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B.Sc.– II (Semester – III) (New) (CBCS) Examination, 2018
ELECTRONICS (Paper – V)
Electronics Circuits

Day and Date : Tuesday, 8-5-2018
Time : 10.30 a.m. to 1.00 p.m.

Max. Marks : 70

- Instructions :** 1) **All** questions are **compulsory** and carry **equal** marks.
2) Figures to the **right** indicate **full** marks.
3) **Use** of log table and calculator is **allowed**.
4) Draw **neat** labeled diagram **whenever** necessary.

1. Select the **correct** alternative from the following. **14**
- 1) The ripple factor of center tapped full wave rectifier is _____
a) 0.812 b) 0.356 c) 0.483 d) 1.21
 - 2) Applying dc supply of proper polarity and magnitude is called as _____
a) Amplification b) Rectification
c) Filtering d) Biasing
 - 3) Practical value of voltage gain for the common collector amplifier is _____
a) Zero b) Unity
c) Greater than unity d) None of these
 - 4) Gain of the amplifier _____ with negative feedback.
a) Decreases b) Increases
c) Remain same d) None of these
 - 5) In phase shift oscillator, each RC network introduces _____ phase shift.
a) 60° b) 30° c) 120° d) 90°
 - 6) Capacitor is tapped in _____ oscillator.
a) Hartley b) Wien bridge
c) Colpitt's d) Phase shift

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- 3) What is power amplifier ? Give its classification.
 - 4) Compare positive feedback and negative feedback.
 - 5) What is Barkhausen criterion for sustained oscillations ?
 - 6) Draw equivalent diagram of Piezo electric crystal.
 - 7) In an amplifier with negative feedback $A_v = 20$ and $\beta = -0.2$. Calculate gain with feedback.
 - 8) Give important features of Class-C power amplifier.
 - 9) Enlist different methods of transistor biasing.
3. A) Attempt **any two** of the following : **10**
- 1) Explain the fixed bias method of transistor biasing. State the expression for stability factor.
 - 2) In Hartley oscillator $L_1 = 30\mu H$, $L_2 = 10\mu F$ and $C = 100pF$. Calculate the frequency of oscillation and feedback factor β .
 - 3) Explain the action of Zener diode as regulator.
- B) With suitable diagram explain Darlington pair amplifier. **4**
4. Attempt **any two** of the following : **14**
- 1) Explain the working of center tapped full wave rectifier with necessary wave forms. Derive an expression for average value of output voltage.
 - 2) With graphical representation explain the action of Class - A power amplifier. State five features of it.
 - 3) What is feedback ? Give their types. Derive an expression for gain of amplifier with negative feedback. State the advantages of negative feedback.
5. Attempt **any two** of the following : **14**
- 1) Explain working of phase shift oscillator. Calculate the frequency of oscillations for it if $R = 10 K\Omega$ and $C = 0.1 \mu F$.
 - 2) Explain voltage divider bias and derive the expression for stability factor.
 - 3) With suitable circuit diagram explain dc coupled amplifier. Draw its frequency response. State its advantages and applications.

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