RVUNL AEN & JEN

Electrical Engineering

Mini Mock Challenge
(June 26th - June 27th 2021)

Questions & Answer Key

1. Find the odd number/letters/ number part from the given alternatives.

   A. 120-80

   B. 57-19

   C. 45-30

   D. 63-42

Ans. B

2. In each of the following questions, select the missing number from the given responses.

   MNOPWXYZRSTUBCD?

   A. A

   B. E

   C. I

   D. F

Ans. B

3. Find the odd number / letters /number pair from the given alternatives.

   A. Rivulet

   B. Stream

   C. River

   D. Pond

Ans. D

4. Which one of the given responses would be a meaningful order of the following?

   (1) Atomic Age

   (2) Metallic Age

   (3) Stone Age

   (4) Alloy Age

   A. (1), (3), (4), (2)

   B. (3), (2), (4), (1)

   C. (2), (3), (1), (4)

   D. (4), (3), (2), (1)

Ans. B

5. Yusuf Arakkal, who passed away recently, was a well-known personality of which field?

   A. Painting

   B. Sports

   C. Politics

   D. Scientists

Ans. A

6. Tick the correct option of GDP (Gross Domestic Product) contributed by service sector in the past:

   A. During 2000-01 (GDP – 65.54%)

   B. During 1980-81 (GDP – 50.00%)

   C. During 1950-51 (GDP – 34.63%)

   D. During 2011-12 (GDP – 57.00%)

Ans. D

7. The longest appendix ever removed was how much in length?

   A. 20 cm

   B. 22 cm

   C. 23.5 cm

   D. 28 cm

Ans. C

8. At the Rio Olympics, who was the flagbearer of the Indian contingent?

   A. Narsingh Yadav

   B. Abhinav Bindra

   C. Dipa Karmakar

   D. Sania Mirza

Ans. B

9. Apart from the Himalayan region, the forest soils occur which of the following?

    A. Western Ghats   B. Eastern Ghats

    C. Southern Ghats   D. Both A and B

Ans. D

10. Consider the following statement regarding announcements in Rajasthan Budget, 2021-22

    A) Chief Minister announced a new scheme 'Mukhyamantri Krishak Saathi Scheme' under this budget.

    B) Under this scheme, Rs 2 Crore allocated for various farmer welfare works.

    Which of the statements given above is/are correct?

    A. A only   B. B only

    C. Both A and B   D. Neither A nor B

Ans. A

11. Match List I with List II and with reference to different schemes launched in Rajasthan, select the correct answer code given below:

    List-I

    Yojana - Launch Year

    A). Nishulk Dawa Yojna

    B). Nishulk Janch Yojna

    C). Nirogi Rajasthan Abhiyan

    D). Palanhaar Yojna

    List-II

    I. 2013

    II. 2011

    III. 2004-05

    IV. 2019

    Codes:

    A. A-I B-II C-III D-IV   B. A-II B-I C-IV D-III

    C. A-IV B-II C-III D-I   D. A-I B-IV C-III D-II

Ans. B

12. Recently in Budget 2021-22, which ambitious township scheme is announced by chief minister of Rajasthan?

    A. Greater Sanchore Industrial Township

    B. Greater Tapukara Industrial Township

    C. Greater Bhiwadi Industrial Township

    D. Greater Baran Industrial Township

Ans. C

gradeup
SUPER

One Subscription for
Complete Exam Preparation

Live Courses

- Daily Study Plan
- India's Best ESE, GATE & PSU Faculty
- Best Study Material
- Complete Doubt Resolution

+

gradeup
Green Card

Online Mock Tests

- Based on Latest Exam Pattern
- Designed by Experts

13. Padam Awards were awarded in January 2021, three personalities form Rajasthan were awarded Padma Shree awards. Who among the following is awarded the Padma Shree award from Rajasthan?

    A. Gulam Rasul Khan   B. Lakha Khan

    C. Kanak Raju   D. Usha Yadav

Ans. B

14. Who has been appointed as the chief information commissioner of Rajasthan?

    A. Niranjan Arya   B. DB Gupta

    C. Shashi Kant Gupta   D. None of above

Ans. B

15. Which river of Rajasthan originates from Aravalli Range in Kotri tehsil of Udaipur and then it flows into Gujarat?

    A. Sei   B. Western Banas

    C. Sabarmati   D. Kantli

Ans. C

16. Gobardhan Scheme was launched in 2018 and recently a unified portal on this scheme is launched, this scheme is run by which ministry?

    A. Ministry of Farmers and Agriculture

    B. Ministry of Diary and Animal Husbandary

    C. Ministry of Jal Shakti

    D. None of above

Ans. C

17. Based on the district wise performance report of Pradhan Mantri Gramin Awas Yojana released on December 16,2020, which district got the first rankings in country under the scheme?

    A. Jaipur   B. Sikar

    C. Sirohi   D. Rajsamand

Ans. D

18. Which project is being run by government for successful implementation of MGNREGA in Rajasthan?

    A. Apna Kaam Apna Daam   B. Pura Kaam Pura Daam

    C. Shi Kaam Uchit Daam   D. Ek Kaam Ek Daam

Ans. B

19. In Rajasthan, "Mahaveer ji ki Lathmaar holi" is famous in _____.

    A. Sangod ka nahan   B. Bhinaay

    C. Byawar   D. Non of the above

Ans. A

20. As per the census 2011, Which of the following are the three top districts with highest total literacy in Rajasthan?

A. Kota, Jaipur, Jhunjhunu   B. Sikar, Alwar, Jhunjhunu

C. Kota, Jaipur, Ganganagar   D. Jaipur, Kota, Sikar

Ans. A.

21. Which of the following wildlife sanctuaries is spread in Chittorgarh, Pratapgarh and Udaipur?

A. National Chambal Sanctuary   B. Sitamata Sanctuary

C. Kumbalgarh wildlife sanctuary   D. Jawahar sagar wildlife sanctuary

Ans. B

22. Which of the following breed of sheep is also known as "Bikaneri Chokhla"?

A. Chokhla   B. Magra

C. Marwari   D. Naali

Ans. B

23. Match List I and List II and select the correct answer using the codes given below:

Name   **-**   **Established year**

A) Directorate of Agriculture Marketing   -   1) 1974

B) Rajasthan State Agriculture Marketing Board -   2) 1980

C) RAJFED   -   3) 1957

D) National Institute of Agriculture Marketing -   4) 1988

Codes:

A. A 1, B 2, C 3, D 4   B. A 2, B 1, C 4, D 3

C. A 4, B 3, C2, D 1   D. A 2, B 1, C 3, D 4

Ans. D

Name	Established year
Rajasthan State Warehousing Cor.	1957
Rajasthan Agro-industry Corporation	1965
Shri Ganganagar cotton complex	1989
State Institute of Agriculture Management	1993

24. Which district of Rajasthan produces the maximum wind energy?

A. Bikaner   B. Jaisalmer

C. Jodhpur   D. Pratapgarh

Ans. B

25. Register is a

    A. Set of capacitors used to register input instructions in a digital computer

    B. Set of paper tapes and cards put in a file

    C. Temporary storage unit within the CPU having dedicated or general purpose use

    D. Part of the auxiliary memory

Ans. C

26. Which of the following animals is dumb?

    A. Deer   B. Giraffe

    C. Sag   D. Yak

Ans. B

27. Sun Lab's Java Car uses technology to keep your car networked with the world outside.

    A. embedded   B. spam

    C. smart Screen   D. access Point

Ans. A

28. Which of the following is not a component of to qualify the "Green Embassy"?

    A. Rain water harvesting system

    B. Installation of solar panels on the roof

    C. Installation of air treatment filter in the office ventilation system

    D. Daily disposal of garbage generated in the embassy

Ans. D

29. $\dfrac{a}{b} = \dfrac{c}{d} = \dfrac{e}{f} = 3$, then $\dfrac{2a^2 + 3c^2 + 4e^2}{2b^2 + 3d^2 + 4f^2} = ?$

    A. 4   B. 9

    C. 15   D. 12

Ans. B

30. By selling a watch for Rs. 132 a trade man got two successive profits of 10% and 20% respectively. Then, the resultant profit is

    A. 22%

    B. 30%

    C. 32%

    D. 34%

Ans. C

31. In a ΔABC, the medians *AD, BE* and *CF* passes through *G*. If *FG* = 3.5 cm, find *GC*.

    A. 6 cm   B. 7 cm

    C. 8 cm   D. 9 cm

Ans. B

gradeup SUPER

One Subscription for
Complete Exam Preparation

Live Courses

- Daily Study Plan
- India's Best ESE, GATE & PSU Faculty
- Best Study Material
- Complete Doubt Resolution

+

gradeup
Green Card

Online Mock Tests

- Based on Latest Exam Pattern
- Designed by Experts

32. $\left(\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}\right)^2 + \left(\dfrac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}\right)^2$ is equal to:

A. 64   B. 62

C. 66   D. 68

Ans. B

33. एक शब्द का बहुवचन शब्द निम्न में से कौनसा है?

A. अनेक   B. प्रत्येक

C. बहुत सारे   D. अनेकों

Ans. A

34. सर्वनाम यानी सबके लिए नाम। इसका प्रयोग संज्ञा के स्थान पर किया जाता है। 'कौन' सर्वनाम का गुणवाचक शब्द दिए गए विकल्पों में से चिह्नित कीजिए :

A. कैसा   B. कितना

C. किस   D. कितने

Ans. A

35. आचार्य प्रथम शास्त्री

आचार्य शंकर शास्त्री

आचार्य राम शास्त्री

आचार्य इस चिन्ह को किस नाम से जाना जाता है?

A. अनुवृति चिन्ह   B. विराम चिन्ह

C. प्रश्नवाचक   D. त्रुटि चिन्ह

Ans. A

36. निर्देशः प्रत्येक प्रश्न में एक वाक्य दिया हुआ है। कुछ वाक्य बिल्कुल शुद्ध हैं पर कुछ में गलती हैं। वाक्य के जिस भाग में गलती हो, उसके अनुक्रम (A), (B) या (C) पर सही का निशान लगाइये। यदि कोई गलती न हो, तो आपका उत्तर (D) होगा।

(A) **समय बीतने के साथ ज्यों-ज्यों मनुष्य के** /(B) **रागात्मक संबंध बनते-बिगड़ते गए**/(C) **उनके जीवन की संकुलता बढ़ती गई ।** /(D) **कोई गलती नहीं ।**

A. वाक्य A   B. वाक्य B

C. वाक्य C   D. कोई गलती नहीं

Ans. C

37. **Find the adverb of the given word.**

    Scientific

    A. Science   B. Scientist

    C. Scientifically   D. Scientology

Ans. C

38. In the sentence identify the segment which contains the grammatical error. If the sentence has no error, then select 'No error'.

    Everyone of us should realize that any act of negligence will cause a great harm to our country security.

    A. any act of negligence will cause

    B. No error

    C. Everyone of us should realize that

    D. a great harm to our country security

Ans. D

39. **Select the most appropriate option to fill in the blank.**

    I accidentally cut _____ last night while opening the bottle.

    A. you   B. him

    C. me   D. myself

Ans. D

40. **Given below are four jumbled sentences. Pick the option that gives their correct order.**

    P. They rule through their elected representatives.

    Q. Democracy is the primary goal of our Indian Constitution.

    R. If representatives do not rule according to the wishes of the people, they are changed in the next election.

    S. In a democracy, the people are the rulers.

    A. SQPR   B. QPSR

    C. QSPR   D. RSPQ

Ans. C

41. A point charge of 10^{-9} C is placed at a point A in the free space. The potential difference between the two points 20 cm and 10 cm away from the charge at A will be

    A. 40 V   B. 45 V

    C. 50 V   D. 55 V

Ans. B

42. An 8-pole DC generator has lap wound armature containing of 16 coils of 6 turns each. If the flux per pole is 0.06 wb and the machine is running at 125 rpm, then the induced armature voltage is

A. 96V
B. 192V
C. 48V
D. 384V

Ans. D

43. A single-stack, 8-phase (stator), multiple-step motor has 6-rotor teeth. The poles are excited one at a time. If excitation frequency is 120 Hz, the speed of the motor is

A. 3 rps
B. 5 rps
C. 10 rps
D. 15 rps

Ans. B

44. A PMMC type voltmeter, having a full-scale reading of 250 V and an internal resistance of 450 kΩ, is connected with the series resistance of 50 kΩ. Calculate the sensitivity of the voltmeter (in ohms/volts).

A. 2000
B. 2500
C. 20000
D. 24000

Ans. A

45. A 400 V, 50 Hz, 30 hp, three phase induction motor is drawing 50A current at 0.8 power factor lagging. The stator and rotor copper losses are 1.5 kW and 900 W respectively. The friction and windage losses are 1050 W and the core losses are 1200 W. The air gap power of the motor will be, nearly

A. 15 kW
B. 20 kW
C. 25 kW
D. 30 kW

Ans. C

46. For 5 kVA, 220 V/440 V, 50 Hz, 1-φ transformer:

(i) % resistance = 3%

(ii) % leakage reactance = 4%

To carry out short circuit test at rated current applied high voltage side, voltage in volts is:

A. 5
B. 11
C. 22
D. 33

Ans. C

47. One single-phase energy meter operating on 230 V and 5 A for 5 hours makes 1940 revolutions. Meter constant is 400 rev/kWh. The factor of the load is

A. 1.0
B. 0.8
C. 0.7
D. 0.6

Ans. B

gradeup SUPER | One Subscription for Complete Exam Preparation

Live Courses

- Daily Study Plan
- India's Best ESE, GATE & PSU Faculty
- Best Study Material
- Complete Doubt Resolution

+

gradeup Green Card

Online Mock Tests

- Based on Latest Exam Pattern
- Designed by Experts

48. The surge impedance of a line is 500 Ω and its surge impedance loading is 1 pu. If a shunt-reactors with 19% compensation and series capacitor with 36% compensation are connected then new surge impedance and surge impedance loading respectively are

A. $\frac{4000}{9}\,\Omega, 0.88PU$

B. 562.5 Ω, 1.125 Ω

C. 562.5 Ω, 0.88 pv

D. $\frac{4000}{9}\,\Omega, 1.125PU$

Ans. D

49. For the network shown in the figure below:
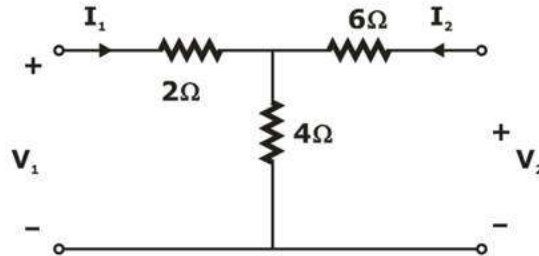
1. $Z_{22} = 10$

2. $h_{11} = 4.4$

The correct option is

A. 1 only

B. 2 only

C. Both A & B

D. Neither A nor B

Ans. C

50. A 10-C dc voltage is applied an integrator with R = 50 kΩ, C = 100 µF at t = 0. How long will it takes for the op amp to saturate if the saturation voltage are +12 V and −12 V? Assume that the initial capacitor voltage was zero.

A. 2s

B. 4s

C. 6s

D. 8s

Ans. C

51. For Buck converter, if source voltage is 100 V and duty ratio is 0.4. The load current (in A) if relation between load current (I_0) and output voltage (V_0) is $V_0 = 3I_0 + 5$.

A. 2 A

B. $\frac{20}{3}$ A

C. $\frac{25}{3}$ A

D. $\frac{35}{3}$ A

Ans. D

52. A generating station has a maximum demand of 100 MW, a load factor of 80% and a plant capacity factor of 60%. The reserve capacity of the plant is

A. 20 MW

B. 33 MW

C. 80 MW

D. 60 MW

Ans. B

53. A single PWM inverter has input dc voltage V_S. Its pulse width is selected such that third harmonic component in eliminated from output voltage. The rms value of fundamental component of output voltage is:

A. $\dfrac{2\sqrt{2}}{\pi} V_s$

B. $\dfrac{\sqrt{6}}{\pi} V_S$

C. $\dfrac{2V_S}{\pi}$

D. $\dfrac{2\sqrt{3}}{\pi} V_s$

Ans. B

54. Is a Q-meter, distributed capacitance of a coil is measured by changing the capacitance of the tuning capacitor. The values of tuning capacitor are C_1 and C_2 for resonant frequencies f_1 and $2f_1$ respectively. The value of distributed capacitance will be

A. $\dfrac{C_1 - C_2}{2}$

B. $\dfrac{C_1 - 2C_2}{3}$

C. $\dfrac{C_1 - 4C_2}{3}$

D. $\dfrac{C_1 - 3C_2}{2}$

Ans. C

55. An inductance having X_L = 50 Ω and a capacitance having X_C = 50 Ω are connected in parallel across a 100V, 50 Hz supply. The current drawn from the supply is?

A. 0 A

B. 1.414 A

C. 2.234 A

D. 10 A

Ans. A

56. The below figure shows the root locus of a unity feedback system. The open loop transfer function of the system is
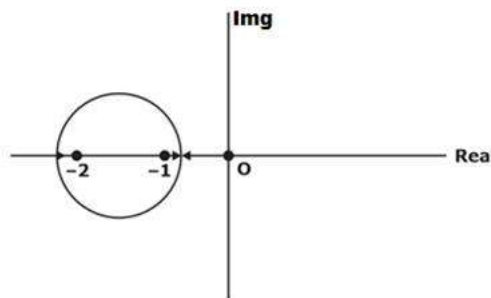
A. $\dfrac{k}{s(s+1)(s+2)}$

B. $\dfrac{Ks}{(s+1)(s+2)}$

C. $\dfrac{K(s+1)}{s(s+2)}$

D. $\dfrac{K(s+2)}{s(s+1)}$

Ans. D

57. If $A = \begin{bmatrix} 0 & 1 \\ -1 & -1 \end{bmatrix}; B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$; C = [1 0] for system represented by following state

model $\dot{X} = AX + BU$, Y = CX

Transfer function is given by

A. $\dfrac{1}{s^2 + s + 2}$

B. $\dfrac{1}{s^2 + s + 4}$

C. $\dfrac{1}{s^2 + s + 1}$

D. $\dfrac{2}{s^2 + s + 2}$

Ans. C

58. The method for determination of the stability of the feedback systems as a function of an adjustable gain parameter which does not provide detailed information concerning location of closed-loop poles as a function of gain K is called

A. Boot locus method

B. Nyquist criterion method

C. Bode plot method

D. Routh-Hurwitz criterion method

Ans. D

59. A unit step input to a unity feedback system is shown in the figure, the time for peak overshoot is, nearly
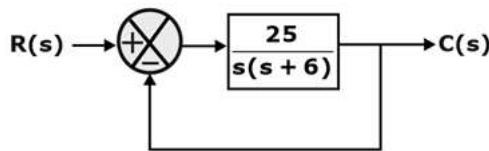
A. 0.35 s

B. 0.58 s

C. 0.79 s

D. 0.96 s

Ans. C

60. Consider a polynomial, $s^3 - 2s^2 + s + 1$. The number of roots of the polynomial on the open left half of complex x-plane is

A. Less than or equal to 3

B. Strictly less than 3

C. Equal to 3

D. Strictly greater than 3

Ans. B

61. DC value of signal shown is _____.
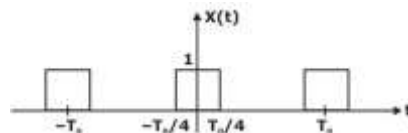
(Consider X(t) is Periodic signal)

A. ¼

B. 4

C. ½

D. 2

Ans. C

gradeup SUPER

One Subscription for Complete Exam Preparation

Live Courses

- Daily Study Plan
- India's Best ESE, GATE & PSU Faculty
- Best Study Material
- Complete Doubt Resolution

+

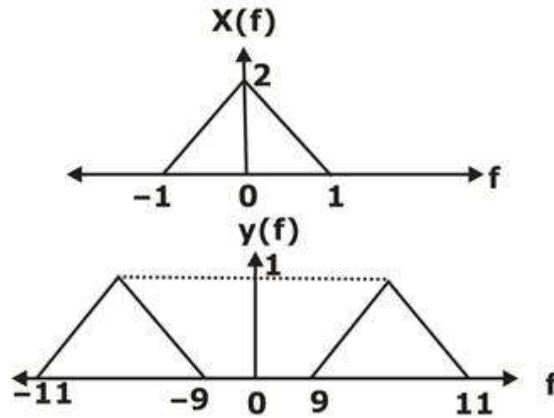## Online Mock Tests

- Based on Latest Exam Pattern
- Designed by Experts

gradeup
Green Card

62. A modulated signal y(t) is given by y(t) = x(t).m(t). The Fourier transform of x(t) and y(t) are shown below:

Then m(t) is given by:

A. cos(10πt)

B. cos(5πt)

C. cos(20πt)

D. cos(20t)

Ans. C

63. A signal x(t) = 50 + 10 sin(800t) + 5 cos(800t) is sampled and reproduced from its samples. What is the maximum allowable time between samples?

A. π/800 sec   B. π/1600 sec

C. 1/800 sec   D. 1/1600 sec

Ans. A

64. Consider as LTI system with a system function

$$H(z) = \frac{1}{1 - \frac{1}{4}z^{-1}}$$

It's difference equation will be

A. $y(n) - \frac{1}{2}y(n-1) = x(n)$

B. $y(n) - \frac{1}{4}y(n-1) = x(n)$

C. $y(n) + \frac{1}{2}y(n-1) = x(n)$

D. $y(n) - \frac{1}{4}y(n+1) = x(n)$

Ans. B

65. The forward resistance of the diode shown in figure is 5 Ω and the remaining parameters are same as those of ideal diode. The DC component present in the source current is
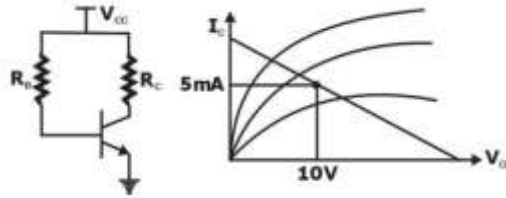
17
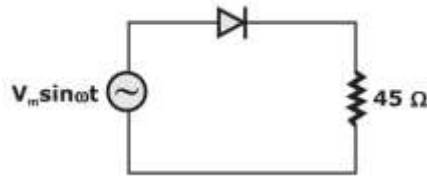
A. $\dfrac{V_m}{50\sqrt{2}\pi}$

B. $\dfrac{V_m}{50\pi}$

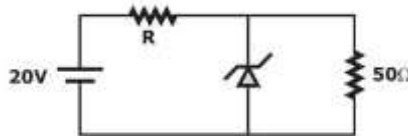C. $\dfrac{V_m}{\pi\sqrt{2}}$

D. $\dfrac{2V_m}{50\pi}$

Ans. B.

66. In the circuit shown, $I_B = 25$ µA and $V_{CC} = 20$ V. The value of R_C is:
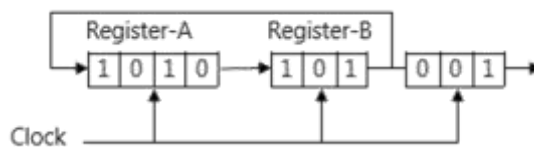

A. 772 kΩ

B. 2 MΩ

C. 5 kΩ

D. 2 kΩ

Ans. D

67. In the given circuit, $V_Z = 6V$, maximum power dissipation = 280 mW , $I_{zmin} = 20\%$ of I_{zmax}. What is the range of R to keep Zener diode ON?

A. 84 Ω< R<108.25Ω

B. 80Ω<R<120Ω

C. 116.67Ω<R<120Ω

D. 84Ω<R<116.67Ω

Ans. A

68. Three shift registers are initialized and are connected as shown below, having a common clock. The contents of Register-A after 10 clock pulses is

A. 110

B. 1011

C. 1101

D. 0111

Ans. B

69. Each of the next four (4) items consists of two statements, one labelled as 'Statement (I)' and the other as 'Statement (II)'. You are to examine these two statements carefully and select the answers to these items using the code given below:

Statement I: The sum of product form of a Boolean expression also known as maxterm form.

Statement II: SOP can by translated in to AND-OR Pattern.

Codes:

A) Both Statements (I) and Statement (II) are individually true and Statement (II) is correct explanation of statement (I).

B) Both Statements (I) and Statement (II) are individually true but Statement (II) is not the correct explanation of statement (I).

C) Statement (I) is true but statement (II) is false.

D) Statement (I) is false but statement (II) is true.

A. A   B. B

C. C   D. D

Ans. D

70. A 3-bit modulo-8 ripple counter uses JK flip-flops. If the propagation delay of each flip flop is 40 ns, the maximum clock frequency that can be used is equal to

A. 20 MHz   B. 10 MHz

C. 8.33 MHz   D. 4 MHz

Ans. C

***

gradeup SUPER

One Subscription for Complete Exam Preparation

Live Courses

- Daily Study Plan
- India's Best ESE, GATE & PSU Faculty
- Best Study Material
- Complete Doubt Resolution

+

gradeup
Green Card

Online Mock Tests

- Based on Latest Exam Pattern
- Designed by Experts