Directions for Questions 1 to 5 : *Read the article carefully and answer the questions that follow. Choose one answer from among the four choices given :*

Slower growth and deceleration in funding are making companies – including startups – across a range of sectors hire junior-level candidates in place of mid-level ones, according to multiple hiring platforms. In the case of tech firms, the trend is even more pronounced because, in addition to budget constraints, many of the new-age tech qualifications that companies need are more likely to be available among younger employees.

Online hiring firm Hiree has said that tech companies are now increasingly preferring people with experience of 1-3 years over those with experience of 3 years and more. It also noted that there's a 15% decline in the salary being offered to the junior-level employees. The data is based on the recruitment search patterns of over 400 companies, 60% of which comprised established startups, on the Hiree platform between October 2015 and February 2016. Almost 70% of the candidates surveyed were for tech roles by startups and corporates.

Mettl, an online assessment service that helps companies in recruitment, saw 40% of its assessments happening for candidates with 1-3 years of work experience in the January-March quarter, compared to 25% in the previous quarter. This was calculated from over 6 lakh assessments conducted by large and medium enterprises across IT, pharmacy, manufacturing, banking and automobile....

Hacker Earth, which organizes coding challenges for recruitment companies to understand the skillsets of candidates, also says hiring is shifting in favour of junior level candidates. "Also companies are now looking at particular skillsets rather than work experience. People with over six years of experience will not have technical expertise in Django or Python (programming languages needed for new-age tech apps)."

Ketan Kapoor, founder of Mettl, said companies are today a lot more focused on the skills of the people, and on young people with lesser experience if they can deliver the required output. Sunil Goel, MD of recruitment agency Global Hunt, said the concept of junior and senior roles in organizations is changing. "The pyramid of hierarchies is getting flattened", he said.

— Times Business, April 15, 2016

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1. Companies prefer to hire junior level candidates because :

    (A) They demand lower salaries and are willing to work longer hours

    (B) They have the required skill sets and cost less

    (C) They cost less and have 1-3 years experience

    (D) Mid level candidates do not have leadership abilities

2. To work with new-age tech apps, one needs to have :

    (A) Technical expertise in languages like Django and Python

    (B) Technical expertise in languages like Mettl and Hacker Earth

    (C) 1-3 years of experience

    (D) Access to online hiring firms

3. A word in the article which means the same as slow down, is :

    (A) Constraints

    (B) Increasingly

    (C) Assessments

    (D) Deceleration

4. A word in the article which means the opposite of horizontal, is :

    (A) Hierarchies

    (B) Pharmacy

    (C) Skill-sets

    (D) Multiple

2

5. The data used in this article comes from :

(A) Assessments conducted for tech roles by startups and corporates

(B) Assessments conducted by Hiree, an online hiring firm

(C) Assessments conducted by multiple hiring platforms

(D) Assessments conducted by Mettl and Hacker Earth

Directions for Questions 6 to 10 : *Choose one pair of words, from among the four choices given, to complete the given sentences.*

6. Globalization, liberalization and free market _____ some of the most significant modern trends in economies _____ the world.

(A) is; around

(B) are; under

(C) are; around

(D) is; for

7. The writer's primary objective _____ writing this seems to be a hatred _____ lies and cheating.

(A) while; for

(B) for; with

(C) of; by

(D) while; in

8. Some prophets _____ doom believe that we _____ soon pollute ourselves to death.

(A) in; was

(B) at; have

(C) of; will have

(D) of; will

3

9. When I got _____ the train at Guwahati, I _____ welcomed by my host Mr. Baruah.

(A) in; will be

(B) off; was

(C) at; is

(D) on; were

10. After a gap of ten years, I _____ to visit my old school again to see if anything _____ changed.

(A) decide; have

(B) deciding; has

(C) will decide; will have

(D) decided; had

Directions for Questions 11 to 14 : *Read the following sentences and replace the italicised part with the option closest in meaning :*

11. I shall have to *call on* her to show her the documents.

(A) Ring up

(B) Seek permission

(C) Visit

(D) Confront

12. They are *up in arms* to push the Bill for approval.

(A) Shoot

(B) Oppose

(C) Shout

(D) Impress

13. No political party in a democracy can ignore the *fourth estate* to gain power.

   (A) The panchayat

   (B) The city courts

   (C) The police

   (D) The press

14. *To spill the beans* is to violate a tacit contract.

   (A) Giving away information

   (B) Being negligent

   (C) Condemning

   (D) Passing critical remarks

Directions for Questions 15-16 : *Choose the correct meaning for the euphemism given in italics.*

15. "*In the sunset years*" :

   (A) Drunk

   (B) Old

   (C) Dead

   (D) Young

16. "*To pass away*" :

   (A) To die

   (B) To run

   (C) To walk

   (D) To step down

Directions for Questions 17 to 19 : *Listed below are words given in italics.* *Choose the* **correct synonym** *from the given options.*

17. *Immaculate* :

   (A) Immature

   (B) Imperfect

   (C) Immortal

   (D) Spotless

18. *Recalcitrant* :

   (A) Amenable

   (B) Disobedient

   (C) Docile

   (D) Former

19. *Belligerent* :

   (A) Peaceful

   (B) Believer

   (C) Diligent

   (D) Aggressive

Directions for Questions 20 to 25 : *Choose the correct option for the underlined part of each of the sentences given below:*

20. Her love for animals developed her career as a <u>specialist in animal diseases.</u>

   (A) Occulist

   (B) Biologist

   (C) Veterinarian

   (D) Paediatrician

21. A <u>soldier who fights for the sake of money</u> cannot be celebrated as courageous and patriotic.

    (A) Sinecure

    (B) Honorary

    (C) Mercenary

    (D) Equestrian

22. He is <u>working in return for</u> being taught a trade.

    (A) A pupil

    (B) A disciple

    (C) An apprentice

    (D) A sobriquet

23. Meena impressed all with her <u>persuasive and fluent speech</u>.

    (A) Discourse

    (B) Expression

    (C) Eloquence

    (D) Lecture

24. The <u>caretaker of a public building</u> needs to be a vigilant and an honest person.

    (A) Custodian

    (B) Proctor

    (C) Watchman

    (D) Dean

25. He found his duties increasingly <u>onerous</u>.

   (A) Easy

   (B) Taxing

   (C) Interesting

   (D) Frivolous

Directions for Questions 26 to 30 : Read the following sentences in which S_1 and S_6 are the first and last sentences. P, Q, R and S are in jumbled order. Choose the correct option to form a coherent paragraph.

26. S_1 India is a very old country with a great past.
       P.   Since August 1947, she has been in a position to pursue her own foreign policy.
       Q.   But it is a new country also, with new urges and new desires.
       R.   But even so, she cannot forget the lesson of her great leaders.
       S.   She is limited by the realities of the situation which cannot be ignored or overcome.
       S_6.   She has tried to adapt theory to reality.

   (A) PQRS

   (B) QPSR

   (C) SRPQ

   (D) RSPQ

27. S_1.   When Galileo went home, he began to experiment with the pendulum.
       P.   When he showed it to his teachers, they were delighted.
       Q.   It was not long before physicians were all using the instrument to count the heart-beats of their patients.
       R.   Soon he had invented an instrument which marked the rate of pulse-beats.
       S.   Then the clock makers began to use the pendulum to keep time.
       S_6.   Today it has many other uses.

   (A) PQRS

   (B) QRPS

   (C) SPQR

   (D) RPQS

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28. S_1: Pollution is one of the evils brought about by the growth of science.

P.   Air Pollution has very harmful effects.

Q.   They pollute the air and the atmosphere.

R.   It is making the environment, water and air dirty.

S.   Factories and Industries keep throwing out smoke which contains toxic gases.

S_6: People living in the surroundings breathe the impure air and are affected by diseases of the lungs and heart.

(A) PSQR

(B) RPSQ

(C) QPSR

(D) SPQR

29. S_1: Anna had longed to see her son

P.   "He will arrive at the station at 7'o'clock", she said to herself.

Q.   She prepared herself for it.

R.   She looked at the clock.

S.   There were only ten minutes left.

S_6: She rushed out of her house and hailed a taxi to reach the station in time.

(A) QPRS

(B) SPRQ

(C) PRQS

(D) QSRP

9

30. S_1. A rocket burns a fuel that makes a great deal of gas at the back of the rocket.

P. Ordinary fuel will burn only in air because it needs the oxygen in the air.

Q. A rocket can therefore travel outside the atmosphere in apace where there is no air.

R. This gas pushes against the rocket and sends it forward.

S. However, rocket fuels have their oxygen in them and so they burn without air.

S_6. In fact, it will travel faster in space than in the air because the friction of the air is not there to slow it down.

(A) QSRP

(B) RPSQ

(C) SQPR

(D) PRQS

31. If '=' stands for 'addition', 'x' stands for 'subtraction', '÷' stands for 'division', '+' stands for 'multiplication', '>' stands for 'equal to', '<' stands for 'greater than' and '−' stands for 'less than', state which of the following is true ?

(A) $3 = 2 \times 4 < 16 + 2 \div 4$

(B) $5 + 2 \div 2 - 10 \times 4 = 8$

(C) $3 = 4 + 2 > 9 \div 3 \times 3$

(D) $5 = 3 \times 7 < 8 \div 4 = 1$

32. In a certain code, PLEADING is written as FMHCQMFB. How is SHOULDER written in that code ?

(A) KCDQTIPV

(B) QDCKVPIT

(C) QDCKTIPV

(D) TIPVQDCK

33. In a History midterm test, D got more than A & C and B got less than E but more than D. Who got the maximum marks ?

    (A) B

    (B) E

    (C) D

    (D) Both (A) and (C)

Directions for Questions 34-35 : *Read the information given below and answer the questions that follow.*

A team has to be selected from among five professors – A, B, C, D and E; Six Engineers – P, Q, R, S, T, and U; and seven Chartered Accountants – H, I, J, K, L, M and N. Among them C, D, E, R, S, T, J, K and L are females and the rest are males.

The formation of the team is subjected to the following conditions :

  (i) Whenever there is a female professor in the team, there will be no male engineer.

 (ii) Whenever there is a male chartered accountant in the team, there will be no female professor.

(iii) There can't be more than two male engineers in a team at a given time.

34. If a team consists of 2 engineers, 2 chartered accountants and 3 professors out of whom at least 2 professors are females, then which of the following teams is not possible ?

    (A) CDERTJK

    (B) CDARSJK

    (C) CDBRUJL

    (D) DEBSTKL

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35. If a team consists of 3 engineers, 3 chartered accountants and 2 professors, then which of the following teams are possible ?

   (A) PRTJKLCD

   (B) PQUHINAB

   (C) RSTKLMCE

   (D) PQRHIMAB

36. Consider the following statements :

   (i) Some students play basketball

   (ii) To get scholarship in the school one must play basketball

   (iii) All students getting scholarship are brilliant

Which of the following conclusions can be drawn from the above statements ?

   (A) All brilliant students play basketball

   (B) All students who play basketball are brilliant

   (C) All students playing basketball get scholarship

   (D) No conclusion can be drawn

Directions for Questions 37-38 : *Read the given information and answer the questions that follow :*

P, Q, R, S, T and U are sitting in a circle facing the center. P is facing S, while Q is sitting second to the right hand side of P. R is sitting between P and Q and U is sitting between T and P.
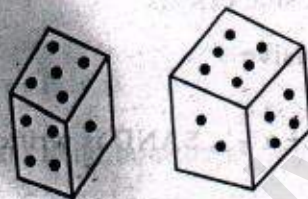
37. Who is sitting opposite to T ?

   (A) P

   (B) Q

   (C) R

   (D) T

38. Who is sitting between R and S ?

    (A) P

    (B) Q

    (C) R

    (D) T

39. Two positions of a **dice are** shown below :

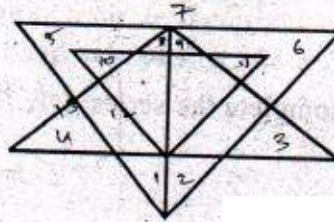When three dots are at the top, how many will be at the bottom ?

    (A) 1

    (B) 2

    (C) 4

    (D) 5

40. Which alternative will complete the series: DF, JL, PR, ?

    (A) ZX

    (B) VX

    (C) PQ

    (D) OR

13

Directions for Question 41 : In the following question a statement is followed by two conclusions. Taking the statement to be true, decide which of the given conclusions definitely follows from the given statement. Indicate your answers as :

    (A) If only statement one follows

    (B) If only statement two follows

    (C) If neither one nor two follows

    (D) If both statements follows

41. "Use of cosmetics is hazardous" :

    (I) Cosmetics have got side effects

    (II) Cosmetics are expensive

42. If RENT is written as '÷ + x –', SAND is written as '* / x <', how is START written as :

    (A) '+ – / ÷ –'

    (B) '* – / ÷ –'

    (C) '* ÷ / – +'

    (D) 'x – / ÷ –'

43. How many triangles are there in the figure ?

    (A) 25

    (B) 23

    (C) 21

    (D) 27

Directions for Questions 44-48 : Study the following and answer the questions that follow.

Eight people: S, R, N, L, M, T, O and P are sitting in a circle facing the centre. All eight belong to different professions: journalist, doctor, cricketer, professor, accountant, shopkeeper, painter and supervisor. {They are not necessarily seated in the mentioned order}.

M is seated third to the left of O.

The doctor is to the immediate right of M.

M is not a journalist.

R is sitting fourth to the right of P.

Neither R nor P is an immediate neighbour of M.

T is a professor and is sitting third to the right of the doctor.

The shopkeeper is sitting second to the left of the professor.

The painter is sitting second to the left of M.

S, the cricketer is sitting exactly in the middle of T and P.

Accountant is sitting second to the right of cricketer.

N is sitting third to the left of the T.

44. Who is the journalist ?

    (A)   O

    (B)   L

    (C)   N

    (D)   R

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45. What is S's position with respect to R ?

    (A) Third to the right of R

    (B) Second to the right of R

    (C) Third to the left of R

    (D) Second to the left of R

46. How many people are sitting between P and N when counted in anti-clockwise direction from N ?

    (A) One

    (B) Two

    (C) Three

    (D) Four

47. The following pairs are alike in a certain way. Which of the following is odd one out :

    (A) Professor – painter

    (B) Supervisor – shopkeeper

    (C) Cricketer – journalist

    (D) Shopkeeper – doctor

48. Which of the following is false ?

    (A) N is to immediate right of supervisor

    (B) Cricketer is third to the right of shopkeeper

    (C) Doctor is sitting exactly between supervisor and accountant

    (D) L is neither a professor nor a supervisor

Directions for Questions 49-50 : In each of the following questions, there is some relationship between the two terms to left of :: and the same relationship continues between the two terms to its right. Also in each question, one term either to the right of :: or to the left of it is missing. This term is given as one of the alternatives given below each question. Find out the missing term.

49. B : F : : E : ....

    (A) H

    (B) T

    (C) I

    (D) J

50. Ppk : kPP : : Llm : ....

    (A) mlL

    (B) LmM

    (C) mLL

    (D) lMl

51. If 'P + Q' means 'P is the father of Q', 'P × Q' means 'P is the brother of Q'; 'P − Q' means 'P is the mother of Q', then which of following is true for C − A + B ?

    (A) B is the son of A

    (B) A is the son of C

    (C) B is the father of A

    (D) C is the mother of B

17

Directions for Questions 52-55 : Read the information given below and answer the questions that follow :

Six persons A, B, C, D, E and F were playing a game of cards. A's father, mother and uncle were in the group. There were two women. B, the mother of A, got more points than her husband. D got more points than E but less than F. Niece of E got lowest points. Father of A got more points than F but could not win the game.

52. Who won the game ?

    (A) A

    (B) B

    (C) D

    (D) F

53. Who got the lowest points ?

    (A) A

    (B) B

    (C) C

    (D) E

54. Who is the husband of B ?

    (A) C

    (B) D

    (C) E

    (D) F

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55. Who stood second in the game ?

   (A) D

   (B) B

   (C) C

   (D) A

Directions for Questions 56-57 : Read the following information carefully and answer the questions given below:

   (i) Six children namely B, D, C, M, J and K are split into two groups of three each and are made to stand in two rows in such a way that a child in one row is exactly facing a child in the other row.

   (ii) M is not at the ends of any row and is to the right of J, who is facing C. K is to the left of D, who is facing M.

56. Who is to the immediate left to B ?

   (A) M

   (B) J

   (C) D

   (D) None of these

57. Which of the following groups of children is in the same row ?

   (A) BDC

   (B) KJM

   (C) MJD

   (D) BMJ

58. Find the missing number :

8	3	4
7	6	1
2	4	?
13	5	4

    (A) 1

    (B) 3

    (C) 2

    (D) 4

59. In a certain code '526' means 'sky is blue'; '24' means 'blue colour' and '436' means 'colour is fun', which digit means 'fun' ?

    (A) 2

    (B) 3

    (C) 4

    (D) 5

60. Statements :

    All benches are cots.

    No cot is lamp.

    Some lamps are candles.

Conclusions :

1. Some cots are candles.
2. Some candles are cots

    (A) If only conclusion 1 follows

    (B) If only conclusion 2 follows

    (C) If either conclusion 1 or 2 follows

    (D) If neither conclusion 1 nor 2 follows

20

61. Christine Lagarde was in the news recently. What was the reason behind it ?

   (A) She got an extension for second term as IMF chief

   (B) She got an extension for second term as World Bank chief

   (C) She is designated as the next UN chief

   (D) None of above

62. Match the following :

   (a) Kiran Mazumdar Shaw   (i) Banker

   (b) Chanda Kochhar   (ii) Journalist

   (c) Tavleen Singh   (iii) Business Woman

   (d) Mithali Raj   (iv) Cricketer

   (A) a-iv b-iii c-i d-ii

   (B) a-iii b-i c-ii d-iv

   (C) a-iv b-ii c-iii d-i

   (D) a-i b-ii c-iii d-iv

63. On what date is the International Yoga Day celebrated ?

   (A) 21st June

   (B) 5th June

   (C) 24th September

   (D) 31st January

21

64. Committee formed by Union Government to look into recent protest by Jat community in Haryana :

(A) Prakash Singh committee

(B) Yashwant Sinha committee

(C) Nivedkar committee

(D) Gadkari committee

65. Which one is not a component of composite Human Development Index (HDI) ?

(A) Per capita income

(B) Literacy rate

(C) Life expectancy

(D) Infant mortality rate

66. Amartya Sen, an Indian economist was awarded Nobel prize in economics for his pioneering work in :

(A) Microeconomics

(B) Macroeconomics

(C) Welfare economics

(D) International economics

67. Which of the following books is not written by Dr. A.P.J. Kalam ?

(A) Wings of Fire

(B) India 2020

(C) Ignited Minds

(D) The Argumentative Indian

68. Recently Reuben Brothers were in the news for :

    (A) They replaced Hinduja Brothers as the wealthiest persons of Britain

    (B) They are one of the franchisee of IPL

    (C) They are black listed by the enforcement director for fraud

    (D) They purchased the ownership of Flipkart

69. Who is the NRI businessman behind Liberty House that has expressed the desire to acquire one of the Tata Steel units in UK ?

    (A) Sanjeev Gupta

    (B) Sachin Bansal

    (C) Vijay Mallya

    (D) Sanjeev Puri

70. The highest peace-time military gallantry award in India is :

    (A) Paramvir Chakra

    (B) Ashok Chakra

    (C) Shaurya Chakra

    (D) None of above

71. Who is the Chief Executive Officer of Niti Aayog ?

    (A) Bibek Debroy

    (B) Arvind Subramanium

    (C) Ramesh Chand

    (D) Amitabh Kant

23

72. Anshu Gupta won the Ramon Magsaysay Award for the year 2015. Who is he ?

    (A) He is an Indian Forest Service officer who fought corruption in forests.

    (B) He is the founder of the NGO 'Goonj'.

    (C) He is the founder of the NGO 'Akshaya Patra'.

    (D) He is an RTI activist.

73. In 2015, which of the following sportspersons has been appointed as the Goodwill Ambassador of the UNICEF ?

    (A) Novak Djokovic

    (B) Maria Sharapova

    (C) Lionel Messi

    (D) Christino Ronaldo

74. Gennaro Bernile, Vineet Bhagwat and P. Raghavendra Rau won the 'Ig Nobel Prize' in Management for the year 2015. What is special about these 'Ig Nobel' awards ?

    (A) They are given in fields like Management, Mathematics and Physiology and not in the usual Nobel Prize fields like Physics, Chemistry, Medicine etc.

    (B) They are given to Asian discoverers only.

    (C) They are given for unusual, trivial or humorous scientific discoveries or achievements.

    (D) They are given for business related discoveries only.

24

75. The Jain religious practice of a ritualistic fast unto death, which was in news recently because of a Supreme Court judgment, is known as :

   (A) Euthanasia

   (B) Swetambara

   (C) Santhara

   (D) Jallikattu

76. Which of the following is world's most powerful supercomputer ?

   (A) Pleiades (USA)

   (B) Jaguar (USA)

   (C) Nebulae (China)

   (D) Tianhe-2 (China)

77. What do you understand by NOTA ?

   (A) 'None of the above'

   (B) New and Old testament advice

   (C) National Organisation of the Anarchists

   (D) 'Not atheist'

78. In the year 2016, the chairmanship of the influential bloc BRICS has passed from which country to which ?

   (A) From India to Russia

   (B) From India to Brazil

   (C) From Russia to India

   (D) From Russia to China

25

79. Tata Communications Payment Solutions Ltd became the first company in India to get RBI's permission to open White Label ATMs in India under the brand name 'Indicash'. How is a 'White Label ATM' different from a 'Brown Label ATM' ?

    (A) White label ATM has a logo of a particular bank, say SBI or ICICI or Kotak; while Brown label ATM doesn't have any logo of a particular bank

    (B) White label ATM is operated by a banking company; while Brown label ATM is operated by a non-banking financial company

    (C) Both (A) and (B) are correct

    (D) Both (A) and (B) are wrong

80. Which of the following well known fashion designers has been recently appointed as the adviser to Khadi and Village Industries Commission for promotion of Khadi in India and across the world ?

    (A) Ritu Beri

    (B) Rohit Bal

    (C) Wendell Rodrickes

    (D) Sabyasachi Mukherjee

81. As per the latest Forbes magazine rankings who is the second richest Indian billionaire following Mukesh Ambani at the top ?

    (A) Shiv Nadar of HCL Technologies

    (B) Dilip Shanghvi of Sun Pharmaceutical Industries

    (C) Azim Premji of Wipro

    (D) Kumar Mangalam Birla of Aditya Birla Group

82. Which company launched the biggest Indian IPO of 2015 ?

  (A) InterGlobe Aviation (IndiGo Airlines)

  (B) Coffee Day Enterprises (cafe coffee day chain)

  (C) Dr. Lal Path Labs (medical diagnostics chain)

  (D) UFO Moviez India (digital cinema & in-cinema advertising)

83. "Inspired Living" is the advertisement tagline of which of the following companies/brands ?

  (A) URBAN LADDER

  (B) LG

  (C) HAIER

  (D) PHILLIPS

84. In March 2016, the 13th edition of India-European Union Summit was held in :

  (A) London, UK

  (B) Paris, France

  (C) Brussels, Belgium

  (D) Zurich, Switzerland

85. Match the following :

Movies	Directors
(a) Mother India	(i) Mira Nair
(b) Sholay	(ii) Ramesh Sippy
(c) Salaam Bombay	(iii) Mehboob khan
(d) Do Bigha Zameen	(iv) Bimal Roy

  (A) a-iv b-iii c-i d-ii

  (B) a-ii b-iii c-i d-iv

  (C) a-iv b-ii c-iii d-i

  (D) a-iii b-ii c-i d-iv

27

86. India foiled a bid by which of the following companies to patent Nutmeg extract based mouthwash formula at the European Patent Office, on the argument that the said herb 'Myristica Fragrans' was traditionally used for oral diseases in Indian System of medicine ?

   (A) Glaxo Smith Kline plc

   (B) Hindustan Unilever Ltd

   (C) Johnson & Johnson Ltd

   (D) Colgate Palmolive Ltd

87. Who won the prestigious lifetime achievement award at the annual Asian Business Leadership Forum in Dubai 2015 ?

   (A) Hinduja Brothers

   (B) Brij Mohan Lall Munjal

   (C) Nandan Nilekani

   (D) Arun Jaitley

88. The ore of Aluminium is :

   (A) Bauxite

   (B) Charcopyrites

   (C) Hematite

   (D) Fluorspar

89. Which of the following became the first Indian brand to be endorsed by the International sports icon Lionel Messi ?

   (A) Oppo phones

   (B) Indian Oil

   (C) Tata Motors

   (D) Dabur

90. Subir Gokarn recently got appointed as Executive Director of the IMF. He earlier served as :

    (A) Deputy Governor of RBI

    (B) Chief Economic Advisor to Govt. of India

    (C) Deputy Chairman, Planning Commission of India

    (D) Vice Chairman of Niti Aayog

91. The set of real values of x satisfying the inequality $|x^2+x+6|<6$ is :

    (A) $(-\infty,\infty)$

    (B) $(-1,0)$

    (C) $(-\infty,-1)\cup(0,\infty)$

    (D) $(-\infty,-1]\cup[0,\infty)$

92. The number of real solutions of the equation $e^x = x$, is :

    (A) 1

    (B) 2

    (C) 0

    (D) None of these

93. On the set of natural numbers, a relation R is defined so that p is related to q if and only if the GCD of p and q is 2, then R is :

    (A) Reflexive but not symmetric

    (B) Symmetric only

    (C) Equivalence

    (D) Neither reflexive nor symmetric but transitive

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94. The inverse of the function $f : R \rightarrow \{x \in R : x < 1\}$, where R is the set of real numbers, given by $f(x) = (e^x - e^{-x})/(e^x + e^{-x})$ is :

(A) $\frac{1}{2} \log \frac{1+x}{1-x}$

(B) $\frac{1}{2} \log \frac{2+x}{2-x}$

(C) $\frac{1}{2} \log \frac{1-x}{1+x}$

(D) None of the above

95. If the first, second and the last term of an AP are a, b, c respectively, then the sum of n terms of the AP is :

(A) (a+b)(a+c-2b)/2(b-a)

(B) (b+c)(a+b-2c)/2(b-a)

(C) (a+c)(b+c-2a)/2(b-a)

(D) None of the above

96. In a GP of positive terms, any term is equal to the sum of the next two terms. Then, the common ratio of GP is :

(A) $(\sqrt{5} - 1)/2$

(B) $(\sqrt{5} + 1)/2$

(C) $-(\sqrt{5} + 1)/2$

(D) $(1 - \sqrt{5})/2$

97. If b > a, then the equation $(x - a)(x - b) - 1 = 0$, has :

   (A) Both roots in [a, b]

   (B) Both roots in $(-\infty, a]$

   (C) Both roots in $[b, \infty)$

   (D) One root in $(-\infty, a)$ and other in (b, ∞).

98. The number of six digit numbers that can be formed using three digits 0, 1, 2, is :

   (A) 3^6

   (B) 2×3^5

   (C) 3^5

   (D) None of the above

99. If A = $\begin{pmatrix} \alpha & 2 \\ 2 & \alpha \end{pmatrix}$ and determinant $(A^3) = 125$, then the value of α is :

   (A) ±1

   (B) ±2

   (C) ±3

   (D) ±5

100. If $P(A) = 2/3$, $P(B) = 1/2$, $P(A \cup B) = 5/6$ then events A and B are :

   (A) Mutually exclusive

   (B) Independent as well as mutually exclusive

   (C) Independent

   (D) Dependent only on A

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101. The number of points equidistant to three given distinct non-collinear points is :

    (A) 0

    (B) 1

    (C) 2

    (D) Infinite

102. The lines $2x - 3y - 5 = 0$ and $3x - 4y = 7$ are diameters of a circle :

    (A) $x^2 + y^2 + 2x + 2y - 62 = 0$

    (B) $x^2 + y^2 + 2x - 2y - 47 = 0$

    (C) $x^2 + y^2 - 2x + 2y - 47 = 0$

    (D) $x^2 + y^2 - 2x - 2y - 62 = 0$

103. $\lim_{x \to a} \dfrac{x-a}{|x-a|}$ equals :

    (A) a

    (B) 0

    (C) 1

    (D) None of these

104. The Set $(A \cap B) \cup (A \cap B')$ refers to the set :

    (A) A

    (B) B

    (C) Universal Set

    (D) Null Set

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105. If $f(x) = \dfrac{1-x}{1+x}$ then :

    (A) $f(-x) = f(x)$

    (B) $f(x)\, f(-x) = 2$

    (C) $f(1/x) = f(x)$

    (D) $f(1/x) = -f(x)$

106. If p, q are roots of the equation $x^2 + pq = (p+1)\, x$ then q is equal to :

    (A) -1

    (B)   1

    (C)   2

    (D) -2

107. The length of a side of a square is 'a' metres. A second square is formed by joining the middle points of this square. Then a third square is formed by joining the middle points of the second square and so on. Then the sum of the area of squares, carried up to infinity is :

    (A) a^2

    (B) $2a^2$

    (C) $3a^2$

    (D) $4a^2$

108. Three letters are written to three persons and addresses on the envelopes are also written. One letter is placed randomly in each envelope. The chances that the letters go into right envelopes are :

    (A)   1/9

    (B)   1/6

    (C)   1/27

    (D)   None of these

109. The number of ways in which we can post 5 letters in 10 letter boxes is :

    (A) 50

    (B) 5^{10}

    (C) 10^5

    (D) None of these

110. The sum of the coefficients in the expansion of $(5p - 4q)^n$ is :

    (A) 1

    (B) −1

    (C) 9

    (D) None of these

111. It was calculated that 50 persons could complete a piece of work in 15 days. But before the start of work, 25 persons more joined the work. How long will it take to complete the work ?

    (A) 5 Days

    (B) 10 days

    (C) 12 days

    (D) None of these

112. In an exam, the average was found to be 60 marks. After it was found that marks of 10 candidates were wrongly written 50 in place of 70 & after correction the average became 65. The total number of candidates who took the exam are :

    (A) 45

    (B) 40

    (C) 35

    (D) 30

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113. Sum of the series $\dfrac{2}{1!}+\dfrac{3}{2!}+\dfrac{4}{3!}+\ldots$ to ∞ is :

   (A) $2e$

   (B) $2e-1$

   (C) $2e+1$

   (D) $2(e+1)$

114. If $|\vec{x}|$ represents length of vector $\vec{x}$ and if $|\vec{\alpha}+\vec{\beta}|=|\vec{\alpha}-\vec{\beta}|$ then :

   (A) $\vec{\alpha}$ is parallel to $\vec{\beta}$

   (B) $\vec{\alpha}$ is perpendicular to $\vec{\beta}$

   (C) $|\vec{\alpha}|=|\vec{\beta}|$

   (D) None of these

115. If each element of a matrix of order 3×3 has determinant of value A. If each element of this matrix is multiplied by 2, then the determinant of the new matrix is equal to :

   (A) A

   (B) 3A

   (C) 8A

   (D) 9A

116. A shopkeeper buys a number of books for Rs. 80. If he had bought four more books for the same amount, each book would have cost him Rs. 1 less. Then the number of books he had bought is :

   (A) 15

   (B) 16

   (C) 17

   (D) 18

117. If $\dfrac{1}{x+1} + \dfrac{2}{x+2} = \dfrac{5}{x+4}$, $(x \neq -1, -2, -4)$. Then x is equal to :

(A) 2

(B) 3

(C) 4

(D) 5

118. If the coefficients of the second, third and fourth terms in the expansion of $(1 + x)^n$ are in A.P. then n is equal to :

(A) 5

(B) 6

(C) 7

(D) 8

119. The length of shadow of a vertical pole on the horizontal ground is $\dfrac{1}{\sqrt{3}}$ times of its height, then the angle of elevation of the sun is :

(A) 15°

(B) 30°

(C) 45°

(D) 60°

120. $(\log_3 2) \cdot (\log_5 5) \cdot (\log_4 9)$ is equal to :

(A) 1

(B) 4

(C) 3

(D) 2