Prepp

Practice, Learn and Achieve
Your Goal with Prepp

JK SET Exam

Previous Paper

Simplifying
Government Exams

SSC CHSL | IAS EXAM | RRB NTPC | NTSE | CDS
SSC CGL | CBSE UGC NET | IBPS PO | NDA
SBI PO | IBPS CLERK | AFCAT | SSC JE | CTET
CSIR UGC NET | CAPF | IBPS RRB

www.prepp.in

SET 2016

PAPER – II

ELECTRONIC SCIENCE

140114

Signature of the Invigilator

Question Booklet No. .....

1.

OMR Sheet No.. .....

Subject Code 14 **ROLL No.**

Time Allowed : 75 Minutes **Max. Marks : 100**

No. of pages in this Booklet : **8** No. of Questions : **50**

INSTRUCTIONS FOR CANDIDATES

1. Write your Roll No. and the OMR Sheet No. in the spaces provided on top of this page.
2. Fill in the necessary information in the spaces provided on the OMR response sheet.
3. This booklet consists of seventy five (50) compulsory questions each carrying 2 marks.
4. Examine the question booklet carefully and tally the number of pages/questions in the booklet with the information printed above. **Do not accept a damaged or open booklet.** Damaged or faulty booklet may be got replaced within the first **5** minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time given.
5. Each Question has four alternative responses marked (A), (B), (C) and (D) in the OMR sheet. You have to completely darken the circle indicating the most appropriate response against each item as in the illustration.



6. All entries in the common OMR response sheet for Papers I and II are to be recorded in the original copy only.
7. Use only Blue/Black Ball point pen.
8. Rough Work is to be done on the blank pages provided at the end of this booklet.
9. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Sheet, except in the spaces allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
10. You have to return the Original OMR Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. **You are, however, allowed to carry the test booklet and the duplicate copy of OMR Sheet** on conclusion of examination.
11. Use of any calculator, mobile phone or log table etc. is strictly prohibited.
12. **There is no negative marking.**

14-16

SEAL

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click
Know More

PAPER-II
ELECTRONIC SCIENCE

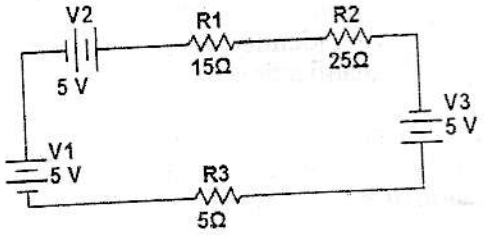
1. A semiconductor that is electrically neutral :
   (A) Has no majority carries
   (B) Has no free charges
   (C) Has equal number of positive and negative charges
   (D) Has no minority carries

2. A zener diode :
   (A) Has a high forward voltage rating
   (B) Has a sharp breakdown at low reverse voltage
   (C) Is useful as an amplifier
   (D) Has a negative resistance

3. A field effect transistor :
   (A) Uses a forward bias pn junction
   (B) Has a very high input resistance
   (C) Uses a high concentration emitter junction
   (D) Depends on minority carrier flow

4. Schottky diode is also known as :
   (A) PIN diode
   (B) Hot carrier diode
   (C) Step recovery diode
   (D) Tunnel diode

5. The current in the circuit shown in the figure is :



   (A) -333mA (B) -222mA
   (C) 3.33mA (D) 333mA

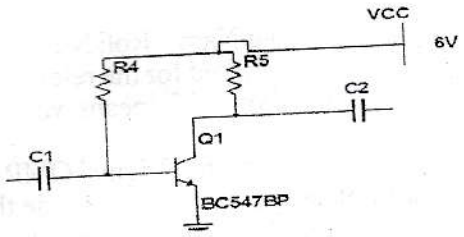
6. In a simple high-pass RC filter, if the value of capacitance is doubled, the cut-off frequency is :
   (A) Doubled (B) Halved
   (C) Tripled (D) Quadrupled

7. The Fourier Transform allows us to represent functions in :
   (A) Time domain (B) Frequency domain
   (C) Space domain (D) None of the above

8. A DC voltage source is connected across a series RLC circuit. Under steady state condition the applied DC voltage drops entirely across :
   (A) R only (B) C only
   (C) L only (D) RL only

9. The control voltage for IC 555 can be used as :
   (A) Charge threshold voltage only
   (B) Charge trigger voltage only
   (C) Both charge threshold and trigger voltage levels
   (D) None of the above

10. In the amplifier circuit shown in the figure, values of R_4 and R_5 are such that the transistor is operating at $V_{CE} = 3$ V and $I_C = 1.5$ mA when its $\beta = 150$. For a transistor with $\beta = 200$, the operating point (V_{CE}, I_C) will be



   (A) (2 V, 2 mA) (B) (3 V, 2 mA)
   (C) (4 V, 2 mA) (D) (4 V, 1 mA)

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click
Know More

11. A DC power supply has a no load voltage of 30 V and a full load voltage of 25 V at a full load current of 1A. Its output resistance and load regulation respectively are :

(A) 25 ohm and16.7%

(B) 5 ohm and16.7%

(C) 5 ohm and 20%

(D) 25 ohm and 20%

12. An op-amp has a slew rate of 4 V /μs. At 2 MHz the largest output sine voltage possible is :

(A) 0.5 V (B) 8.0 V

(C) 0.318 V (D) 2.0 V

13. Under which input conditions does the J-K Flip Flop toggle ?

(A) J=1, K=0 (B) J=0, K=1

(C) J=0, K=0 (D) J=1, K=1

14. If $(11X1Y)_8 = (12C9)_{16}$, then the values of X and Y respectively are :

(A) 3 and 1 (B) 5 and 7

(C) 7 and 5 (D) 1 and 5

15. The figure of merit of a logic family is given by :

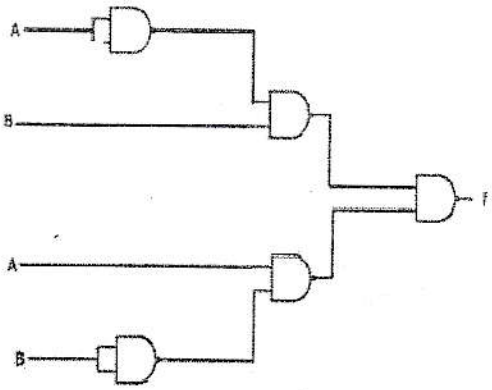
(A) (Fan Out) × (Propagation Delay)

(B) Gain Bandwidth Product

(C) (Propagation Delay) × (Power Dissipation)

(D) (Noise Margin) × (Power Dissipation)

16. The circuit shown in the figure is functionally equivalent to which one of the following ?



(A) EX-NOR Gate (B) AND Gate

(C) EX-OR Gate (D) NAND Gate

17. Grey code for decimal number '6' is equivalent to :

(A) 1110 (B) 1101

(C) 0101 (D) 1010

18. The memory allocation function which modifies the previous allocated space is :

(A) Free (B) Malloc

(C) Calloc (D) Realloc

19. Which conditional expression always returns true value ?

(A) If $(a = 1)$ (B) If $(a == 1)$

(C) If $(a = 0)$ (D) If $(a == 0)$

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click Know More

20. In C language, what is the output of the following code ?

```
int main ()
{
    int a[5] = {5, 1, 15, 20, 25};
    int i, j, m;
    i = ++a[1];
    j = a[1]++;
    m = a[i++];
    printf("%d, %d, %d", i, j, m);
    return 0;
}
```

(A) 2, 1, 15 (B) 3, 2, 15
(C) 1, 2, 5 (D) 2, 3, 20

21. How many number of times will the following DO loop be cycled ?

DO 200 JOHN = 5, 11

(A) 7 (B) 6
(C) 8 (D) 11

22. On powering up the 8051 microcontroller uses which RAM locations for register R0-R7 ?

(A) 08H – 0FH (B) 28H – 2FH
(C) 00 – 7FH (D) 00 – 07H

23. In an 8085 microprocessor the instruction CMPB has been executed while the content of accumulator is less than that of register B. As a result :

(A) Only carry flag will be set
(B) Both zero and carry flag will be set
(C) Carry flag will be reset but zero flag will be set
(D) Carry flag will be set but zero flag will be reset

24. During Mode 2 operation of 8255 which port can work as a bidirectional bus ?

(A) Port C upper (B) Port C lower
(C) Port A (D) Port B

25. The instruction MOV AX, [BX] is an example of :

(A) Direct addressing
(B) Register indirect addressing
(C) Register addressing
(D) Register relative addressing

26. Three devices A, B and C have to be connected to a 8085 microprocessor. Device A has the highest priority and device C has the lowest priority. In this context , which of the following is the correct assignment of interrupt inputs ?

(A) A uses RST5.5, B uses 6.5 and C uses TRAP
(B) A uses TRAP, B uses RST5.5 and C uses RST6.5
(C) A uses RST7.5, B uses RST6.5 and C uses RST5.5
(D) A uses RST5.5, B uses RST6.5 and C uses RST7.5

27. For a transmission line of characteristic impedace Z_0 terminated in load impedance Z_L, the reflection coefficient at the load is Γ . The ratio $\frac{Z_L}{Z_0}$ is :

(A) $\frac{1-\Gamma}{1+\Gamma}$ (B) $\frac{\Gamma}{1-\Gamma}$
(C) $\frac{1+\Gamma}{1-\Gamma}$ (D) $\frac{\Gamma}{1+\Gamma}$

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click
Know More

28. A klystron operates on the principle of :

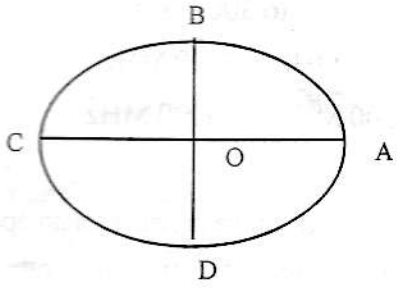
(A) Frequency modulation

(B) Velocity modulation

(C) Pulse modulation

(D) Amplitude modulation

29. In the outline of the Smith Chart shown in the figure, the normalized impedance 0+j1 correspondes to the point :



(A) D (B) B

(C) A (D) C

30. Two concentric hollow spheres of radius R_1 and R_2, $R_1 > R_2$, have respective charges Q_1 and Q_2 distributed uniformly over their surfaces. The normal component of $\vec{D}$ at a spherical Gaussian surface of radius r, $R_1 > r > R_2$ will be :

(A) $\frac{Q_2}{4\pi R_2^2}$

(B) $\frac{Q_2}{4\pi r^2}$

(C) $\frac{Q_1}{4\pi r^2}$

(D) $\frac{Q_2}{4\pi R_1^2}$

31. For a uniform plane wave at frequency 1 GHz travelling along the y-direction in a medium of dielectric constant 4, the electric field at some instant of time at a place is $\vec{E} = 3\hat{i}$ V/m. The corresponding $\vec{H}$ is :

(A) $-\frac{\hat{k}}{20\pi}$

(B) $\frac{\hat{k}}{40\ \pi}$

(C) $-\frac{3\hat{k}}{120\pi}$

(D) $\frac{\hat{k}}{20\ \pi}$

32. In frequency modulation :

(A) Pulse rate decreases

(B) Total power remains constant with respect to modulation

(C) J-coefficient are occasionally negative

(D) Carrier never becomes zero

33. A system has receiver noise resistance of 35 ohm. It is connected to an antenna with an input resistance of 25 ohm. The noise figure of the system is :

(A) 2.7 (B) 2.4

(C) 35 (D) 25

34. If C is the capacity of a noisy channel (bits/s), B is the bandwidth in Hz, and S/N is signal to noise ratio, then :

(A) $C = B\log_2 (1 + S/N)$

(B) $C = 2B\log_2 (1 + S/N)$

(C) $C = \log_2 (1 + S/N)$

(D) $C = 2B\log_{10} (1 + S/N)$

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click Know More

35. If the maximum frequency reflected from ionosphere is 18 MHz on a particular day, the maximum electron density /m^3 is :

(A) 81×10^{12} (B) 9×10^{12}

(C) 4×10^{12} (D) 2×10^{12}

36. The two transistor model of a thyristor consists of the following two transistors :

(A) One npn and other UJT

(B) Both pnp

(C) Both npn

(D) One npn and other pnp

37. An RC snubber circuit is used to protect against :

(A) Failure to turn on

(B) Switching transients

(C) Failure to commutate

(D) False triggering

38. A thyristor is reverse biased. When a positive gate pulse is applied the thyristor :

(A) May or may not turn on

(B) Will turn on after some time

(C) Will not turn on

(D) Will turn on

39. If the speed of a DC machine is doubled and flux remains a constant, the generated EMF :

(A) Is doubled (B) Remains the same

(C) Is halved (D) None of the above

40. In pulse width modulation of a chopper :

(A) T_{on} is kept constant and T is varied

(B) T is kept constant and T_{on} is varied

(C) Both T and T_{on} are varied

(D) Either T or T_{on} can be varied

41. Microwave frequency range extends from :

(A) 3 MHz to 30 MHz

(B) 30 MHz to 300 MHz

(C) 300 MHz to 3000 MHz

(D) 500 MHz to 30000 MHz

42. The bit-rate distance product for an optical fiber is 2 Gbps-km. What is the maximum rate at which data can be sent on a 5 km repeaterless link ?

(A) 10 Gbps (B) 1000 Mbps

(C) 400 Mbps (D) 200 Mbps

43. Which of the following lasers emit in the visible spectral range of 400 nm to 700 nm ?

(A) Nd-YAG Laser

(B) Nitrogen Laser

(C) Carbon Dioxide Laser

(D) Argon ion Laser

44. Most of the power measuring devices at microwaves and optical frequencies measure :

(A) Peak power

(B) Average power

(C) Instantaneous power

(D) None of the above

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click

Know More

45. The carrier frequency in a typical optical communication system is :

(A) 1000 KHz (B) 1000 MHz

(C) 1000 GHz (D) 1000 THz

46. In a Wheatstone Bridge the instrument used as null detector is :

(A) A galvanometer (B) A voltmeter

(C) An ammeter (D) A potentiometer

47. A fourth order system is characterized by the equation $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$

(A) A marginally stable system

(B) A conditionally stable system

(C) An unstable system

(D) A stable system

48. A positive feedback control system whose open loop transfer function G(s) has feedback transfer function H (s) can be replaced by a single block with transfer function :

(A) $\frac{H(s)}{1+G(s)H(s)}$

(B) $\frac{H(s)}{1-G(s)H(s)}$

(C) $\frac{G(s)}{1+G(s)H(s)}$

(D) $\frac{G(s)}{1-G(s)H(s)}$

49. For a control system if Laplace Transform of error function e(t) is given by $\frac{8(s+3)}{s(s+10)}$, then the steady state error is :

(A) Infinity (B) Zero

(C) 2.4 (D) 3.2

50. The damping ratio of a system with the following characteristics equation is : $s^2 + 2s + 8 = 0$

(A) 0.33 (B) 0.259

(C) 0.207 (D) 0.353

SEAL

Latest Sarkari Jobs, Govt Exam Results, Vacancies and updates on one click

Know More

Prepp

Latest Sarkari jobs, Govt Exam alerts, Results and Vacancies

- Latest News and Notification
- Exam Paper Analysis
- Topic-wise weightage
- Previous Year Papers with Answer Key
- Preparation Strategy & Subject-wise Books

To know more **Click Here**

www.prepp.in