

Section I

Maximum Marks – 60

Time – 45 minutes

Instructions: -

1. There are total 60 question in this section.
 2. All question have four choices out of which only one is correct.
 3. There is no negative marking.
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1. Find the unit place of $3674 \times 8596 + 5699 \times 1589$
 - a) 3
 - b) 4
 - c) 5
 - d) 6
 2. What will be the highest three digit number which when divided by 3, 7 and 21 leaves remainder 2?
 - a) 978
 - b) 982
 - c) 983
 - d) 989
 3. Two persons A & B travelling towards each other from P & Q respectively which is 396 kms apart meet after 11 hours. Speed of A is 6 kms/hr more than B. Find the speed of B.
 - a) 15
 - b) 18
 - c) 21
 - d) 24
 4. Train travelling at a speed of 90 km/hr crosses a man standing on a platform in 8 seconds. Find the time taken by the train to cross the platform of length 250 kms.
 - a) 15 sec
 - b) 16 sec
 - c) 18 sec
 - d) 20 sec
 5. There are three numbers A, B and C. A is 50% of C and B is 75% of C, then A is what percentage of B?

23. On account of the ___ in sales the software firm has achieved an eight per cent ___ in net profit.

- | | |
|--------------------|--------------------|
| (a) surge, fall | (b) increase, rise |
| (c) decline, slope | (d) hike, loss |

24. We are proud to say that today ___ 26 per cent of our total accounts are ___ by women and senior citizens.

- | | |
|-----------------------|------------------------|
| (a) approximate, held | (b) nearly, authorized |
| (c) over, maintain | (d) above, open |

25. The company has _____ special training to employees on _____ to trade online.

- | | |
|-------------------------|----------------------|
| (a) announced, benefits | (b) offered, course |
| (c) imparted, risks | (d) sanction, skills |

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

Cynicism

- | | |
|---------------|---------------|
| a) Conviction | b) Bitterness |
| c) Credence | d) Intuition |

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

Pinnacle

- | | |
|----------------|----------|
| a) Culmination | b) Nadir |
| c) Nethermost | d) Basal |

28. In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Befuddle

- | | |
|------------|--------------|
| a) Baffle | b) Daze |
| c) Fluster | d) Explicate |

29. In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one which best express the same sentence in Indirect/Direct speech.

John said, "There is a monkey outside the window."

- a) John said that there was a monkey outside the window.
- b) John said that there is a monkey outside the window.
- c) John says that there was a monkey outside the window.
- d) John says that there is a monkey outside the window.

30. In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one which best express the same sentence in Indirect/Direct speech.

She said, "I will have cooked the food by the time they arrive".

- a) She said that she will have cooked the food by the time they would arrive.
- b) She said that she would cooked the food by the time they will arrive.
- c) She said that she would have cooked the food by the time they will arrive.
- d) She said that she would have cooked the food by the time they arrived.

In the following question Q31 – Q32, a sentence has been given in Active/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

31. You'll be missing the sunshine in home.

- a) You'll miss the sunshine in home.
- b) You would be missing the sunshine in home.
- c) You'll are going to be missing the sunshine in home.
- d) None of the above.

32. The presiding officer vetoed the committee's decision.

- a) The committee's decision is vetoed by the presiding officer.

- b) The committee's decision was vetoed by the presiding officer.
- c) The committee's decision has been vetoed by the presiding officer.
- d) The committee's decision is being vetoed by the presiding officer.

33. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

Tight - lipped

- a) To have very thin lips
- b) To be boisterous
- c) To have a thin voice
- d) Unwilling to speak about an event

34. Out of the four alternatives, choose the one which can be substituted for the given words/sentence.

To confirm with the help of evidence

- a) Philanthropist
- b) Bilingual
- c) Refute
- d) Corroborate

35. In the following question, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

Rohan had been playing (1) for his club since fifteen years, (2) but then his elbow got injured. (3) No error (4)

- a) Rohan had been playing
- b) for his club since fifteen years,
- c) but then his elbow got injured.
- d) No error

36. When was the Constitution of India amended for the first time?

- a) 1951
c) 1950
- b) 1952
d) 1953
37. Who wrote the book Indica?
a) Megasthenese
c) Chanakya
- b) Aristotle
d) None of these
38. Soil contains decayed remains of living organisms. This is called _____.
a) Minerals
c) Saline Soil
- b) Biosphere
d) Humus
39. Dairy comes under which sector of economic activity?
a) Tertiary sector
c) Secondary sector
- b) Primary sector
d) Quaternary sector
40. Who is appointed as the first Lt. Governor of Union Territory of Ladakh?
a) Raj Manohar Joshi
c) Satyapal Malik
- b) G C Murmu
d) R K Mathur
41. What phenomenon is responsible for twinkling of stars?
a) Diffraction
c) Dispersion
- b) Refraction
d) Scattering of Light
42. What will be the power consumption of two 300 W bulbs, three 100 W fans and one 1200 W Refrigerator for continuous operation of 30 hours?
a) 54 kWh
c) 63 kWh
- b) 60 kWh
d) None of these
43. What type of image is formed by the eye lens on the retina?
(a) Real and erect
(b) Virtual and inverted

- (c) Real and inverted
- (d) Virtual and erect

44. The magnetic field is the strongest at

- (a) middle of the magnet.
- (b) north pole.
- (c) south pole.
- (d) both poles.

45. The heating element of an electric iron is made up of:

- (a) copper
- (b) nichrome
- (c) aluminium
- (d) iron

46. A zygote which has an X-chromosome inherited from the father will develop into

- (a) girl
- (b) boy
- (c) either boy or girl
- (d) X-chromosome does not influence the sex of a child.

47. The ability of a cell to divide into several cells during reproduction in Plasmodium is called

- (a) budding
- (b) multiple fission
- (c) binary fission
- (d) reduction division

48. Tomato is a natural source of which acid?

- (a) Acetic acid
- (b) Citric acid
- (c) Tartaric acid
- (d) Oxalic acid

49. Which of the following has more inertia – a rubber ball and a stone of same size?

- a) Rubber ball
- b) Stone
- c) Both have equal inertia
- d) Both have zero

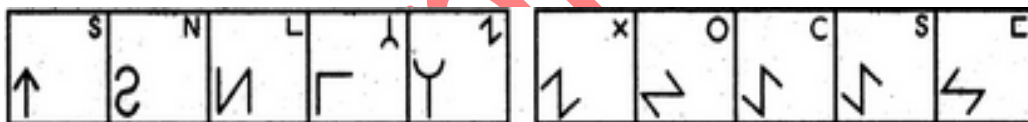
50. A bus at rest starts moving with an acceleration of 0.1 m/s^2 . What will be its speed after 2 minutes?

- a) 15 m/s
- b) 18 m/s
- c) 9 m/s
- d) 12 m/s

51. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:

Answer Figures:



A B C D C 1 2 3 4 5

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

52. Marathon is to race as hibernation is to

- a) winter b) bear
- c) dream d) sleep

53. Choose the correct order of letters which are required to form a correct meaningful word

VARSTE

- a) 2,3,1,6,4,5

- b) 3,2,4,5,6,1
- c) 4,5,2,3,1,6
- d) 6,3,4,5,2,1

54. In these series, you will be looking at both the letter pattern and the number pattern. Fill the blank in the series.

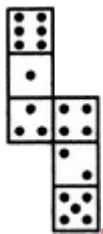
SCD, TEF, UGH, _____, WKL

- a) CMN
- b) VIJ
- c) IJT
- d) UJI

55. Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?

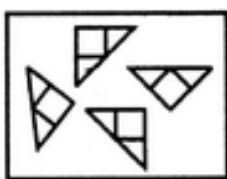
- a) Brother
- b) Nephew
- c) Uncle
- d) Son-in-law

56. How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?

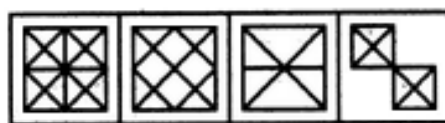


- a) 2
- b) 3
- c) 5
- d) 6

57. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)







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

- a) 2
- c) 1

- b) 3
- d) 4

58. Which of the following diagrams indicates the best relation between Travelers, Train and Bus ?

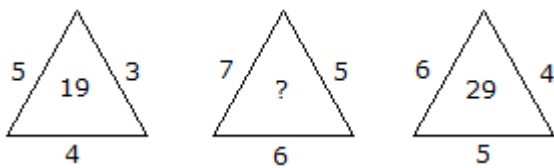
- a) 
- b) 
- c) 
- d) 

59. In a certain code language,
 '134' means 'good and tasty';
 '478' means 'see good pictures' and
 '729' means 'pictures are faint'.

Which of the following digits stands for 'see'?

- a) 1
- c) 8
- b) 9
- d) None of these

60. Which one will replace the question mark ?



- a) 24
- c) 29
- b) 36
- d) 41

Section IV (Electronics)

Maximum Marks – 50

Time – 30 minutes

- Instructions: -**
1. There are total 50 question in this section.
 2. All question have four choices out of which only one is correct.
 3. There is no negative marking.

1. Three capacitors of capacity $8\ \mu\text{F}$, $16\ \mu\text{F}$ and $32\ \mu\text{F}$ are connected in series, the total capacitance will be
(a) $32/7\ \mu\text{F}$ (b) $7.32\ \mu\text{F}$ (c) $56\ \mu\text{F}$ (d) None of these
2. The voltage supplied by one cell of Lead acid battery is approximately
(a) $0.5\ \text{V}$ (b) $1.11\ \text{V}$ (c) $2\ \text{V}$ (d) None of these
3. The maximum value of potential gradient in a cable occurs in
(a) Conductor (b) insulation (c) outer sheath (d) None of these
4. Time constant in an R-L circuit is defined as the time taken by the current to become
(a) 36.8% of the final value (b) 36.8% of the initial value
(c) 63.2% of the final value (d) None of these
5. An R-C circuit is fed by a DC source. The current in the circuit is maximum at
(a) $t = 0$ (b) $t = \text{infinity}$ (c) $t = RC$ (d) None of these
6. The Fourier transform of a unit step function is given by
(a) $F(j\omega) = 1/\omega$ (b) $F(j\omega) = j/\omega$ (c) $F(j\omega) = 1/j\omega$ (d) None of these
7. Ripple factor for half wave rectifier
(a) 1.11 (b) 1.21 (c) 1.5 (d) None of these
8. The material useful for manufacture of transformers and large turbo-alternator is
(a) Hot Rolled Grain Oriented Steel
(b) Cold rolled Grain Oriented Steel
(c) Cast Steel
(d) None of these

9. Annealing of metals
 (a) Removes internal stress (b) increases size of grains
 (c) decreases conductivity (d) None of these
10. The shunt element of a prototype High pass filter is
 (a) Resistive (b) Inductive
 (c) Capacitive (d) None of these
11. A hole in a semiconductor is defined as
 (a) A free electron (b) The incomplete part of an electron pair bond
 (c) A free proton (d) None of these
12. A pn junction acts as a ____
 (a) Controlled switch (b) Bidirectional switch
 (c) Unidirectional switch (d) None of the above
13. A 1,000 V power supply would use ____ as a filter capacitor
 (a) paper capacitor (b) air capacitor
 (c) mica capacitor (d) electrolytic capacitor
14. The height of the geostationary satellite is-
 (a) 35930 km (b) 45930 km
 (c) 55930 km (d) None of these
15. Value of $i(0^+)$ for the system whose transfer function is given by the equation-

$$I(s) = \frac{2s + 3}{(s + 1)(s + 3)}$$
 (a) 0 (b) 1 (c) 2 (d) None of these
16. According to Hurwitz criterion, the characteristic equation $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$ is
 (a) Unstable (b) Marginally stable
 (c) Conditionally stable (d) None of these
17. An advantage of RC coupling scheme is the ____
 (a) Good impedance matching (b) Economy
 (c) High efficiency (d) None of these
18. In practice, voltage gain is expressed ____
 (a) In db (b) In volts (c) As a number (d) None of these
19. In transistor amplifiers, we use ____ transformer for impedance matching
 (a) Step up (b) Step down (c) Same turn ratio (d) None of these

20. Transistor biasing is generally provided by a ____
(a) Biasing circuit (b) Bias battery (c) Diode (d) None of these
21. A crystal diode is used as ____
(a) an amplifier (b) a rectifier (c) an oscillator (d) None of these
22. Mains a.c. power is converted into d.c. power for ____
(a) lighting purposes (b) heaters
(c) using in electronic equipment (d) none of the above
23. The battery connections required to forward bias a pn junction are ____
(a) +ve terminal to p and -ve terminal to n
(b) -ve terminal to p and +ve terminal to n
(c) -ve terminal to p and +ve terminal to n
(d) None of the above
24. The bandwidth of a single stage amplifier is ____ that of a multistage amplifier
(a) More than (b) The same as (c) Less than (d) Data insufficient
25. An astable multivibrator has component values $R_{B1} = R_{B2} = R = 10k\Omega$ and $C_1 = C_2 = 120 \text{ pF}$. The frequency of circuit oscillation is given by -
(a) 58.4 Hz (b) 5.84 kHz (c) 5.84 Hz (d) None of these
26. Miller integrator voltage sweep generator uses -
(a) Negative feedback
(b) Positive feedback
(c) Both negative and positive feedback simultaneously
(d) None of these
27. The operating point is also called the ____
(a) Cut off point (b) Quiescent point
(c) Saturation point (d) None of the above
28. A current of 4.8 Amp is flowing in a conductor. The number of electrons flowing per second through the conductor in electron/sec will be -
(a) 3×10^{19} (b) 76.8×10^{20}
(c) 7.68×10^{20} (d) None of these
29. When was FORTRAN developed by IBM?
(a) 1954 (b) 1968
(c) 1978 (d) None of these
30. Digital circuit can be made by the repeated use of ____
(a) OR gates (b) NOT gates (c) NAND gates (d) None of these

31. In Boolean algebra, the bar sign (-) indicates ____
(a) OR operation (b) AND operation (c) NOT operation (d) None of these
32. The inverter is ____
(a) NOT gate (b) OR gate (c) AND gate (d) None of these
33. Bit stands for ____
(a) binary information term (b) binary digit
(c) binary tree (d) None of these
34. TCP/IP is necessary if one is to connect to the ____
(a) Phone Lines (b) Internet (c) LAN (d) None of these
35. If a computer provides database services to other, then it will be known as.
(a) Web server (b) Application server
(c) Database server (d) None of these
36. The springs used in railway wagons and road vehicles belong to the category of
(a) Leaf springs (b) Cylindrical helical springs
(c) Spiral springs (d) None of these
37. FMR as referred to brakes is
(a) Force multiplication ratio (b) Frictional moment ratio
(c) Friction multiplication ratio (d) None of these
38. SMPS stand for ____
(a) Simple mode power supply (b) Switch mode power supply
(c) Surge mode power supply (d) None of these
39. The biometric device is ____
(a) Output device (b) Power supply (c) Input device (d) None of these
40. Solder which is used for joining metal pieces is an alloy of
(a) Tin and lead (b) Zinc and lead (c) Tin and zinc (d) None of these
41. Class power amplifier has the highest collector efficiency
(a) C (b) A (c) B (d) None of these
42. Thermal runaway occurs when ____
(a) Collector is reverse biased (b) Transistor is not biased
(c) Emitter is forward biased (d) None of these

43. Dielectric strength of a material implies its
(a) Energy storage capacity
(b) Magnetic strength
(c) Capacity to withstand high voltage
(d) None of the above
44. The emitter of a transistor is ____doped
(a) lightly (b) heavily (c) moderately (d) none of these
45. The piezoelectric effect in a crystal is ____
(a) A voltage developed because of mechanical stress
(b) A change in resistance because of temperature
(c) A change in frequency because of temperature
(d) None of the above
46. Over-modulation results in ____
(a) Weakening of the signal (b) Excessive carrier power
(c) Distortion (d) None of the above
47. In a radio receiver, noise is generally developed at ____
(a) IF stage (b) Receiver (c) RF stage (d) None of these
48. If a radio receiver amplifies all the signal frequencies equally well, it is said to have high____
(a) Sensitivity (b) Selectivity (c) Fidelity (d) None of these
49. The major advantage of FM over AM is ____
(a) Reception is less noisy (b) Higher carrier frequency
(c) Smaller bandwidth (d) Small frequency deviation
50. The IF is 455 kHz. If the radio receiver is tuned to 855 kHz, the local oscillator frequency is ____
(a) 455 kHz (b) 1310 kHz (c) 1500 kHz (d) None of these