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2014   CODE : **VO4**

प्रश्नपुस्तिका क्रमांक
BOOKLET NO.

प्रश्नपुस्तिका
चाळणी परीक्षा

वेळ : 1 (एक) तास

एकूण प्रश्न : 100
एकूण गुण : 200

सूचना

(1) सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. असा तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.

परीक्षा-क्रमांक

↑ केंद्राची संकेताक्षरे   ↑ शेवटचा अंक

(2) आपला परीक्षा-क्रमांक ह्या चौकोनांत **न विसरता बॉलपेनने** लिहावा.

(3) वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे **न विसरता** नमूद करावा.

(4) या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तरक्रमांक नमूद करताना तो संबंधित प्रश्नक्रमांकासमोर छायांकित करून दर्शविला जाईल याची काळजी घ्यावी. **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.**

(5) सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण **एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नाकडे वळावे.** अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.

(6) उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही.

(7) प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवाराच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच ''उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची दिलेल्या चार पर्यायांपैकी सर्वात योग्य उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चार चुकीच्या उत्तरांसाठी एका प्रश्नाचे गुण वजा करण्यात येतील''.

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

1. Which of the following elements increases the corrosion resistance of steel ?

   (1) Chromium and Nickel   (2) Cobalt and Manganese

   (3) Aluminium   (4) Zinc

2. How thermo-electric projects generate electricity ?

   (1) by heating one junction of a thermo-couple

   (2) by cooling one junction of a thermo-couple

   (3) by heating or cooling one junction of a thermo-couple

   (4) none of these

3. Who formulated the science of diagnosis based on accurate description of the symptoms of various diseases ?

   (1) Robert Boyle   (2) Aristottle   (3) Hippocrates   (4) None of these

4. Select the correct sentence :

   (1) Brass is an alloy of copper and iron.

   (2) Brass is an alloy of copper and zinc.

   (3) Brass is an alloy of copper and nickel.

   (4) Brass is an alloy of copper and tin.

5. Which of the following statements is correct ?

   (1) Magnetic lines of force start from south pole and end on north pole.

   (2) No two magnetic lines of force can intersect each other.

   (3) Magnetic lines of force are crowded where magnetic field is weak.

   (4) Magnetic lines of force are far from each other where magnetic field is strong.

SPACE FOR ROUGH WORK

6. Ultrasonic waves have been found very useful for dental cutting because _____.

(1) they made the cutting almost painless

(2) they cut the hard material very easily

(3) they do not require any mechanical device for cutting purpose

(4) all of the above

7. The time period of an earth's satellite in circular orbit is independent of _____.

(1) the mass of the satellite

(2) radius of its orbit

(3) both the mass and radius of the orbit

(4) none of the above

8. The most successful and widely used application of laser in medicine is in _____.

(1) Cancer treatment (2) Eye surgery

(3) Cosmetic application (4) Military applications

9. Influenza virus is also called as _____.

(1) H_5N_1 Virus (2) H_1N_5 Virus (3) H_5N_7 Virus (4) H_1N_7 Virus

10. Who revolutionised telecommunication sector in India ?

(1) Sam Pitroda (2) Pramod Mahajan

(3) P.V. Narsimha Rao (4) None of the above

11. India's first post office savings bank ATM was inaugurated in _____.

(1) Bangalore (2) Mumbai (3) Chennai (4) New Delhi

12. India's first electric bus has been launched in _____.

(1) Delhi (2) Mumbai (3) Bangalore (4) Pondicherry

SPACE FOR ROUGH WORK

13. During the Lok Sabha elections 2014 the Election Commission roped in _____ as a National Icon.

(1) Aamir Khan

(2) Amitabh Bachchan

(3) Salman Khan

(4) Shahrukh Khan

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14. Which is the first Indian state to make the NOTA (None Of The Above) option available on the electronic voting machines during the local self government elections for the voters ?

(1) Gujarat

(2) Kerala

(3) Tamil Nadu

(4) Maharashtra

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15. Five Indian languages have been reinstated in the school curriculum of _____.

(1) Nepal

(2) South Africa

(3) Afghanistan

(4) Japan

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16. Which of the following statements is/are incorrect ?

(a) Iraq has majority of Sunni Muslims

(b) The ISIS is led by Sunni Muslims

(c) Iran has a majority of Shia Muslims

(d) Saddam Hussain was a Sunni Muslim

(1) Only (a)

(2) (a), (b) and (c)

(3) (b) and (c)

(4) (c) and (d)

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17. _____ police have launched free-sms helpline for women travelling alone.

(1) Mumbai

(2) Pune

(3) Aurangabad

(4) Nagpur

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18. In which countries voting is compulsory for voters ?

(a) Australia

(b) Argentina

(c) Brazil

(d) Canada

(1) Only (a), (b), (d)

(2) Only (a), (c), (d)

(3) Only (a), (b), (c)

(4) Only (b), (c), (d)

SPACE FOR ROUGH WORK

P.T.O.

19. Which scheme has been started by Maharashtra Government for the education of children in Madarsas ?

    (1) Maulana Azad Madarsa Modernisation Scheme

    (2) A.P.J. Abdul Kalam Madarsa Modernisation Scheme

    (3) Dr. Zakir Hussain Madarsa Modernisation Scheme

    (4) Sir Sayyad Ahmad Madarsa Modernisation Scheme

20. The Ebota Virus Disease outbreaks occur primarily in the _____ continent.

    (1) Asian (2) African (3) European (4) South American

21. Which of the following is an indicator of performance of the commercial banks ?

    (1) Profitability (2) Productivity

    (3) Financial stability (4) All the above

22. Which of the following was the main aim of Fiscal Responsibility and Budget Management Bill introduced in the year 2000 ?

    (1) To promote micro-economic stability

    (2) To promote macro-economic stability

    (3) To improve balance of payments position

    (4) To control inflation

23. Which of the following is a part of the invisibles under service exports and imports ?

    (1) Insurance (2) Travel

    (3) Banking and brokerage services (4) All the above

SPACE FOR ROUGH WORK

24. Who is authorised to appoint the auditor of Government company ?

(1) Controller and Auditor General of India

(2) Comptroller and Auditor General of India

(3) Comptroller and Auditor General of State

(4) None of the above

25. In connection with the Seventh Five Year Plan, consider the following :

(a) It gave priority to increasing agricultural production

(b) It induced increasing privatisation

(c) It aimed at raising efficiency in manufacturing sector

Which of the above statements is/are correct ?

(1) (a) only   (2) (a) and (b) only   (3) (b) and (c) only   (4) (a), (b) and (c)

26. In India, exports of primary products have failed to increase satisfactorily on account of :

(a) Low income-elasticity of consumer demand

(b) Agricultural protectionism pursued by many developed countries

(c) High income-elasticity of consumer demand

Which of the above statements is/are correct ?

(1) (a) only   (2) (a) and (b) only

(3) (b) and (c) only   (4) (a), (b) and (c)

27. With reference to auditing consider the following :

(a) Audit of purchase of stores is similar to audit of expenditure

(b) The CAG has right to conduct supplementary audit

(c) The CAG also conducts audit of private companies

Which of the above statements is/are correct ?

(1) (a) only   (2) (a) and (b) only

(3) (b) and (c) only   (4) (a), (b) and (c)

SPACE FOR ROUGH WORK

28. In connection with internet banking, consider the following :

    (a) Internet banking is a product of e-commerce

    (b) Internet banking enables customers to open accounts, pay bills and know about balance

    (c) Internet banking is also called on-line banking

    Which of the above statements is/are correct ?

    (1) (a) only   (2) (a) and (b) only

    (3) (b) and (c) only   (4) (a), (b) and (c)

29. Which of the following objectives are included in the guiding principles of India's Five Year Plans ?

    (1) Achievement of economic growth

    (2) Providing employment facilities

    (3) Self-reliance and social justice

    (4) All the above

30. Which of the following is not a function of the Central Co-operative Bank ?

    (1) To provide finance to the commercial banks

    (2) To establish co-operation between primary co-operative credit societies and state co-operative banks

    (3) To solve the problems of co-operative credit societies

    (4) To perform all basic commercial banking functions

31. The average temperature on Monday, Tuesday and Wednesday was 27°C. The average temperature on Tuesday, Wednesday and Thursday was 28°C. If the temperature on Thursday was 29°C. what was the temperature on Monday ?

    (1) 24°C   (2) 25°C   (3) 26°C   (4) 27°C

SPACE FOR ROUGH WORK

32. What number is three times of 10% of 12.5% of $\dfrac{19}{57}$ of $\dfrac{30}{45}$ of 468 ?

(1) 13

(2) 1.3

(3) 3.9

(4) None of the above

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33. Below are given two numerical sequences. One number that appears in the top sequence should appear in the bottom sequence and vice versa.

Which two numbers should be changed around ?
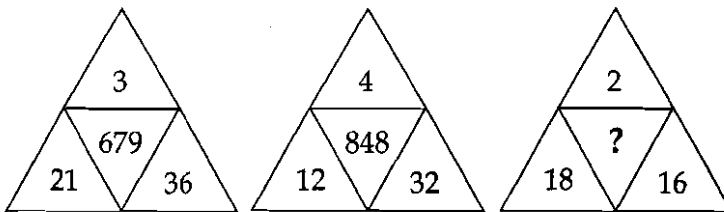
2   2.5   4.5   6.75

1   3   6.25 15.625

(1) $1 \leftrightarrow 2$

(2) $3 \leftrightarrow 2.5$

(3) $6.25 \leftrightarrow 15.625$

(4) None of the given pairs

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34. Select the appropriate group of digits for the blank.

348269, 79628, 16826, _____ , 1382, 428

(1) 8862   (2) 7826   (3) 7628   (4) 8826

---

35. Select appropriate number to replace question mark.

(1) 646   (2) 446   (3) 664   (4) 464

SPACE FOR ROUGH WORK

P.T.O.

36. Persons A, B, C, D and E are residing in a colony and their houses are in one row. Following is the information about location of the houses.

(I)   E's house is not at the right end of the row

(II)   B does not reside at the left extreme of the row

(III) D's house is adjacent to the right hand side of A's house and left hand side of C's house

To know who resides in the extreme left end house which of the statements are sufficient/ insufficient ?

(1) (I) and (II) are sufficient   (2) (II) and (III) are sufficient

(3) (I), (II) and (III) are sufficient   (4) (I), (II) and (III) are insufficient

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37. What number is twice of $\frac{13}{52}$ of 12.5% of $\frac{38}{114}$ of $\frac{60}{90}$ of 144 ?

(1) 2   (2) 4   (3) 6   (4) 12

---

38. A scholar spends $\frac{1}{3}$ of his scholarship amount on food and health, of the rest $\frac{1}{4}^{th}$ on equipment, books and $\frac{1}{5}$ on clothes. He spends ₹ 1000 on travel. He still saves ₹ 760. What is his scholarship amount ?

(1) 5000   (2) 4200   (3) 4600   (4) 4800

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39. Replace the question marks with the correct option :

♥ 🕸 ♥🏯𝄢✦◇⊛ ♥ ଔ🜨 ♥ 🕸 ♥🏯🐍⊛◇✦♥ଔ🜨♥ 🕸 ♥🏯

𝄢✦◇⊛ ♥ଔ🜨♥ 🕸 ♥🏯🐍⊛◇✦♥ଔ🜨♥ 🕸 ♥🏯𝄢✦◇⊛♥

ଔ🜨♥ 🕸 ♥🏯🐍⊛◇✦♥ଔ🜨♥ 🕸 ♥🏯𝄢✦◇⊛♥ଔ🜨♥ 🕸

♥🏯 _?_ _?_ _?_

(1) 🐍⊛◇   (2) 🐍✦◇   (3) 𝄢⊛◇   (4) 𝄢✦◇

SPACE FOR ROUGH WORK

40. Select an appropriate option to replace the question marks.

E	D	B
K	I	F
C	K	D

is to

D	L	F
L	J	E
E	G	C

therefore

D	K	F
C	I	B
J	E	C

is to

K	D	E
?	?	?
?	?	?

(1)
F	J	L
G	C	D

(2)
F	J	L
D	C	G

(3)
L	J	F
D	C	G

(4)
F	J	G
D	C	L

41. What is the double value of $2 + \sqrt{2} + \dfrac{1}{2 + \sqrt{2}} + \dfrac{1}{\sqrt{2} - 2}$

(1) 2   (2) 4   (3) 8   (4) $2\sqrt{2}$

42. Select appropriate pair to replace question marks in the sequence :

35, 7, 31.1, 14.7, 27.2, 22.4, ?, ?, 19.4, 37.8

(1) 23.3 and 30.1   (2) 21.3 and 28.1

(3) 22.4 and 27.2   (4) 20.9 and 26.00

43. In the following number series which one of the first four numbers is odd ?

444, 218, 108, 52, 24, 10

(1) 444   (2) 218   (3) 108   (4) 52

SPACE FOR ROUGH WORK

44. Select appropriate option to replace question mark

7826961 is to 61619

3864987 is to 81879

therefore 7958279 is to ?

(1) 72292   (2) 72229   (3) 92529   (4) 92229

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45. Find the appropriate number that can replace question mark.
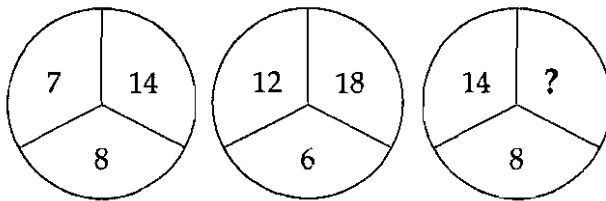
(1) 24   (2) 26   (3) 28   (4) 30

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46. A train completes a journey with few stoppages in between for crossing trains moving in opposite direction. Due to this average speed of the train is 45 km per hour. If the train does not stop anywhere for crossing, it would complete the journey at an average speed of 60 km per hour. On an average how many minutes per hour does the train stop during the journey ?

(1) 20 minutes per hour   (2) 22.5 minutes per hour

(3) 15 minutes per hour   (4) 10 minutes per hour

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47. Six faces of a cube are labelled A to F, each face carrying different alphabet. The following statements describe this cube.

(I) Face A is opposite the Face C

(II) Faces B and E are opposite to each other

(III) Face D is between Face B and E

(IV) Faces A and F are adjacent to each other

Which one of the following statements is correct ?

(1) Faces A and B are adjacent to each other

(2) Face F is between B and D

(3) Face D is between C and F

(4) All the above are correct statements

SPACE FOR ROUGH WORK

48. Price of tea is increased by 15%. By how much percentage must a person reduce his or her consumption, so as to avoid extra expenditure ?

(1) $13\dfrac{5}{23}\%$ (2)   13.5%

(3)   12%   (4)   Insufficient information

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49. Analyze the set of given statements and select most logical sequence of premises and conclusions :

(P)   All elephants laugh

(Q)   All cats laugh

(R)   Some cats climb trees

(S)   All elephants cannot climb trees

(T)   All elephants are cats

(U)   All elephants are carnivores

(1)   (Q), (T), (P)   (2)   (P), (Q), (T)   (3)   (S), (T), (R)   (4)   (T), (R), (Q)

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50. The top set of six numbers has a relationship to the set of six numbers below. The two sets of the six boxes on the left have the same relationship as two sets of six boxes on the right.

Which of the numbers should therefore replace question marks ?

15	21	23	87	41	30
7	5	8	19	10	9

19	34	79	25	44	53
?	?	?	?	?	?

(1)
11	9	20	11	13	14

(2)
9	11	14	13	20	12

(3)
11	9	19	11	13	14

(4)
9	19	11	13	14	11

SPACE FOR ROUGH WORK

51. According to the provisions of Factories Act, no female child shall be required to work in any factory except _____ .

    (1) between 7.00 am to 6.00 pm   (2) between 8.00 am to 7.00 pm

    (3) between 9.00 am to 6.00 pm   (4) between 7.00 pm to 8.00 am

52. How old Motor Vehicle other than multi-axle vehicle is allowed for the purpose of National permit ?

    (1) Eleven years   (2) Twelve years

    (3) Fifteen years   (4) None of the above

53. How many minimum number of workers should there be in any factory to require it to have a well equiped ambulance room ?

    (1) 251   (2) 101   (3) 1001   (4) 501

54. Who is allowed to drive a goods carriage carrying dangerous or hazardous goods under the Central Motor Vehicle Rules, 1989 ?

    (1) The one who has at least 10th passing certificate

    (2) The one who has at least 12th passing certificate

    (3) The one who has Degree certificate of any Indian University

    (4) The one who has the ability to read and write at least one Indian language out of those specified in Schedule VII of Constitution and English

55. Driver of a road-roller is exempted from the provisions of _____ .

    (1) Section 3(1)   (2) Section 3(2)   (3) Section 4(1)   (4) Section 4(2)

56. Are police officers authorised to book cases of overloading of vehicles ?

    (1) Yes, they are authorised

    (2) No, they are not authorised

    (3) Any officer has the power to do so

    (4) (1) and (3) both

SPACE FOR ROUGH WORK

57. What is the maximum number of passengers excluding the driver allowed in any motor cab for hire ?

(1) four (2) six (3) eight (4) none of the above

58. When can an application be made for renewal of certificate of registration for motor vehicle, other than for a transport vehicle ?

(1) Not earlier than 30 days before the date of expiry

(2) Not earlier than 60 days before the date of expiry

(3) Not earlier than 90 days before the date of expiry

(4) Not earlier than 120 days before the date of expiry

59. What is the minimum educational qualification required for grant of conductor's licence as per the provisions of Maharashtra Motor Vehicles Rules, 1989 ?

(1) Passed Seventh Standard Examination

(2) Passed Eighth Standard Examination

(3) Passed Ninth Standard Examination

(4) Passed Secondary School Certificate Examination

60. What is the minimum educational qualification required for driving a transport vehicle under the Central Motor Vehicles Rules, 1989 ?

(1) Driver shall be 4th class pass (2) Driver shall be 7th class pass

(3) Driver shall be 8th class pass (4) Driver shall be 10th class pass

61. In case of a Motor Cab the tourist permit becomes invalid when the vehicle completes its life of :

(1) 9 years (2) 8 years (3) 16 years (4) 10 years

SPACE FOR ROUGH WORK

62. According to the provisions of Factories Act 1948, who is an Adolescent ?

    (1) A person above 18 years

    (2) A person between 14 and 15 years

    (3) A person between 15 and 18 years

    (4) None of the above

63. Three equally spaced rods in the same vertical plane support a rigid bar AB. Two outer rods are of brass, each 600 mm long and of 25 mm diameter. The central steel rod is 800 mm long and 30 mm in diameter. Determine the forces in the bars due to an applied load of 120 kN through the mid point of the bar. The bar remains horizontal after the application of load.

    Take $\dfrac{E_s}{E_b}=2$

    (1) $P_{steel}=28.8$ kN, $P_{brass}=62.3$ kN   (2) $P_{steel}=62.3$ kN, $P_{brass}=28.8$ kN

    (3) $P_{steel}=57$ kN, $P_{brass}=105$ kN   (4) $P_{steel}=86.4$ kN, $P_{brass}=186.9$ kN

64. The frictional resistance at the sleeve of a governor :

    (1) increases sensitivity of governor

    (2) decreases sensitivity of governor

    (3) does not affect sensitivity of governor

    (4) none of the above

65. Determine the required length of cord AC if the 8 kg lamp is suspended in the position shown, the undeformed length of spring AB is $l'_{AB}=0.4$ m and the spring has a stiffness of $K_{AB}=300$ N/m :
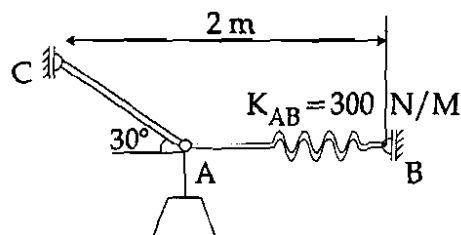
    (1) 6.6 m   (2) 13.2 m   (3) 1.32 m   (4) 0.66 m

SPACE FOR ROUGH WORK

66. Ratio of *fin* heat transfer rate to the heat transfer rate that would exist without *fin* is called _____ .

(1) *Fin* efficiency   (2) *Fin* effectiveness (3) *Fin* performance (4) *Fin* output

67. Maximum shear stress theory is used for :

(1) ductile materials   (2) brittle materials

(3) elastic materials   (4) plastic materials

68. Ratio of sensible heat to latent heat energy absorbed during liquid-vapour phase change is called _____ .

(1) Jakob Number   (2) Lewis Number   (3) Prandtl Number (4) Schmidt Number

69. The following profiles of gears satisfy the law of gearing :

(1) conjugate profiles of mating teeth

(2) involute profiles of mating teeth

(3) cycloidal profiles of mating teeth

(4) all of the above

70. A simply supported beam of 6.75 - m span is made up of symmetrical I - section. Determine what concentrated load can be carried at a distance of 2.25 m from one support if the maximum permissible stress is 80 MPa :
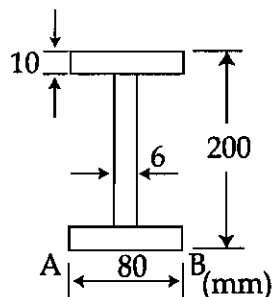
(1) 92.52 N   (2) 9.26 kN   (3) 925 kN   (4) 9.264 N
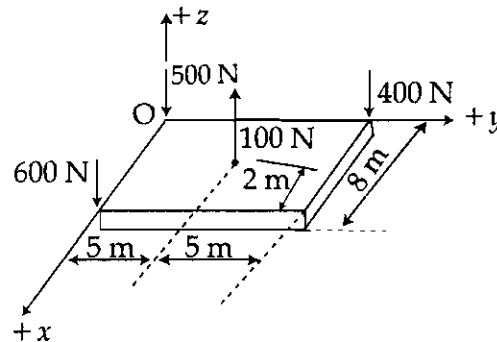
SPACE FOR ROUGH WORK

71. A vapour which is not about to condense is _____ .

    (1) Saturated   (2) Superheated   (3) Subcooled   (4) None of these

---

72. The slab in Fig. is subjected to four parallel forces. Locate points of application on the slab of resultant force :

    (1) $x = 3$ m, $y = 2.5$ m   (2) $x = 2.5$ m, $y = 3$ m

    (3) $x = 3.5$ m, $y = 2$ m   (4) $x = 2$ m, $y = 3.5$ m

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73. Skidding of a vehicle can be avoided by using :

    (1) Vehicle Dynamics Control System

    (2) Antilock brake system

    (3) Electronic brake force distribution system

    (4) All of the above

---

74. Which of the following is an example of SI engine combustion chamber ?

    (a) indirect injection with swirl type   (b) direct injection open valve type

    (c) hemispherical type   (d) bath tub type

    (1) (a) and (b)   (2) (c) and (d)   (3) (a) and (d)   (4) (b) and (c)

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81. At high altitudes, the automotive carburettor should :

    (1) increase the richness of mixture

    (2) decrease the richness of mixture

    (3) not change the richness of mixture

    (4) stop functioning

82. Out of following, which factors influence detonation in I.C. engines ?

    (a) density of air   (b) spark advance

    (c) mixture strength   (d) amount of olefins in the fuel

    (1) only (b)   (2) (a), (b) and (c)

    (3) (b) and (c)   (4) (a), (b), (c) and (d)

83. When the air-fuel mixture ignites before the spark takes place at the spark plug, the condition is called :

    (1) rumble   (2) preignition   (3) ignition   (4) detonation

84. Following is/are correct firing order used in four cylinder engines :

    (1) 1 - 3 - 4 - 2   (2) 1 - 2 - 4 - 3

    (3) 1 - 2 - 4 - 3 and 1 - 3 - 4 - 2   (4) 1 - 4 - 3 - 2

85. The air resistance of a vehicle in motion :

    (1) varies with speed of vehicle

    (2) varies with square of speed of vehicle

    (3) is independent of speed of vehicle

    (4) varies with square root of speed of vehicle

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75. *Four* wheel steering used on motor vehicle :

(1) reduces turning radius of vehicle

(2) reduces understeer gradient

(3) helps reduce tyre wear

(4) reduces turning effort on the part of driver

76. ι ne speed of the rotors in the turbocharger may be of the order of :

(1) 10,00,000 rpm (2) 1,00,000 rpm (3) 10,000 rpm (4) 1,000 rpm

77. A venturi in automotive carburettor :

(1) increases air velocity and lowers the pressure

(2) decreases air velocity and increases the pressure

(3) increases air velocity as well as pressure

(4) decreases air velocity as well as pressure

78. Following is used in order to regulate heat dissipitation by controlling the rate of coolant flow through radiator :

(1) pressure relief valve   (2) pressurized radiator cap

(3) thermostat   (4) vacuum relief valve

79. Automotive pollution control norm currently prevalent in metro cities of India is :

(1) Bharat 2   (2) Euro 2   (3) BS3   (4) BS4

80. Thermal efficiency of typical CI engine :

(1) is 100%   (2) is 70 - 80%   (3) is 10 - 20%   (4) is 25 - 35%

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P.T.O.

86. The vehicles before introducing in the market are required to be tested and certified by :

    (1) Manufacturer himself   (2) Indian military

    (3) ARAI   (4) RTOs

87. Following is a measure of ability of petrol fuel to burn without knocking :

    (a) octane number (b) index number (c) cetane number (d) fuel number

    (1) only (c)   (2) only (a)   (3) only (b)   (4) either (a) or (c)

88. Which of the following statements is correct ?

    (a) Maximum torque and power are obtained at different speeds

    (b) Maximum torque and power are obtained at single speed

    (c) Maximum torque and power are obtained at any speed

    (d) Maximum torque and power are independent of speed

    (1) only (a)   (2) only (b)   (3) only (d)   (4) only (c)

89. A vehicle carries vertical load of 10000 N and uses wheel of 0.5 m radius. A torque of 800 N-m is applied to the wheel. Tractive effort available in this case is :

    (1) 2000 N   (2) 1600 N   (3) 5000 N   (4) 400 N

90. The stabilizer bar in automotive suspension is used to :

    (1) sustain the side loads   (2) overcome rolling tendency of a vehicle

    (3) damp out vibrations   (4) increase the aesthetic appeal of a vehicle

91. Turbulence in combustion chamber of an engine :

    (1) increases the speed of combustion process

    (2) decreases the speed of combustion process

    (3) doesn't influence the speed of combustion process

    (4) may increase or decrease the speed of combustion process

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92. The phase which is not common in SI and CI combustion processes is :

(1) ignition delay

(2) rapid pressure rise or uncontrolled combustion

(3) mechanical controlled combustion

(4) after burning

93. Ignition timing of an automotive engine depends on :

(1) engine speed   (2) engine load

(3) engine temperature   (4) engine speed, load and temperature

94. Gas analyzers measure the gasses in units of :

(1) ppm   (2) rpm   (3) m^3/sec (4) mm^3/sec

95. The part of combustion chamber where the end gasses are trapped in the narrow space formed between the cylinder-head and piston crown is called as :

(1) quench area   (2) squish   (3) turbulent area   (4) barrel

96. Use of intercooler in a turbocharger is justified provided the boost-pressure ratio :

(1) is less than 1 : 1 (2) is equal to 1 : 1 (3) is 1.6 : 1 or more (4) is negative

97. The percent heat energy released from the combustion of fuel in an I.C. engine's cooling system is around :

(1) 25 - 35%   (2) 10 - 15%   (3) 70 - 80 %   (4) 50 - 60%

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98. To produce a spark in an automotive engine, the voltage required is of the order of :

    (1)   12 - 24 V   (2)   300 - 400 V   (3)   20000 - 30000 V (4)   3000 V - 5000 V

99. Volumetric efficiency of an engine can be increased by :

    (1)   using turbo chargers

    (2)   increasing size of intake valves

    (3)   increasing intake manifold passages

    (4)   using any of the above options

100. The reference fuel used for measurement of cetane number of diesel fuel is :

    (1)   alpha - methyl - napthalene   (2)   n - heptane

    (3)   iso - octane   (4)   heptamethylnonane

- o 0 o -

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सूचना — (पृष्ठ 1 वरून पुढे....)

(8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या ''परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82'' यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

(9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. **मात्र परीक्षा कक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.**

नमुना प्रश्न

Pick out the correct word to fill in the blank :

Q. No. 201. The Catch varies inversely with the size of the

　　　(1)　nozzle　　　(2)　droplet　　　(3)　obstruction　　　(4)　sprayer

ह्या प्रश्नाचे योग्य उत्तर '' (3) obstruction'' असे आहे. त्यामुळे या प्रश्नाचे उत्तर '' (3)'' होईल. यास्तव खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक ''③'' हे वर्तुळ पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201.　　①　　②　　●　　④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.**

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK