



RVUNL AEN & JEN

Mechanical Engineering

Mini Mock Challenge

(August 14th - August 15th 2021)

Questions &
Answer Key

1. In a certain code language, 'MACHINE' is written as 'N5XS3M4'. How will 'PREDICT' be written as in that language?
- A. JI4V3YG
B. KI2W3YF
C. KI4W3XG
D. K34W3XH

Ans. C

2. In a class of 52 children, Bilal's rank is 11th from the bottom. Salman is 9 ranks above Bilal. What is Salman's rank from the top ?
- A. 37th
B. 33rd
C. 38th
D. 35th

Ans. B

3. 'Star' is related to 'Galaxy' in the same way as 'Flower' is related to '_____'
- A. Jasmine
B. Blossom
C. Bouquet
D. Petal

Ans. C

4. Two statements are followed by three conclusions I, II and III. Assuming these statements to be true, even if they seem to be at variance from commonly known facts, then decide which of the given conclusions logically follows from the given statements.

Statement :

Some plants are trees.

All trees are shrubs.

I. Some shrubs are plants.

II. All shrubs are plants.

III. No shrub are plant.

- A. Only conclusions I and III follow.
B. Only conclusion III follows.
C. Only conclusion I follows.
D. Only conclusions II and III follow

Ans. C

5. The Finance Commission is constituted by the President at the expiration of every _____ year.
- A. tenth
B. seventh
C. sixth
D. fifth

Ans. D

6. India shares its least international boundary with which country?
- A. Pakistan
B. China
C. Afghanistan
D. Nepal

Ans. C

7. Fatwa-i-Alamgiri, a digest of Muslim laws, was written during the period of which of the following kings?

- A. Nadir Shah
B. Aurangzeb
C. Tipu Sultan
D. Feroz Shah Tughlaq

Ans. B

8. Which of the following is working capital in the farming sector?

- A. tractor
B. money
C. threshing machine
D. land

Ans. B

9. Rathores belong to which clan?

- A. Suryavanshi
B. Chandravanshi
C. Agni kula
D. None

Ans. A

10. Which canal is known as the lifeline of Jodhpur City?

- A. Karni Singh lift Canal
B. Rajiv Gandhi Lift Canal
C. Jai Narayan Vyas lift Canal
D. Guru Jhambeshver Lift Canal

Ans. B

11. Consider the following statement.

- 1) Udaipur and Banswara are the two districts having the highest percentage of Scheduled Tribe.
- 2) Bikaner and Nagaur are the two districts having the lowest percentage of Schedule Tribe.
- 3) Dungarpur district has the highest Schedule Tribe sex ratio.

Which of the following statement/s is/are correct?

- A. 1 and 2
B. 2 and 3
C. 1 and 3
D. All of the above

Ans. D

12. Which of the following restrictions were added in Weddings of Rajputana by the 'Desh Hiteshi Sabha' of Udaipur.

- 1: To limited the expenses and extravagance in the weddings.
- 2: To make a law against Polygamy.

- A. Statement 1
B. Statement 2
C. Both Statement 1 & 2
D. Neither Statement 1 nor 2

Ans. C

13. Consider the following statements.

- (i) Mirza Raja Jaysingh was the longest reign ruler of Jaipur.
- (ii) Jai Singh was given the title of "Mirza Raja" by Shah Jahan.
- (iii) Famous Sanskrit poet Biharimal resided in Jai Singh's court.

Which of the above statements are true?

- A. (i)
- B. (ii)
- C. (i), (ii)
- D. (i), (ii), (iii)

Ans. C

14. Which statement/statements are correct?

- A. In Rajasthan, we get Tungston from Wolframite and Scheelite ores.
- B. We use Tungston in electricity Bulb, special steel for defence purpose and high-speed cutting tools.
- C. Production area of tungsten in Rajasthan: Jaipur, Bikaner, Hanumangarh.
- D. A) and B)

Ans. D

15. Which statement/statements are correct about Aridisols?

- A. Aridisols are mineral soils mostly found in Dry climatic.
- B. Aridisols are found in association with soils of order Entisols.
- C. The major portion of Aridisols in Rajasthan is covered by the suborder Orthids.
- D. All of above

Ans. D

16. Match the Following.

List – I

- 1) Haridev Joshi
- 2) Jodhpur Sambhag
- 3) Bharatpur Sambhag
- 4) Mohanlal Sukhadia

List – II

- A) Ended the System of Sambhag was Re-started.
- B) The System of Sambhag was Re-started.
- C) Consists of 6 districts.
- D) Smallest Sambhag of Rajasthan.

- A. 1-A; 2-B; 3-C; 4-D
- B. 1-D; 2-C; 3-B; 4-A
- C. 1-D; 2-B; 3-C; 4-A
- D. 1-B; 2-C; 3-D; 4-A

Ans. D

17. Consider the following statements

- 1) Article 324 - Superintendence, direction and control of elections to be vested in an Election Commission.
- 2) Ashwini Bhagat is the Chief Electoral Officer of Rajasthan.
- 3) The State Election Commission, Rajasthan was incorporated in the month of July, 1994 under Article 243K of the Constitution of India.

Which of the following statements are correct?

- A. 1 and 2
- B. 2 and 3
- C. 1 and 3
- D. All of the above

Ans. D

18. Match the following.

Types of Forts

- 1) Dhaanvan Fort
- 2) Paarikh Fort
- 3) Eran (Anvil) Fort
- 4) Giri (Hilly/Mountain) Fort

Features

- A) A fort situated on a Mountain/Hill.
- B) A fort which is protected by Trench, Thorns and Rocks.
- C) A fort surrounded by a deep moat/trench.
- D) A fort largely surrounded by desert area.

A. 1-A; 2-B; 3-C; 4-D

B. 1-D; 2-C; 3-B; 4-A

C. 1-D; 2-B; 3-C; 4-A

D. 1-B; 2-C; 3-D; 4-A

Ans. B

19. When did the Rajasthan state government transfer the district level activities of departments of primary education, agriculture, medical checkup and health, women and children development and social justice to Panchayati Raj Institutions?

A. 2nd October 2010

B. 2nd October 2011

C. 2nd October 2012

D. 2nd October 2013

Ans. A

20. Who among the following has been awarded by Shaurya Chakra of 2018 from Rajasthan?

A. Vikas Jakhar

B. Bahadur Singh

C. Ranjit Singh

D. Jai Ram Jakhar

Ans. A

21. Who established the Sisodia Clan in Mewar?

A. Rana Hammir

B. Rana Ratan Singh

C. Rana Sanga

D. Rana Pratap

Ans. A

22. Who constructed Anasagar Lake?

A. Arnoraj

B. Vasudev

C. Ajayraj

D. Chandraraj

Ans. A

23. Who was the court scholar of Vigraharaj IV?

A. Somdev

B. Ramdev

C. Harisen

D. Dharavarsha

Ans. A

24. Generally Coral reefs are found at:

A. above 18°C in temperate climatic zones

B. In coastal areas between Cancer and Capricorn

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- C. on both eastern and western sides of the continents and islands
- D. On the cold coastal shores

Ans. B

25. Which of the following vitamins is generally excreted by human in urine?
- A. Vitamin B
 - B. Vitamin C
 - C. Vitamin D
 - D. Vitamin E

Ans. B

26. Sulphur dioxide bleaches colouring matter by :
- A. Reduction
 - B. Dehydration
 - C. Decomposition
 - D. Oxidation

Ans. A

27. Instrument used to study the behavior of a vibrating string is :
- A. Barometer
 - B. Hydrometer
 - C. Hygrometer
 - D. Sonometer

Ans. D

28. The name of which disease among the following means 'evil influence of the stars'?
- A. Typhoid
 - B. Cholera
 - C. Influenza
 - D. Plague

Ans. C

29. The average of 16 numbers is 48. The average of the first 7 numbers is 45 and the average of the next 6 numbers is 52. If the 14th number is 11 less than the 15th number and is 5 more than the 16th number, the average of the 15th and 16th number is:
- A. 47.5
 - B. 48.5
 - C. 49
 - D. 48

Ans. D

30. A sum of Rs. 10,000 is invested for 17 months at 8% per annum compounded half yearly. What is the percentage gain at the end of 17 month, nearest to one decimal place?
- A. 12.2%
 - B. 12.0%
 - C. 11.8%
 - D. 12.4%

Ans. C

31. A cuboid of edges 32 cm, 4 cm and 4 cm is cut to form cubes of edge 4 cm each. What is the sum of total surface areas of all cubes formed?
- A. 768 cm²
 - B. 640 cm²
 - C. 544 cm²
 - D. 576 cm²

Ans. A

32. The value of $\frac{0.325 \times 0.325 + 0.175 \times 0.175 - 25 \times 0.00455}{5 \times 0.0065 \times 3.25 - 7 \times 0.175 \times 0.025}$ lies between:
- A. 0.35 and 0.45
 - B. 0.15 and 0.25
 - C. 0.25 and 0.35
 - D. 0.05 and 0.15

Ans. C

33. सही विकल्प को चुनकर निम्नलिखित वाक्य के रिक्त स्थान की पूर्ति कीजिए :

नाच न आवे _____ टेढ़ा

- A. उँगली
B. पैर
C. आँगन
D. घड़ा

Ans. C

34. Common निर्देश: प्रत्येक प्रश्न में एक वाक्य दिया हुआ है। कुछ वाक्य बिल्कुल शुद्ध हैं पर कुछ में गलती है वाक्य के जिस भाग में गलती हो, (A), (B) या (C) वही भाग उत्तर होगा

यदि कोई गलती न हो, तो आपका उत्तर (D) होगा। End

(A) रामचरित मानस का प्रणयन सामन्ती काल में //(B) अवश्य हुआ था किन्तु वह युगीन धारा से //(C) सर्वदा असम्पृक्त रहा । //(D) कोई गलती नहीं ।

- A. A
B. B
C. C
D. कोई गलती नहीं

Ans. C

35. Common निर्देश: नीचे दिए गए प्रत्येक प्रश्न में शब्दों का एक समूह मोटे अक्षरों में लिखा गया है दिए गए विकल्पों में से उस विकल्प का चयन कीजिए जो की वाक्य में मोटे अक्षरों की जगह ले ले । End

बरसात में मच्छर नाक में दम कर देते हैं।

- A. सोने नहीं
B. आवाज करना
C. बहुत परेशान कर
D. प्रदूषण फैलना

Ans. C

36. 'ड़' और 'ढ़' वर्णों को क्या कहा जाता है?

- A. संघर्षी व्यंजन
B. उत्क्षिप्त व्यंजन
C. अन्तःस्थ व्यंजन
D. द्वित्व व्यंजन

Ans. B

37. Common **Direction**: Read the sentence to find out whether there is any error in it. The error, if any, will be in one part of the sentence. If the given sentence is correct as it is, mark the answer as No error. Ignore the errors of punctuation if any. End
More often than not, (A)/ selecting a candidate (B)/ results into a power tussle between many parties (C)/ that believe that their respective candidate is the best. (D)/ No error

- A. A
B. B
C. C
D. D
E. No error

Ans. C

38. Common **Direction:** The following question carries a sentence with two blanks. Choose the most suitable pair of words from the given options that would make the sentence meaningful and complete. End

After a natural spring was discovered in the parched lands of the region, his old abandoned house was _____ into a profitable business venture with a state-of-the-art pump that _____ water.

- A. turned, expiates
- B. transformed, emanates
- C. changed, exhausts
- D. configured, traverses
- E. None of these

Ans. B

39. Complete the sentence by putting an appropriate determiner:

You should always carry.....umbrella with you.

- A. a
- B. an
- C. any
- D. a few.

Ans. B

40. Common In the following question, out of the four alternatives, select the word similar in meaning to the given word. End

Draconian

- A. Contrite
- B. Pliable
- C. Stringent
- D. Ductile
- E. None of these

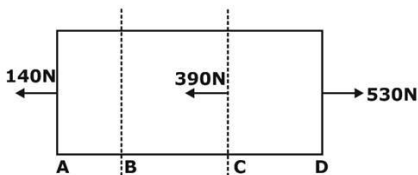
Ans. C

41. For a closed system, if heat transferred is equal to change in enthalpy, the process will be

- A. Constant pressure process
- B. Constant volume process
- C. Isothermal process
- D. Adiabatic process

Ans. A

42. A bar is subjected to loading as shown in the figure below. What is the force and its nature across the section BC?



- A. 135 Tensile
- B. 135 Compressive
- C. 140 tensile
- D. 390 Compressive

Ans. C

43. A body of weight 20 N is resting on a horizontal surface. The coefficient of friction between the body and surface is 0.3 and a force of 5 N is acted upon on the body. Calculate the frictional force acting on the body_____?

- A. 6 N
- B. 5 N
- C. 1 N
- D. none of these

Ans. B

44. Efficiency of Carnot engine is 50%. If the cycle direction is reverse, COP of the refrigerator working on reversed Carnot cycle will be _____.

- A. 1
- B. 2
- C. 1.5
- D. 3

Ans. A

45. Which of the following can be used for power transmission in intersecting shafts whereas spur gear is used to transmit power between the shaft which is parallel.

- A. Spur Gear
- B. Helical Gear
- C. Bevel Gear
- D. None of the listed

Ans. C

46. For a PERT network, the optimistic time estimate, most likely time estimate and the pessimistic time estimates of an activity are 9 days, 11 days and 19 days respectively, the expected time of completion of the activity as per beta distribution is:

- A. 11 days
- B. 19days
- C. 14 days
- D. 12 days

Ans. D

47. Which among the below mentioned statements is incorrectly describing the advantages of riveted joints over welded joints _____?

- A. Riveted joints have good resistance to impact loads.
- B. Rivets can be used to join heterogeneous materials.
- C. Riveted joints are cheaper than welded joints.
- D. Riveted are used where parts should not be heat deteriorated.

Ans. C

48. Which of the following is internally fired boiler?

- A. Lancashire boiler
- B. Benson boiler
- C. Velcox boiler
- D. Babcock and Wilcox boiler

Ans. A

49. Match the following List 1 and List 2:

List 1:

- A. M05
- B. G01
- C. G04

D. G90

List 2:

1. Absolute coordinate system
2. Dwell
3. Spindle stop
4. Linear interpolation

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

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

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

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

Ans. C

50. A homogeneous and isotropic material have bulk modulus(K) and poisson's ratio(μ) as 80GPa and 0.3 respectively.The young's modulus of elasticity is

A. 0 GPa

B. 96 GPa

C. 170 GPa

D. 210 GPa

Ans. B

51. Strain hardening is due to _____.

A. Fracture mechanism

B. Dislocation mechanism

C. Twinning mechanism

D. twist mechanism

Ans. B

52. The pressure in meters of oil of specific gravity 0.9 equivalent to 90 m of water is

A. 90 m

B. 100 m

C. 80 m

D. 95 m

Ans. B

53. If conductive Heat transfer is taking place radially in a hollow cylinder then temperature distribution is

A. Parabolic

B. Linear

C. Logarithmic

D. Elliptical

Ans. C

54. Freezing ratio is defined as _____.

A. $\frac{\text{Modulus of casting}}{\text{Modulus of Riser}}$

B. $\frac{\text{Modulus of riser}}{\text{Modulus of casting}}$

C. $\left(\frac{\text{Modulus of casting}}{\text{Modulus of Riser}}\right)^2$

D. $\left(\frac{\text{Modulus of riser}}{\text{Modulus of casting}}\right)^2$

Ans. B

55. Which number establishes the relation between convective film coefficient, thermal conductivity of the fluid and a significant length parameter?

A. Nusselt number

B. Stanton number

C. Peclet number

D. Fourier number

- A. P-1 Q-3 R-2
- C. P-2 Q-3 R-1

- B. P-2 Q-4 R-3
- D. P-4 Q-1 R-3

Ans. C

62. A machine component is subjected to a fluctuating stress with maximum value of 190 N/mm² and minimum value of 50 N/mm². The endurance limit, yield strength and ultimate strength for component material are 150 N/mm², 200 N/mm² and 300 N/mm². Then the factor of safety as per modified Goodman criteria is _____.

- A. 2.0
- C. 1.33
- B. 1.5
- D. 1.67

Ans. B

63. The order cost per order of an inventory is Rs. 400 with an annual carrying cost of Rs. 10 per unit. The Economic Order Quantity (EOQ) for an annual demand of 2000 units is

- A. 400
- C. 480
- B. 440
- D. 500

Ans. A

64. Match List I with List II and select the correct option.

List I

List II

- A. Toughness
- B. Endurance strength
- C. Resistance to abrasion
- D. Deflection in a beam

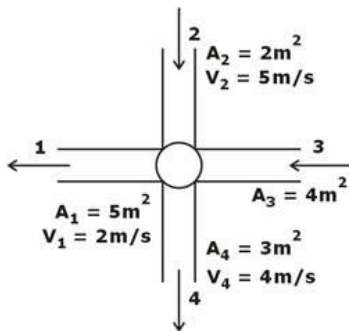
- 1. Moment area method
- 2. Hardness
- 3. Energy absorbed before fracture in a tension test
- 4. Fatigue loading

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

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

Ans. C

65. In the figure given below, four pipes are shown. To fulfill the continuity equation at the junction, the value of V₃ must be



- A. 3 m/s
- C. 6 m/s
- B. 4 m/s
- D. 8 m/s

Ans. A

66. A refrigerant operating on simple VCRS having following data

Enthalpy at outlet of condenser = 50 KJ/kg

Enthalpy at outlet of evaporator = 150 KJ/kg

Enthalpy at outlet of compressor = 175 KJ/kg

What will be the COP?

- A. 3
- B. 3.5
- C. 4
- D. 5

Ans. C

67. In a vibrating system the spring has stiffness 8 N/m and the mass is 2 kg. the system is having a damper whose damping coefficient of viscous damping is 8 N-s/m. The system is _____.

- A. Over damped system
- B. Under damped system
- C. Critical damped system
- D. Undamped system

Ans. C

68. Fluid is flowing through the horizontal pipe of uniform diameter 500 mm with an average velocity of 1 m/sec the dynamic head of pitot tube is _____ (in mm) ?

- A. 45.34
- B. 50.96
- C. 35.87
- D. None of these

Ans. B

69. The shaft of a motor starts from rest and attains full speed of 1800 rpm in 10 seconds. The shaft has an angular acceleration of _____ rad/sec².

- A. 3π
- B. 6π
- C. 2π
- D. 18π

Ans. B

70. Laminar flow in pipe, the maximum velocity is found to be 60 cm/sec. The average velocity of the flow (in cm/sec) is _____.

- A. 40
- B. 60
- C. 30
- D. 20

Ans. C
