

प्रश्नपुस्तिका क्रमांक  
 BOOKLET No.

1 0 0 0 4 5 7

## प्रश्नपुस्तिका

एकूण प्रश्न : 200

एकूण गुण : 200

वेळ : 2 (दोन) तास

चाळणी परीक्षा/SCREENING TEST

### सूचना

- (1) सदर प्रश्नपुस्तिकेत 200 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.
- (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 उमेदवारांच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच "उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची अचूक उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चार चुकीच्या उत्तरांसाठी एका प्रश्नाचे गुण वजा करण्यात येतील".

### ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवाराला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या "परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम-82" यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरुद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पर्यवेक्षकांच्या सूचनेविना हे सील उघडू नये

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

१- डा. मरुवाट छिनिण / हामिड / कमाउडण्ड छिनिण

LPT

2. सिडिण रिडण्ड

A

कच्या कामासाठी जागा / SPACE FOR ROUGH WORK

1. Darwin's theory of evolution is based on  
(1) Theoretical model (2) Homomorphs model  
(3) Paramorphs model (4) None of the above
- 
2. Which unit is used for measuring the severity of earthquake ?  
(1) Watt (2) Volt (3) Richter scale (4) Kelvin
- 
3. X-rays were discovered by  
(1) Roentgen (2) Einstein (3) Newton (4) Kelvin
- 
4. Which of the following is *not* the effect of industrialization ?  
(1) Labour exploitation (2) Rise in spread of diseases  
(3) Pollution (4) Corruption
- 
5. Which is the basic energy producing process in the Sun ?  
(1) Nuclear Fusion (2) Chemical Oxidation  
(3) Nuclear Fission (4) Magnetic Induction
- 
6. An optical instrument used to observe objects like stars, comets, etc. is called  
(1) Compound microscope (2) Simple microscope  
(3) Travelling microscope (4) Astronomical telescope
- 
7. The Indian Science Congress Association was formed in  
(1) 1907 (2) 1908 (3) 1914 (4) 1932
- 
8. Which of the following are the longest electromagnetic waves ?  
(1) Gamma rays (2) Radio waves  
(3) U.V. rays (4) None of the above
- 
9. Which of the following is *not* a Nobel Prize winner ?  
(1) C.V. Raman (2) Hargobind Khorana  
(3) Venkatraman Ramkrishnan (4) M.S. Swaminathan

SPACE FOR ROUGH WORK

P.T.O.

10. Which one of the following pairs is *not* correct ?
- |                                 |   |                        |
|---------------------------------|---|------------------------|
| (1) Intensity of sound          | – | Decibels               |
| (2) Skin damage                 | – | Ultraviolet radiations |
| (3) Abundantly available in air | – | Nitrogen               |
| (4) Heredity disease            | – | AIDS                   |
- 
11. Tobacco smoke contains hazardous chemical as
- |               |                       |
|---------------|-----------------------|
| (1) Urea      | (2) Nicotine          |
| (3) Uric acid | (4) Calcium carbonate |
- 
12. The strength of earthquake is measured in
- |             |         |            |              |
|-------------|---------|------------|--------------|
| (1) Richter | (2) Erg | (3) Newton | (4) Kilogram |
|-------------|---------|------------|--------------|
- 
13. Acid rain consists of
- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| (1) Sulphuric and Nitric acids    | (2) Hydrochloric and Sulphuric acids |
| (3) Hydrochloric and Nitric acids | (4) None of the above                |
- 
14. Who proposed the structural model of DNA ?
- |                    |                        |
|--------------------|------------------------|
| (1) Robert Hooke   | (2) Friedrich Miescher |
| (3) J.B.S. Haldane | (4) Watson and Crick   |
- 
15. The most important factor in food spoilage is growth of \_\_\_\_\_ in food.
- |                     |                       |
|---------------------|-----------------------|
| (1) water           | (2) gas               |
| (3) micro-organisms | (4) None of the above |
- 
16. The compound used in the preparation of cakes and bread to make them light and spongy is
- |                        |                       |
|------------------------|-----------------------|
| (1) Sodium carbonate   | (2) Calcium carbonate |
| (3) Sodium bicarbonate | (4) Copper sulphate   |
- 
17. The branch of geology concerned with the study of earthquakes is called
- |               |                |             |                  |
|---------------|----------------|-------------|------------------|
| (1) Cosmology | (2) Seismology | (3) Biology | (4) Microbiology |
|---------------|----------------|-------------|------------------|
- 

SPACE FOR ROUGH WORK

18. \_\_\_\_\_ is used as a moderator in nuclear reactors and in exchange reactions for the study of reaction mechanisms.

- (1) Light water (2) Heavy water  
(3) Impure water (4) None of the above
- 

19. Our body can manufacture \_\_\_\_\_ under the skin.

- (1) Vitamin A (2) Vitamin B (3) Vitamin C (4) Vitamin D
- 

20. Regular consumption of mustard oil containing even 10% of argemone oil is dangerous and can cause a disease known as

- (1) Epidemic dropsy (2) Lathyrism  
(3) Lead poisoning (4) Oedema
- 

21. 'FEMA' replaced 'FERA' with effect from

- (1) 1<sup>st</sup> June 1999 (2) 1<sup>st</sup> June 2000  
(3) 1<sup>st</sup> June 2001 (4) None of the above
- 

22. The Five Year Plans are formulated by

- (1) Planning Commission (2) National Development Council  
(3) Ministry of Finance (4) Reserve Bank of India
- 

23. To which country India used to do maximum export in the pre-Independence period ?

- (1) Britain (2) Russia (3) U.S.A. (4) Japan
- 

24. Maharashtra State Co-operative Banks are regularised by

- (1) Indian Companies Act 1956 (2) Banking Regulation Act 1949  
(3) Reserve Bank of India Act 1934 (4) None of the above
- 

25. How many commercial banks were nationalized in 1969 ?

- (1) 12 (2) 14 (3) 16 (4) 10
- 

26. In which bank was Sangali Bank Ltd. merged ?

- (1) I.D.B.I. (2) I.F.C.I. (3) S.B.I. (4) I.C.I.C.I.
- 

SPACE FOR ROUGH WORK

P.T.O.

27. Which of the following is the objective of the Budget ?
- (1) The growth of financial resources for economic development
  - (2) The growth of agriculture only for economic development
  - (3) The industrial growth only for economic development
  - (4) Planning of income and expenditure
- 
28. Co-operative agricultural and rural development banks have been classified into
- (1) Urban Co-operative Bank and Rural Co-operative Bank
  - (2) Primary Co-operative Agricultural and Rural Development Banks and State Co-operative Agricultural and Rural Development Bank
  - (3) Primary Agricultural Credit Societies and State Co-operative Agricultural Credit Societies
  - (4) None of them
- 
29. The State Government receives maximum revenue from which one of the following ?
- |                |                    |
|----------------|--------------------|
| (1) Income Tax | (2) Property Tax   |
| (3) Sales Tax  | (4) Profession Tax |
- 
30. Funding pattern by Central and State Governments in 'Swarnajayanti Gram Swarajgar Yojana' (SGSY) Rural Self Employment Scheme is in which ratio ?
- |             |             |                     |             |
|-------------|-------------|---------------------|-------------|
| (1) 25 : 75 | (2) 75 : 25 | (3) 100% by Central | (4) 50 : 50 |
|-------------|-------------|---------------------|-------------|
- 
31. The policy of the Government with regard to its revenue and expenditure is called
- |                     |                   |
|---------------------|-------------------|
| (1) Monetary policy | (2) Trade policy  |
| (3) Economic policy | (4) Fiscal policy |
- 
32. When did the Indian economy come out of difficulty due to new economic policy ?
- |               |               |               |               |
|---------------|---------------|---------------|---------------|
| (1) 1994 - 95 | (2) 2001 - 02 | (3) 1997 - 98 | (4) 1992 - 93 |
|---------------|---------------|---------------|---------------|
- 
33. 'Minimum Support Price' means
- (1) the price at which government purchases
  - (2) the price at which government sells in open market
  - (3) the price at which government sells through rationing distribution system
  - (4) the price at which the government produces

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**SPACE FOR ROUGH WORK**

34. In the 2008 – 2009 budget, the tax revenue of states is placed at ₹ \_\_\_\_\_ crores.

- (1) 5,09,957 (2) 1,00,589  
(3) 5,10,858 (4) None of them
- 

35. For which commodity is the dual pricing method used ?

- (1) Tea (2) Milk (3) Sugar (4) Pulses
- 

36. What is meant by CTBT ?

- (1) Central Ban Treaty (2) Comprehensive Test Ban Treaty  
(3) Consumer Treatment Ban Treaty (4) Communist Bureau Training
- 

37. Which of the following novels is *not* written by Bhalchandra Nemade ?

- (1) Bidar (2) Tamrapat (3) Jhool (4) Jarila
- 

38. The term EPABX stands for

- (1) Electrical Public Automatic Branch Exchange  
(2) Electronic Private Automatic Branch Exchange  
(3) Electronic Perverted Automatic Branch Exchange  
(4) Electronic Public-Private Autonomous Branch Exchange
- 

39. \_\_\_\_\_ is the smallest state in the world.

- (1) Sri Lanka (2) Marshall Islands  
(3) Vatican City (4) Maldives
- 

40. According to 2001 census, which of the following States in India had highest infant mortality rate

- (1) Madhya Pradesh (2) Rajasthan  
(3) Uttar Pradesh (4) Bihar
- 

41. In its review of monetary policy on July 27, 2010, the RBI has hiked the reverse repo rate by

- (1) 0.25 (2) 0.75 (3) 0.15 (4) 0.50
- 

SPACE FOR ROUGH WORK

P.T.O.

42. Who amongst the following is the author of the novel "Hindu" ?  
(1) Sudhir Bharate (2) Bhalchandra Nemade  
(3) B.D. Kher (4) Anand Yadav
- 
43. Which of the following films won the Best Film Award at the 56<sup>th</sup> National Film Awards ?  
(1) Naan Kadavul (Tamil) (2) Antaheen (Bengali)  
(3) Jogwa (Marathi) (4) A Wednesday (Hindi)
- 
44. Which of the following Articles from the Indian Constitution provides right for free and compulsory education to children ?  
(1) 19 (A) (2) 16 (C) (3) 19 (F) (4) 21 (A)
- 
45. Whose design was approved by the Union Cabinet on 15<sup>th</sup> July, 2010 as the symbol of the Indian Rupee ?  
(1) S. Shashi Kumar (2) D. Udaya Kumar  
(3) A. Rama Kumar (4) G.V. Prakash
- 
46. Water and Land Management Institute (WALMI) is located at \_\_\_\_\_ in Maharashtra.  
(1) Mumbai (2) Nagpur  
(3) Pune (4) Aurangabad
- 
47. Who was the Chairman of the committee constituted by the Government of Maharashtra to propose cultural policy for Maharashtra in 2010 ?  
(1) Datta Bhagat (2) Arun Tikekar  
(3) Ashok Naigaonkar (4) Dr. A.H. Salunkhe
- 
48. Who won the Nobel Prize for Literature in the year 2009 ?  
(1) Orhan Pamuk (2) Doris Lessing  
(3) Harold Pinter (4) Herta Muller

SPACE FOR ROUGH WORK



49. What will be India's demand for water in the year 2050, according to the Central Water Commission's recent report ?

- (1) 1180 cubic kilometers (2) 213 cubic kilometers  
 (3) 690 cubic kilometers (4) 1050 cubic kilometers

50. In the Railway Budget 2010, 100% concession has been given for travelling in the Indian Railways for patients of \_\_\_\_\_.

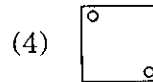
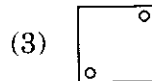
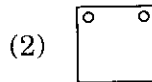
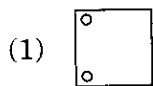
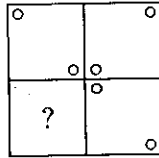
- (1) AIDS (2) Swine Flu (3) Bird Flu (4) Cancer

51. Find out the missing number in the series :

0, 3, 8, 15, 24, 35, ?

- (1) 40 (2) 44 (3) 48 (4) 53

52. Which of the given small squares when placed at the vacant part of the bigger square shall best complete the figure ?



53. What number is one half of one quarter of one tenth of 800 ?

- (1) 10 (2) 20 (3) 40 (4) 80

54. If  $15 \times 71 = 48$

$$92 \times 23 = 55$$

$$37 \times 44 = 80$$

then  $54 \times 32 =$

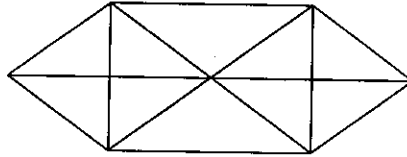
- (1) 48 (2) 40 (3) 45 (4) 44

SPACE FOR ROUGH WORK

P.T.O.

55. The sum of all numbers between 800 and 1100, which are divisible by 79, is  
 (1) 2844 (2) 2822 (3) 1022 (4) 1809

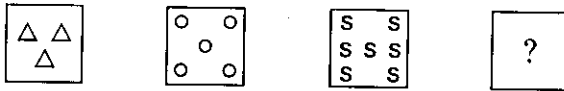
56. How many triangles are there in the figure given below ?



- (1) 22 (2) 24 (3) 26 (4) 20

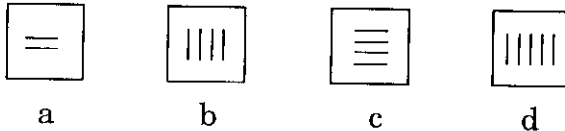
57. Prithvi ranked ninth from top and thirty-eighth from the bottom in a class. How many students are there in the class ?  
 (1) 48 (2) 47 (3) 46 (4) 49

58. Find out the figure from amongst the alternatives which will complete the series.



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

59. Choose the figure which is different from the rest.



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

60. A is the widow of B, B and C were the only children of E, C is unmarried and is a doctor. D is the grand-daughter of E and studies Science. How is D related to A ?  
 (1) Aunt (2) Sister (3) Daughter (4) Sister-in-law

61. Choose the odd one out.

Pineapple, Orange, Banana, Lemon

- (1) Pineapple (2) Orange (3) Banana (4) Lemon

SPACE FOR ROUGH WORK

62. Which is the missing number in place of the question mark ?

16	14	18	12
20	24	6	10
17	23	20	?

- (1) 12                      (2) 10                      (3) 14                      (4) 16

63. Seven persons are sitting at a dining table. 'S' is facing 'R' who is to the left of 'A' and right to 'P'. 'A' is at the left of 'D'. 'Q' is to the left of 'P'. 'Y' is between 'P' and 'R'. If 'D' exchanges seat with 'Y' and 'P' with 'R', who is sitting to the left of 'D' ?

- (1) P                      (2) S                      (3) R                      (4) Y

64. If HOME is 3652, SHOP is 9367, WORK is 0684, then what is SMOKE ?

- (1) 93462                      (2) 96542                      (3) 94562                      (4) 95642

65. Find out the different number :

7344, 8266, 5233, 5122

- (1) 5233                      (2) 7344                      (3) 5122                      (4) 8266

66. Soldier is related to Army in the same way as Pupil is related to

- (1) Education                      (2) Teacher                      (3) Student                      (4) Class

67. If MEGHA = 15, PRIYANKA = 24, then SATCHIDANAND = ?

- (1) 36                      (2) 29                      (3) 32                      (4) 33

68. Flight to Mumbai leaves every 5 hours. At the information counter I learnt that the flight took off 25 minutes before. If the time now is 10:45 a.m., what is the time for the next flight ?

- (1) 3:20 a.m.                      (2) 3:20 p.m.                      (3) 4:20 p.m.                      (4) 5:00 p.m.

SPACE FOR ROUGH WORK

P.T.O.

69. Find which word **cannot** be formed from the letters of the given word using each letter only once.

UNCONSCIOUS – SON, COIN, SUN, NOSE

- (1) SUN                      (2) SON                      (3) NOSE                      (4) COIN
- 

70. A certain number of men can do a work in 60 days. If there were 8 men more it could be finished in 10 days less. How many men are there ?

- (1) 68                      (2) 50                      (3) 40                      (4) 30
- 

71. If orange is called butter, butter is called soap, soap is called ink, ink is called honey and honey is called orange, which of the following is used for washing clothes ?

- (1) Soap                      (2) Honey                      (3) Orange                      (4) Ink
- 

72. There are five rivers A, B, C, D, E. River A is shorter than B but longer than E. River C is the longest. D is a bit shorter than B and a bit longer than A. Which of the following is the shortest river ?

- (1) B                      (2) C                      (3) A                      (4) E
- 

73. Find out the missing term in the given series :

CX, FU, IR, ?, OL, RI

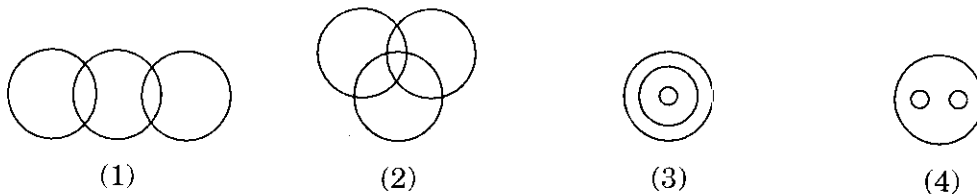
- (1) PN                      (2) LO                      (3) KM                      (4) JO
- 

74. A is facing North West, he turns  $90^\circ$  in the clockwise direction and then  $135^\circ$  in the anticlockwise direction. Which direction is he facing now ?

- (1) North                      (2) West  
(3) East                      (4) South
- 

75. Which of the following diagrams correctly represents :

State, Country, City.



SPACE FOR ROUGH WORK

76. In a certain code language 'PEST' is written as  $\triangle \circ \square \star$ . How is the word 'STEP' written in the same code ?

- (1)  $\star \square \circ \triangle$  (2)  $\square \star \circ \triangle$   
 (3)  $\triangle \star \square \circ$  (4)  $\circ \star \triangle \square$

77. In a certain language MOTHER is coded as NOUHFR. How is PAINTER coded in that language ?

- (1) QBJOUFS (2) QZHMSDR  
 (3) QAJNUES (4) RCKPVGR

78. If 'box' is called 'pencil', 'pencil' is called 'rubber', 'rubber' is called 'flower', 'flower' is called 'paper' and 'paper' is called 'grass', what is a 'bouquet' made up of ?

- (1) box (2) paper (3) flower (4) grass

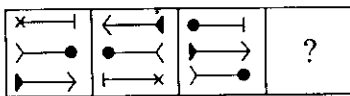
79. In a certain code language RED = 532, BLACK = 14698, then what is the code used for 'LADER' ?

- (1) 46235 (2) 64235 (3) 32645 (4) 23465

80. In a certain code language '765' means 'Woman shows Sincerity', '582' means 'Sincerity Brings Reward', '249' means 'Reward Motivates Hard-work'. Then for which word has code '2' been used ?

- (1) Sincerity (2) Woman (3) Hard-work (4) Reward

81. Establish a similar relationship as 1<sup>st</sup> & 2<sup>nd</sup> between the 3<sup>rd</sup> & next figure by choosing a suitable figure from the given alternatives.



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

SPACE FOR ROUGH WORK

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82. Find out the relationship between the first two words and choose the word from the given alternatives, which has the same relationship to the third word, as the first two words have.

Traveller : Journey :: Sailor : ?

- (1) Boat                      (2) Water                      (3) Voyage                      (4) Mast
- 

83. Find out the missing term by choosing the correct alternative.

245 : 49 :: 265 : ?

- (1) 54                      (2) 52                      (3) 51                      (4) 53
- 

84. What comes at the question mark (?) ?

DCB is to FGH as LKJ is to ?

- (1) NMO                      (2) LMN                      (3) MNO                      (4) NOP
- 

85. Fill in the blank with the proper number.

Set : (3, 17, 19, \_\_\_)

- (1) 32                      (2) 49                      (3) 15                      (4) 37
- 

86. Choose the odd one out.

Hyderabad, Imphal, Nagaland, Bhubaneshwar

- (1) Hyderabad                      (2) Imphal  
(3) Nagaland                      (4) Bhubaneshwar
- 

87. Choose the odd pair of words.

- (1) Wheat : Corn                      (2) Onion : Potato  
(3) Parrot : Bird                      (4) Mango : Tree
- 

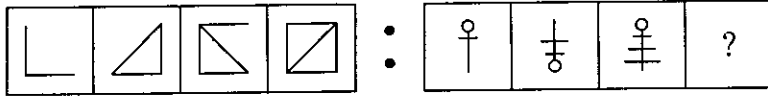
88. Complete the series choosing the correct alternative.

8, 24, 48, 80, 120, ?

- (1) 178                      (2) 154                      (3) 140                      (4) 168
- 

SPACE FOR ROUGH WORK

89. Observe the figures in the first group and choose the appropriate figure for the second group.



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

90. Choose the missing number.

8	7	4
9	2	8
7	3	?

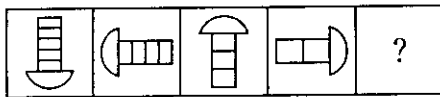
- (1) 6 (2) 7 (3) 9 (4) 8

91. Which number would replace the question mark (?) in the series ?

6, 11, 18, 27, ?

- (1) 38 (2) 36 (3) 42 (4) 39

92. Which figure will replace the question mark ?



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

93. Find the sequence in the given symbol series.

○ ○ ○ ○ ☆ ○ ○ — ☆ ☆ — ○ — ☆ ☆ — ☆ ☆ ☆ ☆

- (1) ○ ○ ☆ ○ (2) ○ ☆ ○ ☆

- (3) ☆ ☆ ○ ○ (4) ○ ○ ☆ ☆

SPACE FOR ROUGH WORK

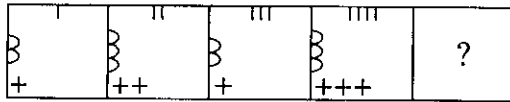
P.T.O.

94. Find out the wrong term, which disturbs the series.

64, 62, 58, 55, 52, 49

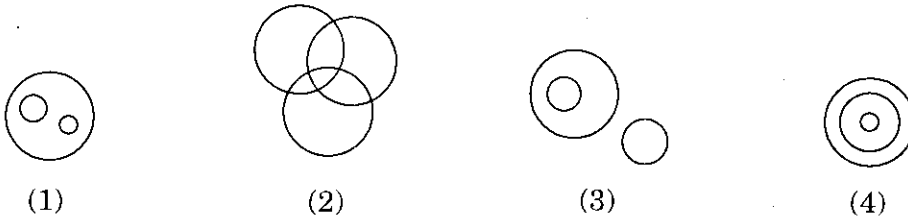
- (1) 62                      (2) 58                      (3) 55                      (4) 64

95. Select the answer figure which will continue the given figure series.



- (1)      (2)      (3)      (4)

96. Which of the following figures indicates the proper relationship of 'CROWS', 'SPARROWS' and 'BIRDS' ?



97. Choose the conclusion which logically follows the given statement.

*Statement* : Every school has students.

*Conclusions* :

- (a) Students are only in the school.  
 (b) No school is without students.  
 (c) Schools are meant for students only.  
 (d) Some schools do not have class-rooms.

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

98. Anuja walked 17 meters towards South. Then she turned to her right and walked 15 meters. She then turned to her right and walked 17 meters. She again turned to her left and walked 10 meters. At what distance is she from the starting point and in which direction ?

- (1) 59 meters East                      (2) 44 meters West  
 (3) 25 meters East                      (4) 25 meters West

SPACE FOR ROUGH WORK



99. Arrange the following words in a logical order.

(a) Wisdom (b) Information (c) Vision (d) Knowledge

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

---

100. Sachin is two years older than Rahul who is twice as old as Sunil. If the total of the ages of Sachin, Rahul and Sunil be 27, then how old is Rahul ?

(1) 7 (2) 8 (3) 9 (4) 10

---

101. Which case law upheld the State Government's power to fix pay scale of welfare officers ?

- (1) ITC Ltd. Vs. State of U.P.
  - (2) State of Gujarat Vs. Jashubhai Prabhudas
  - (3) Alembic Chemical Works Ltd. Vs. The Workmen
  - (4) J.K. Industries Vs. The Chief Inspector of Factories and Boilers
- 

102. From which date did "The Factories Act, 1948" come into force in India ?

- (1) 1<sup>st</sup> January 1948
  - (2) 1<sup>st</sup> May 1948
  - (3) 1<sup>st</sup> April 1948
  - (4) 1<sup>st</sup> June 1948
- 

103. Which of the following is exempted from payment of registration fees ?

- (1) Vehicles owned by company
  - (2) Vehicles owned by State Transport Undertaking
  - (3) Vehicles belonging to State Government
  - (4) Vehicles belonging to educational institutions
- 

104. What is the maximum speed limit for a motor-cycle vehicle ?

- (1) 50
  - (2) 65
  - (3) No limit
  - (4) 40
- 

105. Within how many days, shall the fleet owner report the transfer of ownership to the Transport (Taxation) Authority ?

- (1) 10
  - (2) 15
  - (3) 30
  - (4) 60
- 

SPACE FOR ROUGH WORK

P.T.O.

106. The minimum intensity of illumination, in Lux, for engine and boiler rooms, as per Maharashtra Factories Rules 1963, is standardised as

- (1) 20                      (2) 50                      (3) 75                      (4) 100
- 

107. What is the maximum number of hours that an adult motor transport worker can work in a day ?

- (1) 10 hours      (2) 6 hours                      (3) 8 hours                      (4) 12 hours
- 

108. In which year was Motor Transport Workers Act enacted ?

- (1) 1948                      (2) 1950                      (3) 1960                      (4) 1961
- 

109. Which officer mentioned below *cannot* issue certificate of stability under Maharashtra Factories Rules, 1963 ?

- (1) Chief Inspector of Factories  
(2) A Member of Institute of Civil Engineers  
(3) A Member of Institute of Structural Engineers  
(4) A Civil Engineer of public works not below the rank of Executive Engineer
- 

110. In case of goat, sheep, deer or pig, how much floor space per head is required to be provided in a goods vehicle in public places ?

- (1) 0.10 sq.m.      (2) 0.12 sq.m.                      (3) 0.15 sq.m.                      (4) 0.18 sq.m.
- 

111. Any tractor shall draw maximum

- (1) Three trailers                      (2) Four trailers  
(3) Five trailers                      (4) Six trailers
- 

112. What is the minimum number of vehicles required to be owned by a registered owner in order to become eligible to be declared as a fleet owner under Bombay Motor Vehicle Tax Act, 1958 ?

- (1) 50                      (2) 200                      (3) 100                      (4) 1000
- 

SPACE FOR ROUGH WORK

113. "Sleeper Coach" means a public service vehicle constructed or adapted to carry, excluding the crew members, more than

- (1) Six passengers providing for sleeper berth
  - (2) Nine passengers providing for sleeper berth
  - (3) Twelve passengers providing for sleeper berth
  - (4) Fifteen passengers providing for sleeper berth
- 

114. The limit to carry free of charge luggage and personal effects by a passenger in the case of stage carriage services, excluding stage carriage services within municipal areas, is restricted to a weight of

- (1) 10 kg
  - (2) 14 kg
  - (3) 15 kg
  - (4) 20 kg
- 

115. A trade certificate granted or renewed under the Central Motor Vehicles Rules 1989 shall be in force, from the date of issue or renewal, for a period of

- (1) Twelve months
  - (2) 2 years
  - (3) 3 years
  - (4) 5 years
- 

116. What is the minimum educational qualification for an applicant who is applying for a driving licence to drive a transport vehicle ?

- (1) Pass in the tenth standard
  - (2) Pass in the fifth standard
  - (3) Pass in the seventh standard
  - (4) Pass in the eighth standard
- 

117. Which of the following class of vehicles is a public service vehicle ?

- (1) Tractor
  - (2) Motor car
  - (3) Goods truck
  - (4) Contract carriage bus
- 

118. Under which section of the Motor Vehicles Act, can a court disqualify a person from holding a licence ?

- (1) 11
  - (2) 15
  - (3) 19
  - (4) 20
- 

SPACE FOR ROUGH WORK

P.T.O.

119. Stage carriage means a motor vehicle constructed or adapted for hire or reward to carry
- (1) More than six passengers excluding the driver
  - (2) More than seven passengers excluding the driver
  - (3) More than twelve passengers including the driver
  - (4) More than twelve passengers excluding the driver
- 
120. Unless the motor vehicle is replaced, in case of a motor cab, a tourist permit shall be deemed to be invalid from the date on which the motor vehicle covered by the permit completes
- (1) 6 years
  - (2) 9 years
  - (3) 12 years
  - (4) 15 years
- 
121. What is the age limit for driving a transport vehicle ?
- (1) 18 years
  - (2) 16 years
  - (3) 20 years
  - (4) 25 years
- 
122. What is the maximum period for which a registering authority can suspend registration certificate, if it has reason to believe that a vehicle has been or is being used for hire or reward without a valid permit to do so ?
- (1) Ten months
  - (2) Six months
  - (3) Four months
  - (4) Eight months
- 
123. A motor vehicle related to a diplomatic mission in Delhi or to any of its diplomatic officers shall exhibit its registration mark and number on a number plate with
- (1) Deep blue background
  - (2) Yellow background
  - (3) Light green background
  - (4) White background
- 
124. The transport vehicles are prohibited from any kind of overloading under which section of the Motor Vehicles Act ?
- (1) 89
  - (2) 98
  - (3) 113
  - (4) 124
- 
125. A learner's licence issued under the Motor Vehicles Act shall be effective throughout
- (1) the concerned district
  - (2) the concerned Regional Transport Office
  - (3) the concerned state
  - (4) India

---

SPACE FOR ROUGH WORK

126. Halide leak detector is used to detect leaks in

- (1) Gas from CNG system (2) Water cooling system  
(3) Hydraulic braking system (4) Freon refrigerant system
- 

127. Bleeding means

- (1) Removing trapped air from the hydraulic braking system  
(2) Adding pigment to paint to optimise paint's viscosity  
(3) Removing impurities from cylinder head lubricating oil  
(4) Removing CO, HC and NO<sub>2</sub> from exhaust gases
- 

128. The main cause for change in engine oil viscosity is

- (1) Temperature (2) Contamination and engine wear  
(3) Humidity (4) Pressure
- 

129. In suspension system design in vibration isolation system, transmissibility is unity for all values of damping factor.  $\frac{\omega}{\omega_n}$  is equal to

- (1) Unity (2)  $\sqrt{2}$  (3)  $> \sqrt{2}$  (4)  $< \sqrt{2}$
- 

130. Road testing of automobiles is carried out to find out the following factor.

- (1) Fuel consumption/mile (2) For checking cooling design  
(3) For air resistance determination (4) Brake adjustment
- 

131. A fuel will denote less if

- (1) it has lower self-ignition temperature  
(2) it has higher self-ignition temperature  
(3) it has constant self-ignition temperature  
(4) None of the above
- 

132. Heel and toe wear in tyres is caused by \_\_\_\_\_ .

- (1) Excessive acceleration and braking  
(2) Excessive camber  
(3) Underinflation  
(4) Overinflation
- 

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133. On suspended vacuum brakes, there is vacuum on both sides of piston during
- (1) Brake application
  - (2) Brake release
  - (3) Part application of brakes
  - (4) All of these
- 
134. The frame may get distorted to parallelogram shape due to
- (1) Weight of vehicle
  - (2) Weight of passenger
  - (3) Wheel impact with road obstacle
  - (4) Cornering force
- 
135. If the gear ratio of first gear and differential be 1 : 4.5 and 1 : 4 respectively, then the ratio of engine speed and axle speed for automobile in first gear is
- (1) 1 : 4.5
  - (2) 1 : 8
  - (3) 4 : 1
  - (4) 18 : 1
- 
136. The bi-fuel engine uses
- (1) liquid fuels during start-up and gas as basic fuel
  - (2) gas fuels during start-up and liquid as basic fuel
  - (3) two fuels used in two combustion chambers
  - (4) can work on two fuels, the one most economical is used frequently
- 
137. Which is the false statement about advantage of V-type engine ?
- (1) Improved distribution of air to cylinder
  - (2) Casting less liable to distortion
  - (3) Less overhead clearance
  - (4) Reduced torsional vibration because of shorter crankshaft
- 
138. Piston speed is equal to
- (1)  $2 \times \text{stroke} \times \text{rpm}$
  - (2)  $\text{Stroke} \times \text{rpm}/2$
  - (3)  $4 \times \text{stroke} \times \text{rpm}$
  - (4)  $\text{Stroke} \times \text{rpm}/4$
- 
139. Petrol engine will have \_\_\_\_\_ higher maximum brake mean effective pressure than similar diesel engine.
- (1) 15% to 20%
  - (2) 25% to 35%
  - (3) 40% to 50%
  - (4) None of the above

SPACE FOR ROUGH WORK

140. Freezing temperature of petrol is of the order of

- |                    |                       |
|--------------------|-----------------------|
| (1) - 50 to - 30°C | (2) - 20 to - 10°C    |
| (3) - 4 to - 0°C   | (4) None of the above |
- 

141. Ignition accelerator in a compression ignition engines reduces or eliminates

- |                      |                            |
|----------------------|----------------------------|
| (1) Combustion Knock | (2) Pre-ignition           |
| (3) Detonation       | (4) Spontaneous combustion |
- 

142. The richening of mixture increases the probability of contact between fuel and air particles and thus improves

- |                           |                           |
|---------------------------|---------------------------|
| (1) Volumetric efficiency | (2) Combustion efficiency |
| (3) Metering control      | (4) Scavenging            |
- 

143. The provision of progressive starter is a unique feature of

- |                          |                        |
|--------------------------|------------------------|
| (1) Solex carburettor    | (2) Carter carburettor |
| (3) Aircraft carburettor | (4) S.U. carburettor   |
- 

144. Due to which of the following factors is injection lag in diesel engine caused ?

- (1) Compressibility of fuel
  - (2) Leakage past the fuel oil plunger
  - (3) Expansion of fuel-oil discharge line under high pressure
  - (4) All of the above
- 

145. Contact breaker gap should be set

- |                                  |                                  |
|----------------------------------|----------------------------------|
| (1) Before adjusting dwell angle | (2) After setting spark plug gap |
| (3) After adjusting dwell angle  | (4) After starting engine        |
- 

146. As compared to air standard cycle, in actual working the effect of variation in specific heat is to

- (1) Decrease maximum pressure and increase maximum temperature
  - (2) Increase maximum pressure and decrease maximum temperature
  - (3) Reduce maximum pressure and maximum temperature
  - (4) Increase maximum pressure and maximum temperature
- 

SPACE FOR ROUGH WORK

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147. Alpha – Methyl – Naphthalene ( $C_{11}H_{10}$ ) has a cetane number of  
(1) 120                      (2) 100                      (3) 50                      (4) 0
- 
148. Molar specific heat at constant pressure is the product of  
(1) Molecular mass of gas and specific heat at constant volume  
(2) Atomic mass of gas and gas constant  
(3) Molecular mass of the gas and the gas constant  
(4) None of the above
- 
149. An insulated vessel is divided into two compartments by a membrane. One compartment contains water, the other strong sulphuric acid. The vessel is sealed and is initially at temperature  $T_1$ . If the membrane is broken and temperature rises to  $T_2$ , what is the change in the energy of the vessel and its contents ?  
(1)  $\Delta U = 0$               (2)  $\Delta U > 0$               (3)  $\Delta U < 0$               (4)  $\Delta U = \infty$
- 
150. With a lower sink temperature there will be increase in the thermal efficiency of heat engine rejecting heat to the heat sink.  
(1) It is true due to principle of Carnot cycle  
(2) It is true due to Clausius or Kelvin statements  
(3) It is true due to principle of degradation of entropy  
(4) None of the above
- 
151. A liquid is boiling in air tight vessel using an exhaust tube. The vapour is pumped out at a faster rate. What happens to the liquid ?  
(1) Temperature goes down, boiling continues  
(2) Boiling continues, temperature goes up  
(3) Boiling stops, temperature goes down  
(4) Temperature goes up, boiling stops
- 
152. If temperature of air above a pond is  $8^\circ\text{C}$ , thermal conductivity of ice is 0.005 CGS unit, latent heat of fusion of ice is 79.9 cal/gram, the density of ice is  $1 \text{ gm/cm}^3$ , the time taken for the formation of ice layer of 1 cm thickness is  
(1) 200 seconds                      (2) 100 seconds  
(3) 12.5 seconds                      (4) 10 seconds

---

SPACE FOR ROUGH WORK



153. According to maximum normal stress theory, the maximum normal stress in the shaft is

(1)  $\frac{1}{2} \sqrt{\sigma^2 + 4 \tau^2}$

(2)  $\sqrt{\sigma^2 + 4 \tau^2}$

(3)  $\frac{1}{2} \left[ \sigma + \sqrt{\sigma^2 + 4 \tau^2} \right]$

(4)  $\frac{1}{2} \sigma + \sqrt{\sigma^2 + 4 \tau^2}$

154. An involute pinion and gear are in mesh. If both have the same size of addendum, then there will be interference between the

- (1) tip of both gear and pinion
- (2) flanks of both gear and pinion
- (3) tip of pinion and flank of gear
- (4) tip of gear tooth and flank of pinion

155. In transverse fillet welded joint, the size of weld at the throat of weld will be

- (1) 0.5 times
- (2) equal
- (3)  $\sqrt{2}$  times
- (4) double

156. If

R = Radius of flank

$r_1$  = minimum radius of cam and

Q = Angle turned through by cam,

then displacement of a flat-faced follower when it has contact with the flank of circular arc cam, is given by

(1)  $(1 - \cos \theta) \times R$

(2)  $(1 - \cos \theta) (R - r_1)$

(3)  $R (1 - \sin \theta)$

(4)  $(R - r_1) (1 - \sin \theta)$

157. The crank-shaft of an engine having W as the amount of indicated work per revolution, the permissible limits of coefficient of fluctuation of energy and speed  $C_E$  and  $C_S$  respectively. If flywheel is fitted on crank-shaft, its kinetic energy will be

(1)  $\frac{2WC_E}{C_S}$

(2)  $\frac{WC_E}{2C_S}$

(3)  $\frac{WC_E}{C_S}$

(4)  $\frac{WC_S}{2C_E}$

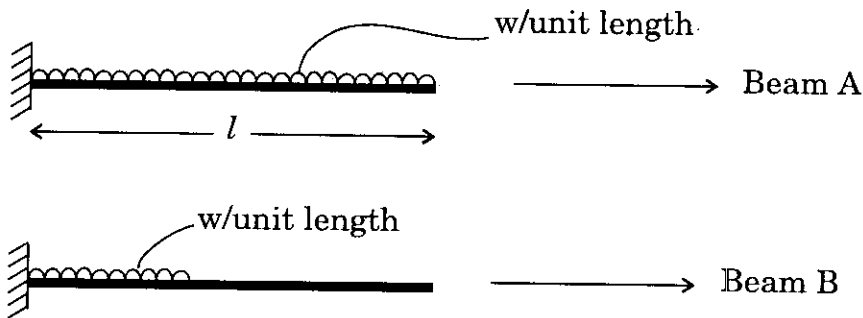
SPACE FOR ROUGH WORK

P.T.O.

158. When a body is subjected to direct tensile stress ( $\sigma$ ) in one plane, then tangential or shear stress on an oblique section of body inclined at an angle  $\theta$  to the normal of section is

- (1)  $\sigma \sin 2\theta$  (2)  $\sigma \cos 2\theta$   
 (3)  $\frac{\sigma}{2} \sin 2\theta$  (4)  $\frac{\sigma}{2} \cos 2\theta$

159. Two cantilever beams A and B are shown in figure. The ratio of maximum deflection of beam A to the beam B is



- (1)  $8/7$  (2)  $16/7$  (3)  $32/7$  (4)  $48/7$

160. Which one of the following assumptions in the theory of pure torsion is false ?

- (1) All radii get twisted due to torsion.  
 (2) The twist is uniform along the length.  
 (3) The shaft is uniform circular section throughout.  
 (4) Cross-section plane before torsion remains plane after torsion.

161. In order to completely specify angular displacement by a vector it must fix

- (1) Magnitude of angular displacement  
 (2) Direction of axis of rotation  
 (3) Sense of angular displacement  
 (4) All of these

SPACE FOR ROUGH WORK

162. The loss of kinetic energy during inelastic impact, is given by

where  $m_1$  = mass of first body

$m_2$  = mass of second body

$u_1$  and  $u_2$  = velocities of first and second body

$$(1) \frac{m_1 m_2}{2(m_1 + m_2)} (u_1 - u_2)^2$$

$$(2) \frac{2(m_1 + m_2)}{m_1 m_2} (u_1 - u_2)^2$$

$$(3) \frac{m_1 m_2}{2(m_1 + m_2)} (u_1^2 - u_2^2)$$

$$(4) \frac{2(m_1 + m_2)}{m_1 m_2} (u_1^2 - u_2^2)$$

163. Blue smoke in diesel automobile emission indicates presence of

(1)  $\text{NO}_x$

(2) HC

(3) CO

(4) Unburnt oil

164. Apart from hydrocarbons, the main pollutants in the engine exhaust are

(1) CO &  $\text{CO}_2$

(2)  $\text{CO}_2$  &  $\text{NO}_x$

(3) CO &  $\text{NO}_x$

(4)  $\text{CO}_2$  &  $\text{H}_2\text{O}$

165. The most accurate dynamometer is

(1) Prony brake type

(2) Hydraulic type

(3) Swinging field type

(4) Eddy current type

166. The units of spring scale for the engine indicator are

(1) kW

(2) N

(3) N/m

(4)  $\text{N/m}^2/\text{m}$

167. For checking the alignment of the crank-shaft, the best method is to place it on

(1) V-Blocks

(2) Its ends

(3) Lathe centres

(4) Plane smooth table

168. The spray of water from a car washer is at a pressure of about

(1) 3 MPa

(2) 30 MPa

(3) 3 KPa

(4) 30 KPa

169. The term "ply rating" with reference to a tyre refers to the

(1) Actual number of plies

(2) Recommended inflation pressure

(3) Aspect ratio

(4) Rated strength

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170. Two advantages of using helical gears rather than spur gears in transmission of an automobile are

- |                                    |                                    |
|------------------------------------|------------------------------------|
| (1) High strength, low cost        | (2) High strength, less end thrust |
| (3) Low noise level, high strength | (4) Low noise level, economy       |
- 

171. The inertia of the rotating parts of the clutch should be

- |             |                       |
|-------------|-----------------------|
| (1) Minimum | (2) Maximum           |
| (3) Zero    | (4) None of the above |
- 

172. The cooling system of an automobile engine is most simple when the engine is placed at the

- |                      |                       |
|----------------------|-----------------------|
| (1) Front            | (2) Centre            |
| (3) Rear at the left | (4) Rear at the right |
- 

173. In case of 4 wheel drive vehicle

- (1) Clutch operating linkage is simplified
  - (2) Cooling system is simplified
  - (3) The road adhesion is increased
  - (4) The road adhesion is decreased
- 

174. The example of a hatchback car is

- |                    |                     |
|--------------------|---------------------|
| (1) Maruti 800     | (2) Ambassador Nova |
| (3) Toyota Corolla | (4) Honda City      |
- 

175. A wheeled vehicle carrying its own motive power unit is termed as

- |                 |                   |
|-----------------|-------------------|
| (1) An engine   | (2) A Machine     |
| (3) A Mechanism | (4) An Automobile |
- 

176. The purpose of radiator is

- |                             |  |
|-----------------------------|--|
| (1) To cool down the engine | (2) To cool air supplied to the engine |
| (3) To cool the lubricant   | (4) To cool jacket cooling water       |
- 

177. Detergents are oil additives used to

- |                              |                         |
|------------------------------|-------------------------|
| (1) Prevent sludge formation | (2) Reduce viscosity    |
| (3) Prevent Foaming          | (4) Increase fire point |
- 

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178. In turbochargers the compressor is driven by

- (1) Exhaust gas turbine (2) Engine itself  
(3) Separate electric motor (4) None of the above
- 

179. Detonation in SI engines occurs due to

- (1) Preignition of charge before spark  
(2) Sudden ignition of charge before spark  
(3) Autoignition of charge after the spark is struck  
(4) None of the above
- 

180. Ignition timing is adjusted by

- (1) Tachometer (2) Stop watch  
(3) Stroboscopic light (4) Accurate clock
- 

181. Multipoint fuel injection system uses

- (1) Port injection and throttle body injection  
(2) Manifold injection  
(3) Port injection  
(4) Throttle body injection
- 

182. Modern carburetors provide the correct quantity of air-fuel mixture during

- (1) Starting (2) Idling (3) Cruising (4) All conditions
- 

183. The drawback of Alcohol as an alternate fuel is

- (1) High latent heat of vaporization (2) Low sulphur content  
(3) High octane number (4) Less calorific value than petrol
- 

184. Theoretically, how much power does a four stroke engine develop as compared to the comparable two stroke engine power ?

- (1) Half (2) Twice (3) Equal (4) Four times
- 

185. Which of the following statements is true ?

- (1) Wankel & Stirling Engines are reciprocating type engines.  
(2) Wankel is reciprocating type while Stirling is rotary type engine.  
(3) Wankel & Sterling are Rotary type engines.  
(4) Wankel is rotary while Stirling is reciprocating type engine.
- 

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186. In a polytropic process  $PV^n = \text{constant}$ , the process will be isothermal if the index of expansion process 'n' becomes
- (1) One                      (2) Zero                      (3) 1.4                      (4) 1.3
- 

187. Which of the following statements is wrong ?
- (1) Heat and work are mutually convertible.  
(2) Heat and work are not properties.  
(3) Perpetual Motion Machine of first kind is possible.  
(4) Entropy is a property.
- 

188. A dimensionless number associated with the analysis of natural convection heat transfer is
- (1) Reynolds Number                      (2) Colburn Number  
(3) Grashof Number                      (4) Raleigh Number
- 

189. If the rate of energy emitted by a body is  $1.4 \text{ kW/m}^2$  and Stefan-Boltzmann constant is  $5.67 \times 10^{-8} \text{ W/m}^2\text{K}^4$ , what is the temperature of the body ?
- (1)  $396^\circ\text{C}$                       (2)  $944 \text{ K}$                       (3)  $123 \text{ K}$                       (4)  $123^\circ\text{C}$
- 

190. Thermal conductivity in metals is predominantly due to
- (1) Lattice vibrations  
(2) Lattice vibrations and free electrons  
(3) Free electrons  
(4) Material density
- 

191. Constant Radial load in radial bearings that if applied to the bearing would give the same life as that which the bearing will attain under actual condition of forces is called as
- (1) Dynamic load carrying capacity                      (2) Basic load rating  
(3) Dynamic load rating                      (4) Equivalent dynamic load
- 

192. Localization of high stress due to irregularities present in the component and abrupt changes in the cross-section is termed as
- (1) Stress concentration                      (2) Notch sensitivity  
(3) Fatigue limit                      (4) Creep
- 

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193. Resonance is a phenomenon when the frequency of external exciting force is
- (1) Twice the natural frequency of the system
  - (2) Half the natural frequency of the system
  - (3) Equal to the natural frequency of the system
  - (4) None of the above
- 
194. In a flywheel the safe stress is  $25.2 \text{ kN/m}^2$  and density is  $7 \text{ gm/cm}^3$ . The maximum peripheral velocity of the flywheel should be
- (1) 120 m/sec
  - (2) 80 m/sec
  - (3) 30 m/sec
  - (4) 60 m/sec
- 
195. The reference point on the follower for the purpose of laying the cam profile is known as
- (1) Pitch point
  - (2) Trace point
  - (3) Cam centre
  - (4) Roller centre
- 
196. Hoop stress on a thin cylinder is  $2.5 \text{ MPa}$ . What is the longitudinal stress on it ?
- (1) 12.5 bar
  - (2) 125 bar
  - (3) 5 MPa
  - (4) 1.25 bar
- 
197. For a simply supported beam of 5 m length, a udl of  $1300 \text{ N/m}$  is acting over the entire span. What is the maximum bending moment acting on the beam ?
- (1) 84.5 kN-m
  - (2) 81.25 kN-m
  - (3) 8.12 kN-m
  - (4) 4.06 kN-m
- 
198. Motion that repeats itself at regular intervals and has a sinusoidal variation over time is called
- (1) Simple Harmonic Motion
  - (2) Rectilinear Motion
  - (3) Angular Motion
  - (4) Brownian Motion
- 
199. 8 bullets each of mass 3.8 grams hit horizontally a stationary wooden block of 12 kg kept on the frictionless surface of a table. The bullet velocities are  $1100 \text{ m/s}$ . What velocity will the wooden block acquire finally ?
- (1) 3.8 m/s
  - (2) 1.8 m/s
  - (3) 2.8 m/s
  - (4) 5.8 m/s
- 
200. The position of a particle moving on the x-axis is given by
- $$x = 8 + gt^2 + 2t^3.$$
- The velocity and acceleration of the particle after 4 seconds will be
- (1) 168 and 66
  - (2) 168 and 68
  - (3) 68 and 168
  - (4) 66 and 166

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## सूचना - (पृष्ठ 1 वरुन 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 स्वतः बरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.

## नमुना प्रश्न

**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” हे आहे. त्यामुळे या प्रश्नाचे उत्तर “(3)” होईल, आता खालीलप्रमाणे प्र.क्र. 201 समोरील उत्तर-क्रमांक “③” चा कंस खालीलप्रमाणे पूर्णपणे छायंकित 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 छायंकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK