Question Booklet No.	Question Booklet Series: **D**

E01

AUAT -2018

TEST BASED ON MCQ

Lateral Entry in B. Tech (2nd Year) (E01)

(Do not open this QUESTION BOOKLET until you are asked to do so)

Full Marks:50 **Duration: 1 Hour**

(Use Ball point Pen to fill up this cover page of the Question Booklet)

IMPORTANT INSTRUCTIONS

Candidates should read the following instructions carefully and follow all the required before answering the questions:

1) The Question Booklet has paper seal pasted on it. Candidates should open the Question Booklet only when they are asked to do so by the Invigilator.
2) The Candidates must check immediately after breaking the seal that the **Question Booklet contains 40 questions**. If any discrepancy is found they must report to the Invigilator for replacement of the Question Booklet.
3) Answer will have to be given on the Special OMR Answer Sheet provided for this purpose. Question numbers progress from 1 to 40 continuously with alternative answers being shown as A, B, C and D for each question. While identifying / responding one should consider the best alternative answer and **shade only one circle with black/blue ball point pen only in the OMR answer sheet.**
4) Candidates must write his/her Name, Roll No. and Name of the Examination Centre and sign at the appropriate place on the front page of the Question Booklet provided for this purpose. In the OMR Answer sheet, write the Roll Number, name of the Examination Centre and series of the Question Booklet. Write and shade the circles for Roll No. and Category. Put your signature in the respective box. If any candidate fails to shade correct alternative in the specified place, his/her OMR Answer Sheet cannot be evaluated and will be liable to be rejected. **There will be negative marking for wrong answers.**
5) The OMR Answer Sheet provided to you contains options to answer for 60 questions only. **You must shade only one** circle as your response to each of the Answers from 1 to 40 only. Shading more than one alternative or circle will lead to rejection of your response.
6) On leaving the examination hall, candidates must submit their OMR answer sheet. This is mandatory. They are allowed to keep the Question Booklet with them.
7) Darken completely only one CIRCLE which you think is correct as shown in the figure below:

Correct Method

Wrong Method

8) Answer Sheet will processed by electronic means. Any untoward/ irrelevant remarks, folding or putting stray notes on the answer sheet, any damage to the answer sheet, non-filling or wrong filling of Roll Number's on the OMR sheet shall be summarily rejected and the sole liability shall remain with the candidate.
9) Rough Work must be done at the end of the Booklet.
10) **No Candidate is allowed to leave the examination hall untilend of the examination.**
11) **Use of any Electronic device like Mobile, Programmable Calculator *etc.* is strictly prohibited.**

1. Given the matrix A has size 3×4. Then A^TB and BA^T are possible when B has size

A) 4×4 B) 4×3 C) 3×4 D) 3×3.

2. The variance of first 20 natural numbers is

A) $\frac{133}{2}$ B) $\frac{133}{4}$ C) $\frac{379}{12}$ D) $\frac{399}{4}$.

3. Size of the array need not be specified, when

A) Initialization is a part of definition B) It is a declaration

C)It is a formal parameter D) All of these

4. Conversion of an octal number 112_8 to hexadecimal number is

A) $4A_{16}$ B) $5A_{16}$ C) 15_{16} D) 20_{16}

5. The section of the CPU that selects, interprets and sees to the execution of program instructions

A) Memory B) Register unit C) Control unit D) ALU

A) Memory B) Register

6. Which of the following is used for modulation and demodulation?

A) modem B) protocols C) gateway D) multiplexer

7. The first network that planted the seeds of Internet was_____.

A) NSFnet B) ARPANET C) Vnet D) Both b) and c)

8. The microprocessor of a computer cannot operate on any information if that information is not in its

A) secondary storage B) main storage C) ALU D) logic unit

9. IPv6 addressed have a size of

A) 32 bits B) 64 bits C) 128 bits D) 265 bits

10. Which of the following statements is *True* both for a series as well as a parallel circuit?

A) Currents are additive B) Voltage drops are additive

C) Powers are additive D) Conductance are additive

11. If $|\vec{a}|=2, |\vec{b}|=5$ and $|\vec{a}\times\vec{b}|=8$ then $\vec{a}\cdot\vec{b}$ is equal to

A) ± 4 B) ± 6 C) ± 5 D) none of these.

12. The value of $f(x)$ is given only at $x=0, \frac{1}{3}, \frac{2}{3}, 1$. Which of the following can be used to evaluate $\int_0^1 f(x)dx$ approximately?

A) Trapezoidal Rule B) Simpson 1/3rd Rule

C) Trapezoidal as well as Simpson 1/3rd Rule D) none of these.

13. For the smallest positive root of transcendental equation $x-e^{-x}=0$, the interval is

A) $(0, 1)$ B) $(-1, 0)$ C) $(2, 3)$ D) none of these.

14. Complementary Function of $x^2\frac{d^2y}{dx^2}-x\frac{dy}{dx}+y=2x\log x$ is

A) $(c_1+c_2x)e^x$ B) $(c_1+c_2\log x)x$ C) $(c_1+c_2x)\log x$ D) $(c_1+c_2\log x)e^x$.

15. The value of x for which the matrix $A = \begin{pmatrix} \frac{2}{x} & -1 & 2 \\ 1 & x & 2x^2 \\ 1 & \frac{1}{x} & 2 \end{pmatrix}$ is singular is

A) ± 1 B) ± 2 C) ± 3 D) none of these.

16. A constant current of 2.8 A exists in a resistor. The r.m.s. value of current is-

A) 2.8 A. B) 3 A C) 1.4 A. D) Undefined

17. A circuit of zero leading power factor behaves as-

A) a pure inductive circuit B) R-L circuit.

B) R-C circuit D) a pure capacitive circuit

18. In a three-phase system, the e.m.f.s are-

A) 30° apart B) 45° apart C) 90° apart D) 120° apart

19. The output power of any electrical motor is taken from the-

A) armature
B) field
C) coupling mounted on the shaft.
(d) none of these

20. A parameter that is used to measure the radiation emitted by a cellphone is known as-

A) Specific Transmission Rate (STR)
B) Specific Absorption Rate (SAR)
C) Specific Emission Rate (SER)
D) Specific Dispersion Rate (SDR)

21. In a worm & worm wheel, if the worm is single-started and the number of teeth of the worm wheel is 50, then in order to obtain one rotation of the worm-wheel, we require-

A) 100 rotations of the worm
B) 25 rotations of the worm
C) 50 rotations of the worm
D) 40 rotations of the worm

22. A key, having rectangular cross-section, connecting a flange coupling to a shaft is likely to fail in-

A) Shearing or crushing
B) Tension
C) Bending
D) Deflection

23. Prophet Muhammad (PBUH) belonged to _____ family.

A) Hashmi B) Quraishi C) Makki D) Madni

24. 'Which country is called the "Land of Prophets"?

A) Saudi Arabia B) Iraq

C) Syria D) Palestine

25. The wealthy Muslims give a set proportion of their wealth to charity. It is called .....

A) Salat B) Saum C) Zabur D) Zakat

26. The name of the month during which the Muslims observe fasting is .....

A) Ramadan B) Rajab C) Shaban D) Shawwal

27. Cave Hira is in the _____ mountain.

A) As-Safa B) Sil C) Uhud D) Al-Noor

28. Al-Hudaibiyah Treaty was scribed by

A) Abu BakrSiddique (R.A) B) Umar Farooq (R.A)

C) UsmanGhani (R.A) D) Ali Al-Murtaza (R.A)

29. They like swimming. Whenever they have a leisure time. (Which word is a verbal noun?)

A) leisure B) free C) like D) swimming

30. The phrase "*wiped out*" means

A) Cleaned B) cut out C) destroyed D) segregated

31. The turbidity of water is measured in-

A) Turbidity Monitoring Unit (TMoU) B) Turbidity Metering Unit (TMU)

C) Optometric Turbidity Unit (OTU) D) Nephelometric Turbidity Unit (NTU)

32. The 'satisfactory' level of the National Air Quality Index of India is-

A) 201-300 B) 101-200 C) 51-100 D) 0-50

33. Among the following refrigerants, which refrigerant deplete the Ozone layer?

A) R-22 B) R-410A C) R-290 D) R-600A

34. Standard BOD is measured at-

A) 20°C with 3 days of incubation
B) 25°C with 3 days of incubation
C) 30°C with 5 days of incubation
D) 20°C with 5 days of incubation

35. A wire having initial diameter 2 mm is elongated by a longitudinal strain of 0.1%. If Poisson's ratio is 0.5, what will be its final diameter?

A) 2.001 mm
B) 1.999 mm
C) 1.657 mm
D) Remains unchanged

36. If E = Young's modulus, G = rigidity modulus and μ = Poisson's ratio, then –

A) $E = 2G(1 + \mu)$
B) $E = 3G(1 + \mu)$
C) $E = 2G(1 - \mu)$
D) $E = 3G(1 + 2\mu)$

37. Polar moment of inertia of a circular area of diameter 'D' is given by-

A) $0.0589\ D^4$
B) $0.0326\ D^4$
C) $0.0721\ D^4$
D) $0.0982\ D^4$

38. With rise in temperature, Young's modulus of elasticity of a material-

A) Increases
B) Deceases
C) Remains unchanged
D) May increase or decrease

39. Centre of gravity of a solid circular cone of base radius 'r' and height 'h', from its base is at a distance of –

A) 0.25r B) 0.333r C) 0.333h D) 0.25h

40. Moment of a force about a point can be represented by-

A) Area of a triangle

B) Twice the area of a triangle

C) Half the area of a triangle

D) Moment cannot be represented by any geometrical figure