17213

Instructions :   (1) *All questions are **compulsory**.*
(2) *Answer **each** next main question on a **new** page.*
(3) *Illustrate your answers with neat sketches **wherever** necessary.*
(4) *Figures to the **right** indicate **full** marks.*
(5) *Assume suitable data, if **necessary**.*
(6) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
(7) *Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall..*

Marks

1. Attempt **any ten** of the following :   **20**

   a) Define electronics. Give examples of active components.

   b) Draw the symbol of MOSFET.

   c) Write the application of Varactor Diode.

   d) State the need of multistage amplifier.

   e) Define static and dynamic resistance.

   f) Give the classification of I-C.

   g) Define filter. State its types.

   h) State the meaning of I_{dss} and $V_{gs(off)}$.

   i) Draw the symbol of Tunnel Diode and Schottky Diode.

   j) Name the examples of analog and digital IC. (Write any 1 of each).

   k) State the value of knee voltage for Si and Ge.

   l) Define variable capacitor. State its types.

2. Attempt **any four** of the following :   **16**

   a) Describe the working of Zener breakdown of Zener Diode.

   b) State the application of electronics (any 8).

   c) State the working of NPN transistor.

   d) Draw the circuit diagram of single stage amplifier ? State the function of each components.

   e) State the working of Tunnel diode.

   f) Describe the working of crystal oscillator.

3. Attempt **any four** of the following :   **16**

   a) Draw and explain the construction of LDR. Explain its working principle.

   b) Explain Zener diode as voltage regulator.

   c) Explain the FET parameters.

   d) Draw the block diagram of CE configuration with input and output characteristics.

   e) Draw DC load line on output characteristics of BJT and show different operating point on DC load line.

   f) State Barkhausen criteria for oscillator and describe its use.

4. Attempt **any four** of the following :   **16**

   a) Draw constructional diagram of Schottky diode and explain it.

   b) Explain center type F.W.R. with input output waveform.

   c) Compare BJT and FET, (any 4 points)

   d) Draw block diagram of R-C coupled amplifier.

   e) Explain the working of Π filter with its waveform generation.

   f) Define the following :
     1) Bandwidth
     2) Power gain
     3) Current gain
     4) Voltage gain.

5. Attempt **any four** of the following :   **16**

   a) Define the following :
     1) Knee voltage
     2) Peak inverse voltage
     3) Reverse saturation current
     4) Maximum forward current.

   b) Compare H.W.R. and bridge type F.W.R. (Four points).

   c) Explain transistor as a switch.

Marks

d) Explain Reverse Bias of P-N junction.

e) State the working of direct coupled amplifier with the help of its circuit diagram.

f) Name the materials which are used for LED making. State LED's applications.

6. Attempt **any four** of the following :　　　　　　　　　　　　　**16**

a) Compare PN Junction and Zener Diode. (4 points)

b) Describe Regulated power supply with block diagram.

c) State the relation between α and β. Define Q point.

d) Explain Astable multivibrator with its circuit diagram.

e) Draw the transfer characteristics of JFET and explain its significance.

f) An A.C. supply of 230 V is applied for F.W.R. through a transformer of turn's ratio 2 : 1 calculate
  i) Direct current output voltage
  ii) PIV of diode.

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