.

- Some rich people are honest.

Conclusions:

I.   Some businessmen are honest.

II.   All rich people are businessmen.

A.   Only I follows

B.   Only II follows

C.   Both I and II follow

D.   Neither I nor II follows

E.   None of the above

64. Find the next term in the series:

A, C, F, J, O, ?

A.   Z

B.   V

C.   T

D.   W

E.   None of the above

65. A girl walks 4 km north, then turns right and walks 3 km. then turns right again and walks 4 km. How far is she from the starting point?

A.   3 kmn

B.   4 km

C.   5 km

D.   7 km

E.   None of the above

66. Number Series

Find the missing number:

121, 144, 169, 196, ?

A. 221

B. 225

C. 246

D. 210

E. None of the above

67. Introducing a man, Rina said, "He is the son of my grandfather's only son."

How is the man related to Rina?

A. Brother

B. Cousin

C. Nephew

D. Uncle

E. None of the above

68. Logical Puzzle

Five books are placed one above the other. C is placed immediately above D, and E is two books above C. A is between E and C.

Which book is at the bottom?

A. A

B. C

C. B

D. D

E. None of the above

69. Statement: "Students should read books to improve their vocabulary."

Assumptions:

I. Reading books helps improve vocabulary.

II. Students don't have good vocabulary.

A. Only I is implicit

B. Only II is implicit

C. Both I and II are implicit

D. Neither I nor II is implicit

E. None of the above

70. Problem: Traffic congestion has increased in the city.

Courses of Action:

I. Introduce odd-even number rule for vehicles

II. Increase the number of traffic police.

A. Only I follows

B. Only II follows

C. Both I and II follow

D. Neither I nor II follows

E. None of the above

71. Statement: A large number of people gathered at the town hall.

Possible Cause:

1. The mayor is addressing the public.

II. There was a festival being celebrated nearby.

A. Only I is a probable cause

B. Only II is a probable cause

C. Both I and II are probable causes

D. Neither I nor II is a probable cause

E. None of the above

72. You are a manager. One of your team members repeatedly misses deadlines. What would you do?

    A. Ignore the issue

    B. Immediately fire the employee

    C. Cut salary without warning

    D. Understand the reason and give a warning

    E. None of the above

73. A shopkeeper bought an item for 600 and sold it for 750. What is the profit percentage?

    A. 20%

    B. 25%

    C. 30%

    D. 40%

    E. None of the above

74. Ratio and Proportion

    If the ratio of boys to girls in a class is 3:2 and there are 30 boys, how many girls are there?

    A. 10

    B. 15

    C. 21

    D. 25

    E. None of the above

75. The average of 5 numbers is 60. If one number is removed, the new average becomes 56. What is the removed number?

    A. 80

    B. 85

    C. 76

    D. 100

    E. None of the above

76. A can do a piece of work in 10 days, and B can do the : same work in 15 days. Working together, how many days will they take?

   A. 5

   B. 6

   C. 7

   D. 8

   E. None of the above

77. What is the simple interest on Rs. 2,000 at 5% per annum for 3 years?

   A. Rs. 200

   B. Rs. 250

   C. Rs. 275

   D. Rs. 350

   E. None of the above

78. In a 60-liter mixture of milk and water, the ratio of milk to water is 2:1. How much water is in the mixture?

   A. 10 L

   B. 15 L

   C. 25 L

   D. 20 L

   E. None of the above

79. If the price of a commodity increases from Rs. 800 to Rs. 1,000, what is the percentage increase?

   A. 20%

   B. 22%

   C. 27%

   D. 28%

   E. None of the above

80. If 4 people can complete a task in 6 days, how many days will 2 people take?
    A.   8
    B.   10
    C.   12
    D.   14
    E.   None of the above

81. Which of the following numbers is a prime number?
    A.   21
    B.   39
    C.   33
    D.   35
    E.   31

82. If the perimeter of a square is 40 cm, what is the length of one side?
    A.   5 cm
    B.   8 cm
    C.   15 cm
    D.   12 cm
    E.   10 cm

83. A shopkeeper marks an item at ₹2600 and allows a discount of 20%. What is the selling price?
    A.   Rs. 460
    B.   Rs.470
    C.   Rs.490
    D.   Rs.480
    E.   Rs.550

84. The sum of interior angles of a quadrilateral is:
    A.   360°
    B.   270°
    C.   180°
    D.   400°
    E.   450°

85. You are on an island where there are only two types of inhabitants: Truth-tellers, who always tell the truth, and Liars, who always lie. You meet two people, A and B. A says: "B is a liar." B says: "A and I are of the same type." Who is the truth-teller, and who is the liar?

    A. A is the truth-teller, B is the liar

    B. B is the truth-teller, A is the liar

    C. Both are liars

    D. Both are truth-tellers

    E. Neither A nor B is the truth-teller

86. A man buys a chair for $500 and sells it at a loss of 20%. What is the selling price?

    A. $430

    B. $420

    C. $440

    D. $480

    E. $400

87. The ratio of two numbers is 3:4. If their sum is 56, what is the larger number?

    A. 24

    B. 32

    C. 28

    D. 36

    E. 40

88. A sum of money doubles itself at compound interest in 4 years. In how many years will it become four times?

    A. 6

    B. 12

    C. 10

    D. 8

    E. 16

89. A shopkeeper gives a discount of 20% on the marked price and still makes a profit of 20%. If the marked price is $600, find the cost price.

    A. $500

    B. $420

    C. $450

    D. $480

    E. $400

90. If the compound interest on Rs.10,000 in 2 years is Rs. 2,100, what is the rate of interest per annum?

    A. 10%

    B. 12%

    C. 15%

    D. 20%

    E. 5%

91. A Sum of Rs. 6,000 is invested at simple interest at 5% per annum. What will be the total interest after 3 years?

    A. Rs. 950

    B. Rs. 750

    C. Rs. 850

    D. Rs. 600

    E. Rs. 900

92. The cost price of an article is Rs. 500. It is marked at 20% above the cost price and sold at a discount of 10%. What is the selling price?

    A. Rs. 440

    B. Rs. 540

    C. Rs. 560

    D. Rs. 580

    E. Rs. 600

93. A train running at 60 km/h crosses a pole in 18 seconds. What is the length of the train?

    A.   200 m

    B.   270 m

    C.   250 m

    D.   300 m

    E.   280 m

94. A person's monthly salary is increased by 20% and then again increased by 10%. What is the net percentage increase?

    A.   30%

    B.   35%

    C.   28%

    D.   33%

    E.   32%

95. A train 180 meters long passes a platform 120 meters long in 15 seconds. What Is the Speed of the train in km/h?

    A.   80

    B.   84

    C.   96

    D.   108

    E.   72

96. The average age of 4 members of a family is 19 years. A baby is born. What Is the new average age?

    A.   16

    B.   17

    C.   18

    D.   15.2

    E.   19.5

97. A boat can travel 40 km downstream in 2 hours and return upstream in 4 hours. What is the speed of the boat in still water?

    A. 10 km/h

    B. 12 km/h

    C. 14 km/h

    D. 15 km/h

    E. 20 km/h

98. A shopkeeper bought an article for Rs.500 and sold it for Rs.650. What is the profit percentage?

    A. 25%

    B. 30%

    C. 20%

    D. 15%

    E. 10%

99. Odd one out 3, 5, 7, 11, 15, 17

    A. 3

    B. 11

    C. 7

    D. 17

    E. 15

100. Rita starts facing east, turns left and walks 10 m, then turns right and walks 5 m. Which direction is she facing now?

    A. North

    B. South

    C. East

    D. West

    E. Data in sufficient

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RESPONSE SHEET

1	A	B	C	D	E		26	A	B	C	D	E		51	A	B	C	D	E		76	A	B	C	D	E
2	A	B	C	D	E		27	A	B	C	D	E		52	A	B	C	D	E		77	A	B	C	D	E
3	A	B	C	D	E		28	A	B	C	D	E		53	A	B	C	D	E		78	A	B	C	D	E
4	A	B	C	D	E		29	A	B	C	D	E		54	A	B	C	D	E		79	A	B	C	D	E
5	A	B	C	D	E		30	A	B	C	D	E		55	A	B	C	D	E		80	A	B	C	D	E
6	A	B	C	D	E		31	A	B	C	D	E		56	A	B	C	D	E		81	A	B	C	D	E
7	A	B	C	D	E		32	A	B	C	D	E		57	A	B	C	D	E		82	A	B	C	D	E
8	A	B	C	D	E		33	A	B	C	D	E		58	A	B	C	D	E		83	A	B	C	D	E
9	A	B	C	D	E		34	A	B	C	D	E		59	A	B	C	D	E		84	A	B	C	D	E
10	A	B	C	D	E		35	A	B	C	D	E		60	A	B	C	D	E		85	A	B	C	D	E
11	A	B	C	D	E		36	A	B	C	D	E		61	A	B	C	D	E		86	A	B	C	D	E
12	A	B	C	D	E		37	A	B	C	D	E		62	A	B	C	D	E		87	A	B	C	D	E
13	A	B	C	D	E		38	A	B	C	D	E		63	A	B	C	D	E		88	A	B	C	D	E
14	A	B	C	D	E		39	A	B	C	D	E		64	A	B	C	D	E		89	A	B	C	D	E
15	A	B	C	D	E		40	A	B	C	D	E		65	A	B	C	D	E		90	A	B	C	D	E
16	A	B	C	D	E		41	A	B	C	D	E		66	A	B	C	D	E		91	A	B	C	D	E
17	A	B	C	D	E		42	A	B	C	D	E		67	A	B	C	D	E		92	A	B	C	D	E
18	A	B	C	D	E		43	A	B	C	D	E		68	A	B	C	D	E		93	A	B	C	D	E
19	A	B	C	D	E		44	A	B	C	D	E		69	A	B	C	D	E		94	A	B	C	D	E
20	A	B	C	D	E		45	A	B	C	D	E		70	A	B	C	D	E		95	A	B	C	D	E
21	A	B	C	D	E		46	A	B	C	D	E		71	A	B	C	D	E		96	A	B	C	D	E
22	A	B	C	D	E		47	A	B	C	D	E		72	A	B	C	D	E		97	A	B	C	D	E
23	A	B	C	D	E		48	A	B	C	D	E		73	A	B	C	D	E		98	A	B	C	D	E
24	A	B	C	D	E		49	A	B	C	D	E		74	A	B	C	D	E		99	A	B	C	D	E
25	A	B	C	D	E		50	A	B	C	D	E		75	A	B	C	D	E		100	A	B	C	D	E

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